Appendix 5 Pre-Discharge Monitoring Program – Sediment Quality and Benthic Community Technical Volume

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EcoNomics

CAPITAL REGIONAL DISTRICT

CRD Core Area Wastewater Treatment Program Pre-Discharge Monitoring Program

Sediment Quality and Benthic Community Technical Volume

307071-00020 – 0003

15 February 2013

WorleyParsons Canada
100, 3795 Carey Road
Victoria, BC V8Z 6T8 CANADA
Phone: +1 250 384 1499
Facsimile: +1 250 384 1201
www.worleyparsons.com

PROJECT 307071-00020 - CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM

REV	DESCRIPTION	ORIG	REVIEW	WORLEY-PARSONS APPROVAL	DATE	CLIENT APPROVAL	DATE
A	Issued for review	B. Barber /P.Howland	D. Jackson	J. Clarke	5-Feb-13	CRD	dd-mmm-yy
B	Issued for QARR	B.Barber /P.Howland	B. Burd	J. Clarke	6-Feb-13	CRD	
0	Issued for final	B. Barber /P. Howland	D. Jackson	J. Clarke	15-Feb-13		

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EXECUTIVE SUMMARY

The Capital Regional District (CRD) is planning to implement secondary wastewater treatment for the CRD core area. Proposed treatment and disposal options involve the discharge of treated effluent to the marine environment. In 2010, the CRD commissioned a pre-discharge monitoring program to provide site specific data for the Stage 2 Environmental Impact Study under the BC Municipal Wastewater Regulation (MWR). This study will provide baseline data for comparison with future monitoring surveys conducted after construction and commissioning of a new deep-sea outfall at McLoughlin Point, off southern Victoria, BC.

This study presents the results of the pre-discharge characterization of sediment quality and benthic infaunal conditions. Other component studies of the EIS are reported on separately, and include characterization of water quality, current profiles, an outfall siting study, dilution and dispersion modelling and a recommended receiving environment monitoring program. The pre-discharge monitoring program included the collection of sediment samples for sediment chemistry analysis and benthic infauna identification and community analysis. Sediment quality and benthic infauna samples were collected by WorleyParsons in the fall of both 2010 and 2011 and the CRD in the fall of 2011. In 2010, sediment samples were collected by WorleyParsons in the vicinity of Albert Head and in 2011 sediment was sampled in the vicinity of the existing Macaulay Point outfall and proposed McLoughlin Point outfall and reference locations.

Sediment samples were analyzed for a comprehensive suite of analytes including:

- Fecal Coliform;
- Acid Volatile Sulphide and Simultaneous Extractable Metals
- Total Organic Carbon;
- Total Carbon;
- Moisture;
- Total Phosphorus;
- Total Trace Metal Suite;
- Polycyclic Aromatic Hydrocarbons;
- Organochlorinated Pesticides;
- Chlorinated Phenolics;
- Volatile Organic Compounds (VOCs including BTEX);
- Phthalates;
- Polybrominated Diphenyl Ethers;

- Polychlorinated Biphenyls;
- Nonylphenol & its Ethoxylates;
- Pharmaceutical and Personal Care Products;
- Marine Amphipod Sediment Toxicity;
- Marine Polychaete Sediment Toxicity; and,
- Marine Polychaete Sediment Bioaccumulation

Results were compared to applicable provincial contaminated sites criteria and national CCME marine sediment quality guidelines where available. Marine sediment guidelines and/or criteria exist for; seven total metals, 14 PAHs, ten organochlorinated pesticides, pentachlorophenol and five PCBs. The remaining analytes have no relevant provincial sediment quality criteria or federal sediment quality guidelines. Four total metals and 14 PAHs exceeded sediment quality guidelines and/or criteria at stations east of the existing Macaulay Point outfall. There were no sediment quality guideline and criteria exceedances measured at the reference stations at Finnerty Cove and Parry Bay.

Total metal concentrations of chromium, lead and zinc were within sediment quality provincial criteria and federal guidelines. Total metal criteria and guidelines were exceeded for arsenic, cadmium, copper and mercury. Cadmium concentrations exceeded the BC MOE contaminated sites criteria (sensitive) at two stations in the vicinity of the proposed outfall and the CCME PEL guideline at a single station in the vicinity of the proposed outfall. Concentrations of arsenic, copper and mercury were measured above the CCME ISQG, but below the less stringent CCME PEL and below both the BC MOE contaminated sites criteria.

All 14 PAHs with criteria and/or guidelines had sediment quality exceedances. PAH criteria and guideline exceedances were measured at all of the stations within the vicinity of the proposed outfall. Highest concentrations and the largest number of exceedances were measured at stations M1600SE and M2E.

Measured PCBs with sediment quality criteria and/or guidelines (aroclor 1254 and total PCBs) were less than their detection limits and within the sediment quality limits and all stations. Organochlorinated pesticides were measured below sediment quality criteria and/or guidelines or below the method detection limits. Pentachlorophenol concentrations were within sediment quality criteria.

Toxicity and bioaccumulation tests were completed on samples collected from eight sampling stations. Results found a statistically significant decrease in mean survival in sediment samples from three stations within 800 m of the Macaulay point outfall as compared to the laboratory control, for the *Eohaustorius estuaries* 10-day survival test. No statistically significant difference in mean survival between the test sediments and the laboratory controls were observed in a *Neanthes arenaceodentata* 20-day growth and survival test. However, statistically significant decreases in mean individual dry weights and mean growth rates were measured between the laboratory control test sediments from five stations within the vicinity of the proposed outfall.

The bioaccumulation test determines the bioaccumulation potential of contaminants in polychaete *Nereis virens*. Concentrations of arsenic and copper (in the polychaetes) were lower than the T=0 concentrations

at all stations. Concentrations of cadmium were higher at stations M1E and the reference station PB1 in comparison to T=0, while all other cadmium concentrations were either lower or showed no statistical difference between the T=0 and the 28 day result. Mercury concentrations were below the detection limit of the analysis for all REM stations, and no statistical differences in the Mercury concentrations were measured as compared to T=0. Concentrations of cadmium were slightly higher in the M1E, M2E, M8E and the reference station PB1 test results in comparison to the T=0 results.Benthic infaunal samples were collected and analyzed for all of the sediment samples. Summary biotic factors calculated for the 2010 Albert Head and 2011 stations included abundance of all size groups, abundance of major taxonomic groups, number of taxa, organic biomass, production and mean organism size, sampling precision, the Shannon-Weiner (H'), Simpson's (1-D) and the Swartz Dominance Index (SDI). In addition, comparisons were made of summary abundance; biomass and taxa number overall for the 2010 Albert Head data, 2011 pre-discharge data and historical Macaulay Point monitoring data (M1E, M2E, M8E and PB1). Production/biomass estimates for each sample location were calculated and compared with predicted ranges for similar habitats, as well as 95th percentile values for 30-90 m depth from the Strait of Georgia/Juan de Fuca background database were compared with values for all 2010 and the 2011 stations. Cluster analyses using Bray-Curtis similarity , along with significance and power testing of cluster groups were applied to total abundance, total organic biomass composition, trophic composition and size class composition for all samples, as well as for abundance composition for just the 4 historical Macaulay Point monitoring stations from 2003-2011.

Comparison of the Albert Head 2010 and Macaulay/McLoughlin Point 2011 data showed that fauna were not significantly distinct between stations within each survey area, but were clearly distinct between the two survey areas. In addition, based on the existing sampling methodologies, it could be concluded that faunal composition has not changed significantly in the four historical CRD stations since 2003. The 2011 faunal composition, abundance, biomass, taxa number, and contribution from the smallest and largest fauna were different from that of the Albert Head 2010 samples. As a result, most of the 2011 samples were below 95th percentile thresholds for biomass and production. These differences are likely due to variations in sampling methodology between the two studies rather than solely attributable to the outfall discharge.

The benthic faunal patterns and composition were not predictable by either natural habitat conditions, or by sediment metals. Most of the stations had metal contaminant levels within expected background ranges, except for the two 2011 stations closest to the Macaulay Point outfall (M1E and M2E). Biotic effects are potentially possible in this region, depending on the history of deposition. This suggests that infaunal structure in the overall region should be relatively homogeneous.

The quality assurance and quality control (QA/QC) assessment of sediment chemistry data was guided by the data quality objectives (DQOs) outlined in the *Report on Wastewater and Marine Environment Programs Quality Assurance and Quality Control Analytical Program Review*, with reference to the *British Columbia Field Sampling Manual*. The QA/QC assessment included sample representativeness, replicate precision and analytical bias. The majority of results achieved the recommended data quality objectives. Marginal and severe failures of data quality objectives were flagged within the reported analytical results.

The 28-day *N. virens* bioaccumulation test, 10-day *E.estuaries* survival and reburial toxicity test and the 20-day *N. arenaceodentata* growth and survival toxicity test were considered valid as the QA/QC passed the test validity criteria.

For the 2010 Albert Head samples, Biologica Environmental Services conducted laboratory QC procedures for both sorting efficiency and identification accuracy. The estimated mean sorting efficiency was estimated to be approximately 95%, thus no resorting was performed. For the 2011 McLoughlin Point samples, Benthic Services Group conducted laboratory QA/QC procedures for sorting, species identification and enumeration, as well as comparison to their taxonomic reference collection. Sorting efficiencies were calculated for all QA/QC samples and exceeded the 95% sorting efficiency criterion, with values of 97% or higher. Taxonomic QA/QC was achieved by comparing unusual specimens with the in-house reference collections maintained by Benthic Services Group.

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List of Acronyms

AVS	ACID VOLATILE SULPHIDES
BC	BRITISH COLUMBIA
BTEX	BENZENE, TOLUENE, ETHYLBENZENE AND XYLENE
CCME	CANADIAN COUNCIL OF MINISTERS OF THE ENVIRONMENT
COA	CERTIFICATES OF ANALYSIS
COC	CHAIN OF CUSTODY
CRD	CAPITAL REGIONAL DISTRICT
DQO	DATA QUALITY OBJECTIVE
DGPS	DIFFERENTIAL GLOBAL POSITIONING SYSTEM
DL	DETECTION LIMIT
EIS	ENVIRONMENTAL IMPACT STUDY
EQUIS	ENVIRONMENTAL QUALITY INFORMATION SYSTEM
GPS	GLOBAL POSITIONING SYSTEM
ISQG	INTERIM SEDIMENT QUALITY GUIDELINE
MOE	MINISTRY OF ENVIRONMENT
OC	ORGANOCHLORINATED PESTICIDES
PEL	PROBABLE EFFECTS LEVEL
PPCP	PHARMACEUTICAL AND PERSONAL CARE PRODUCTS
PAH	POLYCYLIC AROMATIC HYDROCARBON
PCB	POLYCHLORINATED BIPHENYLS
PBDE	POLYBROMINATED DEPHENYL ETHERS
PPCP	PHARMACEUTICAL AND PERSONAL CARE PRODUCT
QA	QUALITY ASSURANCE
QA/QC	QUALITY ASSURANCE / QUALITY CONTROL
QC	QUALITY CONTROL
REM	RECEIVING ENVIRONMENT PROGRAM

RPD	RELATIVE PERCENT DIFFERENCES
RSD	RELATIVE STANDARD DEVIATION
RV	RESEARCH VESSEL
SDI	SWARTZ DOMINANCE INDEX
SEM	SIMULTANEOUSLY EXTRACTABLE METALS
TC	TOTAL CARBON
TEL	THRESHOLD EFFECTS LEVEL
TOC	TOTAL ORGANIC CARBON
TP	TOTAL PHOSPHORUS
TTMS	TOTAL TRACE METAL SUITE
USEPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
VOC	VOLATILE ORGANIC COMPOUNDS
WMEP	WASTEWATER AND MARINE ENVIRONMENT PROGRAM
WWTP	WASTEWATER TREATMENT PLANT

1. INTRODUCTION

This report summarizes the pre-discharge sediment quality monitoring conducted on behalf of the Capital Regional District (CRD) as part of the CRD Core Area Wastewater Treatment Project near Victoria, BC (Figure 1).

1.1 Pre-Discharge Monitoring Background and Objectives

The CRD is planning to implement secondary wastewater treatment for the CRD core area. Proposed treatment and disposal options involve the discharge of treated effluent to the marine environment. As part of the Environmental Impact Study (EIS) for the discharge, the CRD undertook a pre-discharge monitoring program.

The monitoring program was established for Stage 2 of the EIS to collect site specific baseline data as required by the British Columbia (BC) Ministry of Environment (MOE). This program included the collection of the following site specific biological, chemical and physical characteristics:

- benthic chemistry;
- benthic bioaccumulation;
- benthic toxicity;
- benthic infauna;
- water quality;
- water column profiles; and,
- current profiles.

The pre-discharge monitoring program was initiated in May 2009, by Golder Associates Ltd (Golder 2009a and 2009b). At program start-up, CRD anticipated constructing up to two wastewater treatment facilities; one in East Saanich that would discharge effluent via a new outfall offshore of Finnerty Cove and a second treatment facility in Colwood that would discharge effluent via a new outfall offshore of Albert Head. The pre-discharge monitoring program, involving water quality and water column profiles, was initiated at Finnerty Cove and Albert Head near the anticipated point of discharge of the two new outfalls. In the fall of 2010 pre-discharge benthic samples were collected near Albert Head.

Since the program was initiated, the treatment strategy was modified to a single treatment plant at McLoughlin Point in Esquimalt. Effluent from the plant will be discharged through a new outfall terminating in the vicinity of the existing Macaulay Point outfall. The scope of the monitoring program was modified to account for these project changes. In the fall of 2011 sediment samples were collected near the proposed McLoughlin Point terminus (near Macaulay Point) and at two reference stations near Finnerty Cove.

1.2 Sediment Study Objective

The objective of this study is the pre-discharge characterization of sediment quality and benthic infaunal conditions. Results of the study will provide site specific data for the Stage 2 EIS and will be used for comparison with future monitoring surveys conducted after construction and commissioning of a new deep-sea outfall off McLoughlin Point, off southern Victoria, BC.

The sediment study portion of the EIS was designed to identify sensitive habitats and pre-existing benthic impoverishments (such as from the existing Macaulay Point outfall) which may be exacerbated by a future outfall discharge, or which may affect the interpretation of discharge influence after commissioning of the new outfall. A basic on-going monitoring survey of sediment benthos will be required.

1.3 Sediment Quality and Sediment Infaunal Background

The proposed McLoughlin Point outfall is expected to terminate approximately 150 m east of the existing Macaulay Point diffuser (Figure 2). The sediment pre-discharge monitoring program design incorporated far-field sampling locations related to the existing historical monitoring gradient for the Macaulay Point outfall. Therefore, historical faunal data are relevant for comparison with the new baseline survey. The 2011 pre-discharge survey focused on in-filling of offshore locations to the east of the existing Macaulay Point outfall, based on the fact that this is the prevailing current direction during flood tide. Stations were selected to be within a similar depth range (50-65 m) to the existing monitoring grid. The historical reference (Parry Bay) monitoring stations just west of Albert Head provide additional context for comparison with the 2011 data, as they are within a similar embayment along the Juan de Fuca coastline south of Victoria. Finally, survey data collected farther to the east in 2010 near Albert Head provided additional useful background or reference data with which to compare the new baseline survey.

This report focuses primarily on data collected in 2011, including the historic Macaulay Point receiving environment monitoring (REM) data. Albert Head data from 2010 were available for analysis and comparison with the 2011 data. The sediment sample locations for both the 2010 and 2011 surveys are shown in Figures 3 to 5.

Several Pb_{210} dated cores taken near the Macaulay Point outfall as well as in Parry Bay (described in Dinn 2012) are also critical components providing information on background sediment fluxes and historical geochemistry patterns. It is expected that some of the baseline survey stations will show influences from the existing Macaulay Point outfall, which further emphasizes the need for far-field background or regional data.

Analyses were based initially on the assumption that the background fauna in these areas are healthy and sustainable. This was examined by comparing basic biological factors from the sample areas (various abundance, biomass, diversity and species richness measures) with background thresholds calculated from the larger BC coastal database (Burd et al. 2008, 2009), as well as background data from the Macaulay Point REM surveys. This also included a comparison of the 2010 and 2011 data with background sediment production and organic biomass from similar habitat conditions (depth, substrate type and organic flux/quality) in the Strait of Georgia, and as far as Parry Bay and Victoria Harbour in Juan de Fuca Strait (Burd et al. 2012a).

2. METHODOLOGY

2.1 General

Sediment samples were collected for sediment chemistry analysis, benthic infauna identifications and community analyses. Sediment quality and benthic infauna samples were collected by WorleyParsons in the fall of 2010 (September 27–30) and both WorleyParsons and the CRD in 2011 (September 20–29).

In 2010, WorleyParsons collected baseline sediment samples at 13 stations in the vicinity of Albert Head. In 2011, WorleyParsons collected sediment and benthic infaunal samples at six stations in the vicinity of the proposed McLoughlin Point outfall and at two stations at a reference location, Finnerty Cove. In 2011, the CRD collected sediment samples in accordance with their REM program for the Macaulay Point outfall. The CRD collected concurrent benthic infaunal samples at three of the historical Macaulay Point outfall REM stations and one Parry Bay reference station. These sample stations are historically used by the CRD as part of their REM program; however for the purposes of this report, the 2011 data will be analyzed as part of the pre-discharge monitoring program for the McLoughlin Point outfall due to its proximity to the proposed McLoughlin Point discharge location.

Sediment samples collected at Albert Head in 2010 were part of pre-discharge monitoring for a proposed wastewater treatment plant (WWTP) and outfall discharging off Albert Head. The Albert Head WWTP option was eliminated in 2010 and as such, the treatment strategy shifted focus to a proposed treatment plant at McLoughlin Point. As a result, pre-discharge monitoring shifted to the proposed McLoughlin Point outfall. The Albert Head stations were therefore abandoned in 2011.

This study is intended to provide pre-discharge sediment quality data specifically for the proposed McLoughlin Point discharge; therefore, the results of the data collected at the abandoned Albert Head stations are not discussed in relation to the sediment chemistry data. The 2010 data are discussed in association with benthic infauna analyses, as they provide valuable reference data for comparison with the 2011 data. Sediment stations in the vicinity of McLoughlin Point are identified with a prefix M, while sediment stations in the vicinity of Finnerty Cove and Parry Bay are identified with a prefix of FC and PB respectively. Albert Head stations are numbered 1-13 and do not have a prefix. The locations of the sampling stations are shown in Figures 3 to 5 and coordinates of the stations sampled are provided in Table A.

Table A Sediment Sampling Stations, Coordinates 2010-2011

Stations	Longitude	Latitude
2010[1] – Albert Head[2] – Pre-Discharge Monitoring Stations		
1	48˚ 22.779	123˚ 27.609’
2	48˚ 23.019	123˚ 28.116’
3	48˚ 22.776	123˚ 28.464’
4	48˚ 22.699	123˚ 29.072’
5	48˚ 22.668	123˚ 28.196’
6	48˚ 22.595	123˚ 27.805’
7[3]	48˚ 22.526	123˚ 28.322’
8	48˚ 22.524	123˚ 28.779’
9	48˚ 22.303	123˚ 29.106’
10	48˚ 22.617	123˚ 26.995’
11	48˚ 22.275	123˚ 27.978’
12	48˚ 22.370	123˚ 28.767’
13	48˚ 21.757	123˚ 28.589’
2011–Macaulay Point/Parry Bay – Receiving Environment Monitoring Stations		
M1E	48˚ 24.158’	123˚ 24.516’
M2E[3]	48˚ 24.158’	123˚ 24.436’
M8E	48˚ 24.159’	123˚ 23.988’
PB1	48˚ 21.258’	123˚ 30.647’
2011 – Finnerty Cove – Pre-Discharge Monitoring Stations		
FC3500NE	48˚ 30.106’	123˚ 16.704’
FC4000ENE	48˚ 29.154’	123˚ 14.836’
2011 – McLoughlin Point – Pre-Discharge Monitoring Stations		
M500SE	48˚ 23.817’	123˚ 24.439’
M800NE[3]	48˚.24.420’	123˚ 24.070’
M1300E	48˚ 24.157’	123˚ 23.554’
M1400ESE	48˚ 23.966’	123˚ 23.566’
M1600SE	48˚ 23.550’	123˚ 23.639’
M2300ESE	48˚ 23.905’	123˚ 22.828’

1. Results from the 2010 work are not discussed in detail in this report, however the data is associated with the benthic infauna community analysis and discussed in general.

2. Stations later abandoned.

3. Triplicates taken at this station.

The individual sampling dates for each of the sediment sampling events are provided in Table B.

Table B Schedule of 2010 – 2011 Pre-discharge Field Data Collection

Year	Sampled By	Stations	Date
2010	WorleyParsons	1	September 29
		2	September 28
		3	September 30
		4	September 29
		5	September 29
		6	September 28
		7	September 30
		8	September 29
		9	September 29
		10	September 27
		11	September 27
		12	September 30
		13	September 27
2011	CRD	M1E	September 21 & 22
		M2E	September 21 & 22
		M8E	September 22
		PB1	September 20 & 22
2011	WorleyParsons	FC3500NE	September 27
		FC4000ENE	September 27
		M500SE	September 28
		M800NE	September 29
		M1300E	September 29
		M1400ESE	September 28
		M1600SE	September 28
		M2300ESE	September 28

2.2 Survey Vessel

The pre-discharge sediment sample collection was conducted from the 20 m *RV Richardson Point.* This vessel has been successfully used by the CRD for the Macaulay Point and Clover Point outfall REM programs. The vessel crew have extensive experience with sediment sampling and the vessel is outfitted with the appropriate hydraulic winches, cranes and A-frames for this type of work.

2.2.1 Vessel Position and Station Keeping

Positioning of the vessel was the responsibility of the skipper and was determined using the vessel's navigation system. The *Richardson Point* is equipped with a 12 channel Differential Global Positioning System (DGPS) utilizing a Sperry gyroscope multiplexed into the ship's computer. The computer runs an advanced vessel position and digital charting system that was custom developed to provide accurate position fixing. The coordinates of each sampling station was entered into the navigation system of the vessel and as backup, a second GPS was fed into a laptop computer running Fugawi navigational software.

Samples were collected as close to the intended station as feasible. This was achieved using the drift of the vessel, as dictated by the wind and tidal current. The vessel was positioned up-drift of the station prior to the deployment of the sampler. As the vessel approached the station, the sampler was deployed prior to arrival on station. Once on station, corrections were made to minimize wire-angle and then the sampler was triggered when the vessel drifted over the intended station, to obtain the samples on station.

2.3 Data Collected

Field data sheets for the sediment samples collected are included in Appendix 1. Certificates of Analysis (COA) reports coupled with Chain of Custody (COC) forms are provided in Appendix 2. Photographs of field processing and all sediment samples (pre and post sieving) are included in Appendix 3.

2.4 Sediment Chemistry Sampling

Sediment samples were collected during September 20 to 29, 2011. Sediment sampling was conducted in accordance with the *British Columbia Field Sampling Manual* (MWLAP 2003). The 2010 sediment data is not discussed in regards to chemistry analysis.

2.4.1 Sample Collection and Handling

In 2010, sediment chemistry samples were collected at 13 stations in the vicinity of Albert Head (Table A) using a single 0.1 m^2 stainless steel Van Veen sediment grab sampler. In 2011, sediment chemistry samples were collected at eight pre-discharge monitoring stations and four REM stations (Table A) using a double Van Veen, each Van Veen with an area of 0.1 m^2.

The single and double Van Veens have mesh screens on the top that allowed water to flow freely during descent. The rubber flaps that cover the outer mesh screen reduced sediment disturbance during retrieval. The hinged top screens allowed access to the sediments without having to empty the contents

of the grab. The Van Veens were attached to an overhead boom by a length of cable and a steel shackle. A double Van Veen is two Van Veen samplers attached together, allowing for the deployment of both Van Veen samplers at the same time, resulting in the collection of sediment at the same depth and location. Double Van Veen casts were used for microbiology and chemistry grab samples, as well as chemistry composite samples. A double Van Veen improves the efficiency of collecting the necessary volume of sediment required for sediment chemistry analysis, by reducing the number of sediment casts and allowing for concurrent sediment chemistry and toxicity samples.

In 2010, between three and 12 casts of the single Van Veen were collected at each station, depending on the analysis being conducted and volume of sediment required. In 2011, between two and five acceptable double Van Veen casts were collected at each station, depending on the analysis being conducted and volume of sediment required. A triplicate sample was collected at one station in 2010 (station 7) and two stations in 2011 (M800NE and M2E).

Photo A Double Van Veen Configuration

The Van Veen was deployed within approximately 5 m of the seabed when the vessel was up-drift of the station. Once the vessel was on station with no wire angle, the grab was lowered until it touched the seabed and closed.

Acceptable criteria for the Van Veen grabs were as follows:

- Sediment appeared undisturbed with no signs of wash-out;
- Sample volumes were greater than 50%;
- Sample volumes were nearly equal (within approximately 10%, by visual inspection); and,
- Samples appeared to be similar in colour, texture and smell.

Field staff wore a new pair of nitrile gloves between stations and individual Van Veen casts. Upon retrieval of a successful grab, the excess water was siphoned from the Van Veen using surgical tubing. Once a sufficient amount of water had drained, photographs were taken of both the sample and a whiteboard labelled with the station, grab number and date. Qualitative characteristics (sediment colour, texture, odour, debris and biological material) were described on a field data sheet (Appendix 1). Samples were collected for sediment-microbiology (grab), sediment-chemistry (grab and composite) and benthic infauna grab. See Section 2.4.2 for details. For the purposes of this report, the 2010 sediment chemistry data is not included as this data was used as background data for the comparison of the 2010 and 2011 benthic infauna samples.

2.4.2 Analytical Parameters

Depending on the station, sediment samples were analyzed for up to eight parameter groups:

- Microbiological;
- Nutrients;
- Physical;
- Acid Volatile Sulphides (AVS)/ Simultaneous Extractable Metals (SEM);
- Trace metals;
- Organics (Group 1 and 2); and,
- Bioassay and bioaccumulation.

Samples were packaged in lightproof coolers containing freezer packs and sent to Maxxam Analytics (herein referred to as Maxxam) in Victoria and AXYS Analytical Services (herein referred to as AXYS) in Sidney, BC under COC for analysis. Upon receipt of the samples, Maxxam loged the samples, applied labels and stored them in fridges (between 2 – 6 ˚C) prior to analysis and stored sediment samples in a freezer prior to shipment to AXYS (*Pers. Comm.* D. Nordbruget 2013). After analysis, sediment samples in the Victoria Maxxam were kept at room temperature after analysis until disposal. Samples were delivered to Maxxam within the acceptable hold times. Analytical methods are reported in the Maxxam Certificate of Analysis (COA) and AXYS Analysis Report provided in Appendix 2. Table C identifies the analyses conducted in each parameter group. Table D identifies the sample bottle size, and the specific parameter type tested at each station.

Table C Sediment Quality Parameters

Parameter Group	Analysis
Microbiological	Fecal Coliform
AVS/SEM	AVS SEM
Physical	Particle Size Total Organic Carbon (TOC) Total Carbon (TC) Moisture
Nutrients	Total Phosphorus (TP)
Trace Metals	Total Trace Metal Suite
Organics (Group 1)	Polycyclic Aromatic Hydrocarbons (PAHs) Organochlorinated Pesticides (OC) Chlorinated Phenolics Volatile Organic Compounds (VOCs) including benzene, toluene, ethylbenzene and xylene (BTEX) Phthalates Polybrominated Diphenyl Ethers (PBDEs)
Organics (Group 2)	Polychlorinated Biphenyls (PCBs) Nonylphenol & its Ethoxylates Pharmaceutical and Personal Care Products (PPCPs)
Bioassay and Bioaccumulation	Marine Amphipod Sediment Toxicity Marine Polychaete Sediment Toxicity Marine Polychaete Sediment Bioaccumulation

Sediment-Microbiology Grab Samples

Sediment-microbiological samples were collected prior to the collection of sediment chemistry grab and composite samples. Microbiological grab samples were collected at each 2011 WorleyParsons sediment station and were analyzed for fecal coliforms (Table D). Microbiological grab samples were not collected at the four 2011 CRD sediment stations (Table D). Microbiological samples were collected from one of the Van Veen samplers used for sediment analysis. A pre-sterilized stainless-steel spoon was used to fill sterilized 120 mL glass jars supplied by Maxxam.

Sediment-Chemistry Grab Samples

After microbiological samples were removed from each Van Veen sampler, sediment-chemistry grab samples were obtained from the top 2 cm of sediment from one of the Van Veen samplers designated for sediment analysis. Sediment was removed using a pre-sterilized stainless-steel spoon. Sediment-chemistry grab samples were collected at each 2011 WorleyParsons sediment station; however, the

same parameters were not analyzed at each station (Table D). AVS and SEM metals were analyzed at each station, while VOCs including BTEX was sampled at all stations except for FC4000ENE, M1300E and M500SE. All the parameters within the sediment-chemistry grab category were collected at every 2011 CRD sediment station (Table D). The sediment chemistry grab samples were deposited into two 120 mL glass jars supplied by Maxxam.

Sediment-Chemistry Composite Samples

After both sediment-microbiology and sediment-chemistry samples were removed from the grab, sediment-chemistry composite samples were taken. The upper 2 cm of sediment from each of the remaining Van Veens was removed at each site using a pre-sterilized stainless-steel spoon and placed in a pre-cleaned, round bottom stainless-steel bowl. These same-station samples were mixed thoroughly by stirring until the colour and the texture of the sediment in the bowl appeared homogenous. Sediment-chemistry composite samples were collected at each of the WorleyParsons and CRD 2011 stations; however the same parameters were not analyzed at each station. Table D describes the bottle type and the specific parameters analyzed at each station for the sediment-chemistry composite samples.

2.5 Sediment Bioaccumulation and Toxicity

Bioaccumulation and toxicity tests were conducted on sediment samples collected at stations; M1400ESE, FC3500NE, M800E in triplicate (T1000, T2000), PB1, M1E, M2E, and M8E.

2.5.1 Bioaccumulation

A 28-day *Nereis virens* polychaete bioaccumulation test was performed, following the United States Environmental Protection Agency (USEPA) test method described in *Guidance Manual: Bedded Sediment Bioaccumulation Tests (EPA/600R-93/183); ASTM 2000, Standard Guide for Determination of the Bioaccumulation of Sediment-Associated Contaminants by Benthic Invertebrates (E1688-00a).* Table D describes the bottle type and the specific stations the bioaccumulation test was conducted.

The bioaccumulation test determines the bioaccumulation potential of contaminants in *Nereis virens.*

2.5.2 Toxicity

Ten and 20-day marine amphipod survival tests were performed on all nine of the sediment samples. The test descriptions are as follows:

- *Eohaustorius estuaries* 10-day survival test, following Environment Canada's test method described in Biological Test Method: Reference Method for Determining Acute Lethality of Sediment to Marine or Estuarine Amphipods, EPS 1/RM/35.
- *Neanthes arenaceodentata* 20-day growth and survival test, following USEPA and Puget Sound Estuary Program, Recommended Guidelines for Conducting Laboratory Bioassays on Puget Sound Sediments: Juvenile Polychaete Sediment Bioassay (1995).

Table D describes the bottle type and the specific stations the toxicity tests were conducted for.

Table D 2011 Sediment Sampling – Parameters and Bottle Size by Station

Sample Type	Bottle Type	Parameter	M1E	M2E	M8E	PB1	FC3500NE	FC4000ENE	M500SE	M800NE	M1300E	M1400ESE	M1600SE	M2300ESE
Sediment-Microbiology Grab	120 mL Glass Jar	Fecal Coliform					X	X	X	X	X	X	X	X
Sediment-Chemistry Grab	120 mL Glass Jar	AVS	X	X	X	X	X	X	X	X	X	X	X	X
	Same Jar as AVS	SEM	X	X	X	X	X	X	X	X	X	X	X	X
	120 mL Glass Jar	VOCs including BTEX	X	X	X	X	X			X		X	X	X
Sediment-Chemistry Composite	Plastic Bag	Particle Size	X	X	X	X	X	X	X	X	X	X	X	X
	120 mL Glass Jar	TOC	X	X	X	X	X	X	X	X	X	X	X	X
	Same Jar as TOC	TC					X	X	X	X	X	X	X	X
	Same Jar as TOC	Moisture	X	X	X	X	X			X		X	X	X
	120 mL Glass Jar	Total Trace Metal Suite (TTMS)	X	X	X	X	X	X	X	X	X	X	X	X
	Same Jar as TTMS	TP	X	X	X	X	X	X	X	X	X	X	X	X
	120 mL Glass Jar	PAHs	X	X	X	X	X			X		X	X	X
	Same Jar as PAHs	Phthalates	X	X	X	X	X			X		X	X	X
	120 mL Glass Jar	Organochlorinated Pesticides	X	X	X	X	X			X		X	X	X
	120 mL Glass Jar	Chlorinated Phenolics	X	X	X	X	X			X		X	X	X
	250 mL Amber Glass Jar	PBDEs	X	X	X	X	X			X		X	X	X
	120 mL Glass Jar	PCBs					X			X		X		
	250 mL Amber Glass Jar	Nonylphenol and its Ethoxylates	X	X	X	X	X			X		X		
	Plastic Soil Jar	PPCP					X			X		X		
	1 L Plastic Pail	Marine Amphipod and Marine Polychaete Toxicity	X	X	X	X	X			X		X		
	7 – 1L Plastic Pail	Marine Polychaete Bioaccumulation	X	X	X	X	X			X		X		

2.6 Benthic Infauna Samples

In 2011, the CRD collected benthic infauna samples at four stations. In 2010 and 2011, WorleyParsons collected benthic infauna samples at 13 and eight sites respectively. Sample collection and field processing were conducted by the CRD and WorleyParsons separately. Once field processing was complete, the samples were transported together to the taxonomic laboratory for sorting, enumeration, precision analysis, quality assurance and quality control (QA/QC) and taxonomic identification.

2.6.1 Sample Collection

In 2010 and 2011, benthic infauna samples were collected at each sediment-chemistry station from four dedicated Van Veen (single grab) sediment casts. The total volume of each benthic invertebrate grab sampler was 0.1 m^2 per cast. Three of the four casts were used for analyzing spatial variance in benthic infauna composition, while the fourth cast was archived for later use in the event of low precision between replicates for that station. Benthic infauna grab samples were assessed against acceptability criteria described in Section 2.4.1 before they were processed in the field.

Each grab sample was photographed and the qualitative characteristics (sediment colour, texture, odour, debris and biological material) were described on a field data sheet (Appendix 1). Once the sample was photographed and characterized, sediments from the grab were transferred into a large plastic container for processing where another photograph was taken. Photographs of the sediment samples are included in Appendix 3.

2.6.2 Field Processing

All samples were sieved through a 1 mm screen on board the *RV Richardson Point*. Samples collected in 2010 were field sieved by Biologica Environmental Services (Victoria, BC) using a specialized washing apparatus developed for this purpose (Photo B). Samples were washed very gently from the underside of the screens to prevent breakage and forcing of pieces through the sieve. In 2011 samples collected by both Worley Parsons and CRD were processed using a simpler, more traditional method (washed through from above and below) consistent with past CRD Macaulay REM surveys since 2002. Photographs of the 2010 and 2011 field processing equipment are shown in Photo C and D.

Once the entire sample had been sieved and the benthic organisms retained on the sieve, a photograph was taken. The benthic organisms were removed and placed in a labelled, site specific jar and then preserved in a formalin solution (10% formalin buffered with borax). Large debris was stored in separate jars and included with the samples.

The benthic infaunal samples collected in 2010 were processed by Biologica Environmental Services. The 2011 samples collected by CRD and WorleyParsons were transported to Benthic Services Group, LLC (Shoreline, WA), the laboratory used by CRD for enumeration and taxonomic identification since 2002.

Photo B Field Processing Equipment for the 2010 Samples

Photo C Field Processing Equipment for 2011 Samples

Photo D Example of a Sieve with Processed Sample

2.6.3 Laboratory Processing

Benthic Services Group provided sample sorting, enumeration, precision analysis, QA/QC and taxonomic processing for the 2011 marine benthic invertebrate samples collected by the CRD and WorleyParsons. Their report is included in Appendix 4. The 2010 Albert Head samples were processed in a similar way to the 2011 samples, except that laboratory processing and taxonomy for these samples were done by Biologica Environmental Services, following protocols described in the annual monitoring reports for the Metro Vancouver Iona and Lions Gate outfalls (McPherson et al. 2008).

2.7 Quality Assurance / Quality Control

2.7.1 Sediment Chemistry Samples

QA/QC procedures related to the field collection and laboratory analysis of sediment samples are discussed below in the following sections.

2.7.1.1 Field

Sediment samples were collected in accordance with the British Columbia Field Sampling Manual (MWLAP 2003), the field QA/QC measures involved procedures to reduce the risk of contamination among samples. The field QA/QC procedures involved the following:

- Decontaminate sampling equipment by scrubbing with a brush and phosphate-free detergent followed by rinsing with acetone;
- Bench test field equipment to promote proper function prior to sampling;
- Check Van Veen grabs are filled properly and are representative (Section 2.4.1);
- Check debris is not obstructing the Van Veen grab from fully closing;
- Prevent sample contamination by carefully handling bottles and lids to prevent them from contact or drips;
- Package ice packs in bags to prevent sample contamination from the contents of the ice pack;
- Fill coolers with ice packs to maintain sample temperature;
- Properly preserve samples;
- Avoid headspace in the sample jars;
- Prevent contamination by wearing a new pair of nitrile gloves when handling samples; and,
- Maintain a clean work area.

Sample documentation included the following:

- Label all field sample jars and field data sheets using a pencil or waterproof ink;
- Photo document every sample; and,
- Use COC records for laboratory compliance.

2.7.1.2 Laboratory

The chemistry QA/QC plan included procedures to promote high quality lab results as well as measures to verify the results. The chemistry QA/QC plan included:

Certificate of Analysis Reports: COA reports provide test results, analytical and laboratory methodology, date of analysis, unique sample identifiers, unique job numbers and a Quality Assurance (QA) report.

Field Replicates: In 2011, field triplicates were collected at stations M800NE (replicates called T1000 and T2000) and M2E (replicates called M2E-Dup and M2E-Trip). The purpose of a field replicate is to determine analytical and /or environmental and/or sampling imprecisions. Relative standard deviations (RSDs) were calculated and compared to available data quality objectives.

Hold Times: Maximum sample hold times as outlined by the BC MOE were identified prior to the field sampling program (MOE 2011). The hold times of each parameter are identified in Table E.

Laboratory Method Blank: Method blanks are analyte-free samples that are analyzed alongside field collected samples. The purpose of a method blank is to determine the presence and scale of any contamination during laboratory processing (methodology, environment, equipment, reagents) (MWLAP 2003). Laboratory method blanks should not exceed the method detection limit, where they do; any detected values above the reporting limits (2 X RDL) require re-analysis (MWLAP 2003; Maxxam 2010).

Laboratory Matrix Spike: A matrix spike is a portion of a sample spike with a known concentration of an analyte of interest has been added. The purpose of a matrix spike is to identify sample matrix interference and determine the accuracy of the analytical methodology. The percent recovery of the matrix spike is compared to the QC limits. If the percent recovery is outside of the QC limits on the QA reports of the COA, the samples are then re-run for single parameter tests. For multiple parameter tests, the samples are not re-run and the data is accepted to be true if less than 10% of the parameters are outside of the QC limits.

Laboratory Spiked Blank: Spiked blanks are a blank matrix to which a known amount of the analyte is added. The purpose of a spiked blank is to identify laboratory contamination. If the percent recovery is outside the QC limits, the samples are re-run for single parameter tests. For multiple parameter tests, the samples are not re-run and the data is accepted to be true if less than 10% of the parameters are outside of the QC limits.

Table E Analytical Parameter – Hold Times

Parameter	Hold Time
Fecal Coliform	48 hours
AVS	48hrs/7 days[1]
SEM	6 months
Particle Size	n/a [2]
TOC	28 days
TC	28 days
Moisture	n/a [2]
TP	180 Days
TTS	180 Days – For Hg 28 Days
PAHs	14 days
OC	14 days
Chlorinated Phenolics	14 days
VOCs including BTEX	7 days
Phthalates	14 Days
PBDEs	1 Year
PCBs	n/a[2]
Nonylphenol & its Ethoxylates	1 Year
Pharmaceutical and Personal Care Products	30 days if frozen, 7 days if at 4 degrees C
Marine Amphipod Sediment Toxicity	6 weeks
Marine Polychaete Sediment Toxicity	8 weeks
Marine Polychaete Sediment Bioaccumulation	8 weeks

Note:
[1] 48 hours upon receipt at the lab or 7 days from sampling – whichever comes first.
[2] no designated hold time

2.7.1.3 Analysis

QA/QC assessment was guided by the data quality objectives (DQOs) outlined in the *Report on Wastewater and Marine Environment Programs Quality Assurance and Quality Control Analytical Program Review* (Golder Associates Ltd. 2009c), with reference to the *British Columbia Field Sampling Manual* (MOE 2003).

Sample Representativeness

The Wastewater and Marine Environment Program (WMEP) recommendation for blank samples is that if the concentration of the blank is above the detection limit, it should not be greater than 10% of the associated sample concentration. Concentrations between 10% and 20% are considered a marginal failure of the DQO and greater than 20% is considered a severe failure.

Furthermore, Maxxam suggests that if the blank concentrations are within two times the detection limit, it does not need to be retested. This second recommendations was considered when associated samples concentrations approached the detection limit. Although the WMEP does not provide a recommendation for processing values near detection limits for blank samples, there is acknowledgement that as concentrations approach detection limits, the probability of error increases substantially and therefore, the first recommendations (i.e. the blank should not be greater than 10%) was only considered if the associated samples were greater than five time the detection limit (5xDL).

Replicate Precision

The sample precision was assessed according to the guidelines and criteria set out in the WMEP review. Triplicates of samples were compared using the relative standard deviation (RSD). The allowable range of RSD for triplicate samples varies depending on the analyte being considered (Table F). In each case, values less than 5xDL were considered acceptable even if their RSD exceeded guidelines, as recommended in the WMEP Review (Golder 2009).

Table F Criteria for discriminating between marginal and severe data quality object failures for RSD of triplicate samples (Golder 2007)

Parameter Group	Relative Standard Deviation Criteria		
	Pass	Marginal Failure	Severe Failure
Microbiology		None Provided	
SEM	<20%	20-30%	>30%
AVS	<15%	15-25%	>25%
Physical		None Provided	
TOC, Phenolics	<25%	25-40%	>40%
Metals, Oil & Grease	<20%	20-30%	>30%
Organics	<50%	50-75%	>75%
Bioassay and Bioaccumulation		None Provided	

Analytical Bias

Analytical bias was assessed for laboratory matrix spikes, reference samples, and surrogate recoveries according to the guidelines and criteria set out in the WMEP review. The DQOs for these parameters are provided in Table G.

Table G Criteria for discriminating between marginal and severe data quality object failures for analytical bias (Golder 2007)

Parameter Group	Relative Standard Deviation Criteria		
	Pass	Marginal Failure	Severe Failure
Microbiology		None Provided	
SEM	75-125%	60-75% or 125-140%	<60% or > 140%
AVS	75-125%	60-75% or 125-140%	<60% or > 140%
Physical		None Provided	
TOC, Phenolics	75-125%	60-75% or 125-140%	<60% or > 140%
Metals	75-125%	60-75% or 125-140%	<60% or > 140%
Oil & Grease	80-120%	70-80% or 120-130%	<80% or >130%
Organics	50-150%	25-50% or 150-175%	<25% or >175%
Bioassay and Bioaccumulation		None Provided	

2.7.2 Bioaccumulation and Toxicity

The *N. virens* bioaccumulation QA/QC assessment included procedures to promote high quality lab results. The QA/QC results are subjected to the following test validity criteria:

- Mean survival in the test sediments must be ≥ 90%;
- Initial sediment mass should exceed 1,680 g (2 times the estimated mass of sediment processed during the test by *N. virens*); and,
- Initial sediment depth must be greater than 2 cm

The 10-day *E. estuaries* toxicity test QA/QC assessment included procedures to promote high quality lab results. The QA/QC results are subjected to the following test validity criteria:

- Mean survival in the test controls for *E. estuaries* must be ≥ 90%;and,
- Survival in each test control replicate must be ≥ 80%.

The 20-day *N. arenaceodentata* growth and survival test QA/QC assessment included procedures to promote high quality lab results. The QA/QC results are subjected to the following test validity criteria:

- Mean survival in the laboratory control must be ≥ 90%; and,
- Mean growth rate in the laboratory control must be ≥ 0.38 mg/day/worm.

2.7.3 Benthic Infauna

QA/QC procedures related to the collection and analysis of benthic infauna samples are discussed below.

Field

Many of the field QA/QC measures for collecting benthic infauna samples were the same as the measures used during the collection of sediment chemistry samples, as the Van Veen sampler was used to obtain both types of samples. The field QA/QC procedures involved the following:

- Bench test all field equipment to promote proper function prior to sampling;
- Van Veen grabs are filled properly and are representative (Section 2.4.1);
- Sediment in the Van Veen sampler is similar in depth between samples;
- Debris is not obstructing the Van Veen grab from fully closing;
- Samples are properly preserved; and,
- Maintain a clean work area.

Sample documentation included the following:

- Label all field sample jars and field data sheets using a pencil or waterproof ink;
- Photo document every sample pre and post processing; and,
- Document number of jars per sample site.

Laboratory

For the 2010 Albert Head samples, Biologica Environmental Services conducted laboratory QC procedures for both sorting efficiency and identification accuracy. Each technician was assigned no more than 5 samples each of the total 19 to avoid systemic bias. Two samples (40-50%) of each technician's sorted samples were re-examined by a second qualified sorter as a quality control measure (spot checked). During this spot-check procedure, 25% of the sample from each jar was spread in a 9" × 13" white pan and examined under a dissecting microscope at 10-25x magnification. The sorting efficiency was estimated as:

$$\frac{(\text{Initial Total Organisms Count}) - (\#\text{ organisms found on spot check} * 4)}{\text{Initial Total Organism Count}} \times 100\%$$

Where the number of organisms found on the spot check were identifiable. If the sorting efficiency was estimated to be less than 90% for the sample, the samples were directly resorted and the remainder of the technicians's samples spot-checked. If the mean sorting efficiency across all samples was calculated to be <95%, samples with 90-95% sorting efficiency were also resorted to obtain the 95% mean efficiency.

For the 2010 Albert Head samples, Biologica Environmental Services conducted laboratory QA/QC procedures. One quarter (25%) of each technician's sorted samples were re-examined by a second qualified sorter as a quality control measure. A portion of the sample from each jar was spread in a 9" × 13" white pan and examined under a dissecting microscope at 10× magnification. If more than three identifiable organisms were removed per 500 mL the sample was re-sorted. Identifications of any new or unusual specimens were checked by the principal taxonomist.

The benthic data was entered into a Microsoft Excel table and checked against the taxonomist's bench sheets to check that no typographical errors were made.

For the 2011 McLoughlin Point related samples, Benthic Services Group conducted laboratory QA/QC procedures for sorting, species identification and enumeration, as well as comparison to their taxonomic reference collection. Details of their QA/QC methods are provided in the data report prepared by Benthic Services Group (BSG 2012; Appendix 4).

Data Handling

QA/QC measures associated with data handling included:

- Use of water-proof and tear proof paper and labels and pens for field data sheets;
- Use of chain of custody records for lab correspondence;
- Backing up electronic data;
- Keeping thorough notes, photos, GPS coordinates, tide heights, weather, and all potential confounding factors observed during all field days and at all sites; and,
- Saving station positions in the digital chart software as well as in field notes for redundancy.

2.8 Sediment Chemistry Data Analysis and Statistics

2.8.1 Provincial Criteria and Federal Guidelines

Sediment quality data were uploaded into an Environmental Quality Information System (EQuIS) 5.5.1 database (Earthsoft, Concord, MA) and compared to relevant provincial criteria and federal guidelines. These included:

- *BC MOE - Contaminated Sites Regulation Schedule 9 – Generic Numerical Sediment Criteria* (MOE 1996)
  - Generic numerical sediment criteria were adopted in 2004 and are provided for two uses in Schedule 9 of the regulation, sensitive and typical habitat. These criteria are concentrations of substances specified in Schedule 9 for marine and estuarine sediment. These sediment quality data were compared to the appropriate *BC MOE Generic Numerical Sediment Criteria*:

1. Marine and Estuarine Sediment Sensitive, Generic Numerical Sediment Criteria ($SedQC_{SS}$), are criteria for sensitive sediment, at a site with sensitive aquatic habitat and for which sensitive sediment management objectives apply.
2. Marine and Estuarine Sediment Typical, Generic Numerical Sediment Criteria ($SedQC_{TS}$), are criteria for sediment that is not sensitive sediment.

Sensitive sediment means "*sediment at a site with sensitive aquatic habitat and for which sensitive sediment management objectives apply*" (MOE 1996). Sediment samples were collected in a region that has not been identified as sensitive aquatic habitat.

- *Canadian Council of Ministers of the Environment (CCME) – Canadian Sediment Quality Guidelines for the Protection of Aquatic Life* (CCME 1999)
  - These guidelines provide nationally endorsed, science-based goals for maintaining quality in aquatic ecosystems. Sediment quality data were compared to the appropriate CCME marine guidelines:

    1. Interim Sediment Quality Guideline (ISQG), which is based on the Threshold Effects Level (TEL), or the concentration of an analyte below which adverse biological effects are rarely expected (less than 25% of the time).
    2. Probable Effects Level (PEL) concentration, which is the level at which adverse biological effects occur more than 50% of the time.

The list of marine sediment quality criteria and guidelines to which the sediment samples were compared are summarized in Table H.

Table H Relevant Provincial and Federal Marine Sediment Guidelines

		CCME - Marine Sediment		MOE - Marine & Estuarine Sediment	
		ISQG	PEL	Sensitive	Typical
Total Metals					
Arsenic	(µg/g)	7.24	41.6	26	50
Cadmium	(µg/g)	0.7	4.2	2.6	5
Chromium	(µg/g)	52.3	160	99	190
Copper	(µg/g)	18.7	108	67	130
Lead	(µg/g)	30.2	112	69	130
Mercury	(µg/g)	0.13	0.7	0.43	0.84
Zinc	(µg/g)	124	271	170	330
PAH					
2-Methylnaphthalene	(mg/kg)	0.0202	0.201	0.24	0.12
Acenaphthene	(mg/kg)	0.00671	0.0889	0.11	0.055
Acenaphthylene	(mg/kg)	0.00587	0.128	0.15	0.079

		CCME - Marine Sediment		MOE - Marine & Estuarine Sediment	
		ISQG	PEL	Sensitive	Typical
Anthracene	(mg/kg)	0.0469	0.245	0.29	0.15
Benzo[a]anthracene	(mg/kg)	0.0748	0.693	0.83	0.43
Benzo[a]pyrene	(mg/kg)	0.0888	0.763	0.92	0.47
Chrysene	(mg/kg)	0.108	0.846	1	0.52
Dibenzo[a,h]anthracene	(mg/kg)	0.00622	0.135	0.16	0.084
Fluoranthene	(mg/kg)	0.113	1.494	1.8	0.93
Fluorene	(mg/kg)	0.0212	0.144	0.17	0.089
Naphthalene	(mg/kg)	0.0346	0.391	0.47	0.24
Phenanthrene	(mg/kg)	0.0867	0.544	0.65	0.34
Pyrene	(mg/kg)	0.153	1.398	1.7	0.87
Total PAHs	(mg/kg)	---	---	20	10
Organochlorinated Pesticides					
Dieldrin	(ng/g)	---	4.3	2.7	5.2
a-Chlordane	(ng/g)	---	4.79	3.0	5.7
g-Chlordane	(ng/g)	---	4.79	3.0	5.7
o,p-DDD	(ng/g)	---	7.81	4.8	9.4
o,p-DDE	(ng/g)	---	374	230	450
o,p-DDT	(ng/g)	---	4.77	3.0	5.7
Lindane	(ng/g)	---	0.99	0.61	1.2
Endrin	(ng/g)	---	62.4	39	75
Heptachlor	(ng/g)	---	---	1.7	3.3
Heptachlor epoxide	(ng/g)	---	2.74	1.7	3.3
Phenols					
Pentachlorophenol	(mg/kg)	---	---	0.69	0.36
PCBs					
Aroclor 1242	(mg/kg)	---	---	---	---
Aroclor 1248	(mg/kg)	---	---	---	---
Aroclor 1254	(mg/kg)	0.0633	0.709	---	---
Aroclor 1260	(mg/kg)	---	---	---	---
PCBs-Total	(mg/kg)	0.0215	0.189	0.12	0.23

2.9 Benthic Infauna Analysis

Data exploration and statistical evaluations addressed the following questions with related hypothesis, power and/or probability testing:

Question 1: Are the benthic infauna homogeneous throughout the sample area?

Question 2: Are the benthic infauna similar between the survey area and historical background stations for the Macaulay Point monitoring program or the baseline Albert Head survey?

Question 3: Are the benthic infauna predictable based on sediment conditions (depth, organic content, sediment AVS, stable isotopes of C and N, substrate type, etc.)

Generalized hypotheses tested statistically in aid of answering the above questions included:

$H_{o(1)}$: There are no significant differences in the benthic infaunal composition (based on abundance or biomass) throughout the sample area.

$H_{o(2)}$: There are no significant differences in infaunal composition between the survey area and background Macaulay Point areas (particularly Parry Bay).

$H_{o(3)}$: There are no relationships between sediment parameters (see above list) and benthic infaunal summary factors (abundance, taxa richness, diversity, production, biomass)

2.9.1 Data Management and Quality Control

The presence or absence, abundance and wet-weight biomass of each benthic invertebrate taxon in the community is the basic information for any benthic survey. Field sampling for benthic biota was performed in a manner consistent with existing Macaulay Point annual REM protocols. Benthic Services Group (Shoreline, WA) separated all organisms from the 2011 samples into adults (typically adults plus intermediates) and recently settled juveniles, the latter of which do not clearly reflect long-term sediment effects (Burd 2000). No reference collection or external taxonomic verifications are specifically available for these samples, although Benthic Services Group does maintain a reference collection for the historical Macaulay REM samples collected since 2002. The 2010 Albert Head data was categorized by Biologica Environmental Services into three size groups (adult, intermediate and juvenile), which greatly increases reliability of biomass measurements. It was assumed that adults and intermediates in these samples were equivalent to adults processed from the 2011 samples. A complete reference collection with external verifications for the 2010 Albert Head samples is in progress and expected to be completed later in spring 2013.

Data were coded in both taxonomic laboratories using a protocol developed for the BC background database and used over the past 15 years throughout BC (Macdonald et al. 2010). Corrections to the coding and synchronization with the BC coastal background database were completed to allow comparison with the background database. Trophic category codes were assigned to all 2010 and 2011 data based on Macdonald et al. (2010, 2012a), to allow higher level comparisons free from taxonomic uncertainty. The new baseline data were incorporated into the existing format of the CRD database for the historical Macaulay Point monitoring data (maintained by Ecostat Research Ltd. for CRD).

Another requirement for the analyses in this report which allows comparison of the 2011 samples with other regional data, is estimates of wet-weight biomass for each taxon. Direct biomass measurements were not done for the 2011 samples. A series of about 12-15 common taxa were extracted and weighed from several of the 2011 samples to determine weights and adult versus intermediate status. Aside from this, biomass conversions for each species abundance value for the 2011 data were done using existing biomass database values for the region (see Burd et al. 2009, 2012), to examine trends in organic content and turnover (production) of fauna. The 2011 samples returned from the WA laboratory were examined for megafauna (organisms >1 g wet weight), but none were found in any samples. This is likely a result of the different sorting methodology used between the 2010 and 2011 surveys. Taxonomic methodology is currently under review by the CRD. Megafauna and new taxa from the 2010 Albert Head samples were wet-weighed by Biologica Environmental Services, as described in the annual monitoring reports for the Metro Vancouver Iona and Lions Gate outfalls (McPherson et al. 2008). Aside from these, species-specific weights were assigned from the existing biomass database for the BC coast, with emphasis on local, Juan de Fuca values.

Biomass converted abundance tends to de-emphasize the small, abundant forms and emphasize the large, rarer forms, which contribute considerably to the biomass of the community. In addition, because these data are being compared with other historical background data from the Strait of Georgia and Juan de Fuca Strait, discrepancies in collection of smaller forms due to field and laboratory protocols can be mitigated by focusing on results of biomass analyses, which de-emphasize the smallest forms and emphasize the larger fauna. Often, a comparison based on both raw-abundance and biomass-converted abundance will be illuminating in discerning community structural patterns, and will further allow comparison of these baseline fauna with the extensive BC coastal database (Burd et al. 2008, 2009, 2012a).

It was evident that hard-substrate fauna were mostly missing from the 2011 samples, likely a result of the different sorting methods employed between the 2010 and 2011 surveys. Therefore, in order to help with comparison of results for the two survey areas, known hard-substrate taxa was removed from both datasets.

2.9.2 Summary Statistics

Summary biotic factors for the 2010 Albert Head and 2011 stations were calculated for abundance of all size groups, abundance of major taxonomic groups, number of taxa, organic biomass, production and mean organism size (based on organic biomass), as well as three diversity indices. In addition, comparisons were made of summary abundance; biomass and taxa number overall for the 2010 Albert Head data, 2011 pre-discharge data and historical Macaulay Point monitoring data.

Sediment physical/geochemical factors were also summarized for each station in both studies. Sediment metals data were available for all stations, but organic contaminants were only sampled at select stations.

Diversity indices

Indices calculated for all stations included sampling precision, the Shannon-Weiner (H'), Simpson's (1-D) and the Swartz Dominance Index (SDI).

The precision for total abundance of organisms collected at each station was examined by measuring standard error as a proportion of the mean for the three replicates analyzed. If precision was less than 20%, then the overall station mean was considered representative of the true community abundance (Elliott 1977).

The Shannon-Weiner diversity index (H') is defined as

$$H' = -\sum_{i=1}^{S}(p_i \ln p_i)$$

n_i The number of individuals in species i; the abundance of species i.

S The number of species. Also called species richness.

N The total number of all individuals

p_i The relative abundance of each species, calculated as the proportion of individuals of a given species to the total number of individuals in the community: $\frac{n_i}{N}$

The Simpson's index (1-D) is defined as:

$$D = \sum \left(\frac{n}{N}\right)^2$$

n = the total number of organisms of a particular species

N = the total number of organisms of all species (values vary between 0 and 1).

The latter two indices are used to measure the evenness of distribution of abundance across all taxa. They are limited in usefulness due to the unlikely assumption that all organisms in a sample are randomly distributed. In addition, they are limited in their interpretability as they do not give any indication of how many species are present. They are most useful for identifying areas with organic enrichment effects on benthos.

The Swartz Dominance Index (SDI) is a measure of the number of species that comprise approximately 75% of the sample. The SDI was calculated on total abundance for each sample replicate. This index has been used in previous monitoring reports for the Iona outfall receiving environment, as an indicator of faunal impoverishment in the Puget Sound Reference Project (Striplin 1996), and in the CRD's Macaulay Point outfall monitoring program (CRD 2000). A high SDI value indicates that abundance is spread relatively evenly over a variety of species. A low SDI indicates that one or two taxa are dominating the

community, presumably because of physical or chemical factors reducing the competitive ability of more sensitive species.

Production and Organic biomass

Production and organic carbon biomass estimates for each sample location were calculated and compared with predicted values from the Strait of Georgia/Juan de Fuca background database. Methods of determination are described in detail in Burd et al. (2012a,b). Production/biomass estimates were made for macrofauna using the empirical model of Brey (2001), which provides reasonable estimates for multi-species communities of fauna >0.5mm. Species-specific wet-weight biomass values for adults, intermediates and juveniles were converted to organic carbon biomass using published conversion values (Lie 1968; Rowe 1983; Leuven et al. 1985; Rudnick et al. 1985; Steimle and Terranova 1985; Frithsen et al. 1986; Fielman and Target 1995; Ricciardi and Bourget 1998; Galeron et al. 2000; Brey 2001; Cauffope and Heymans 2005; Clarke 2008). Where possible, values from Brey (2001) were used to align with the production/biomass model estimates. Some of the literature conversion values were originally based on conversions from wet weight to ash-free dry weight. The final conversion from AFDW to grams of organic carbon was estimated at 50% for all taxa (Ricciardi and Bourget 1998; Galeron et al. 2000; Brey 2001; Clarke, 2008). Organic carbon was converted to energy units for use in the model (46 kj/kg organic carbon, see Steimle and Terranova 1985; Wacasey and Atkinson 1987; Brey et al. 1988; Brey 2001; Cauffope and Heymans 2005). From this point forward, organic biomass will be expressed in kj. Once wet-weight data had been converted to organic biomass, $\log_2$ size codes were assigned to each taxon in each sample based on Macdonald et al. (2012b) to examine size frequency distributions in both areas.

Variations in biomass and production in the Strait of Georgia/Juan de Fuca Strait background database have been modeled based on sediment depth, substrate type and estimated organic flux/Δ^{15}N (see Burd et al. 2012a). Biomass and production results from the 2010 and 2011 samples were superimposed on the background distributions for each habitat factors. Sediment and organic carbon flux estimates for the background database are available from 51 Pb_{210} dated box cores collected throughout the Strait of Georgia and Juan de Fuca Strait. Locations and data for cores are collectively described in Wright et al. (2008), Johannessen et al. (2005a, 2005b, 2008), and Burd et al. (2008), with basin-wide distribution patterns of organic flux described in Burd et al. (2008, 2012a). Several dated cores have been collected near the Macaulay outfall (200m NW, 400mNW) and in Parry Bay (PB1-3) and can thus be used to provide a good estimate of fluxes in the region of the 2010 and 2011 pre-discharge samples. Methods for flux measurements from cores are described in detail in Burd et al. (2012a,b; and see references therein).

2.9.3 Univariate Statistics

The 95th percentile thresholds for most summary biotic factors were calculated for samples from a depth range of 30-90 m from the BC coastal background database (N=498; Burd et al. 2009). These samples were all processed using 0.1m^2 grabs with a 1 mm screen (as in the current study). Thresholds for organic biomass and production were extracted from the background Strait of Georgia/Juan de Fuca Strait background database (N=295; Burd et al. 2008, 2012a). Both of these background databases include multi-year historical Macaulay Point monitoring data from Parry Bay. The 95th percentile

thresholds for biomass and production levels expected for the 2010 and 2011 sample survey areas are based on all data from the Strait of Georgia/Juan de Fuca background database (Burd et al., 2012a) for a depth range of 30-90m. Biomass and production values below these thresholds are therefore not found in 95% of all background samples from this depth range in the database. Values for the 2010 and 2011 samples were compared to these thresholds.

Cumulative frequency distributions were used to examine mean size composition patterns for the 2011 samples versus the 2010 Albert Head samples. Size categories used are based on a $\log_2$ scale of mean organic biomass calculated for each taxon and sample, as described in Macdonald et al. (2012b) for determination of typical background infaunal size distributions in Strait of Georgia/Juan de Fuca Strait.

Pearson linear correlations between summary biotic and sediment tracers or geochemical factors for the Albert Head 2010 and 2011 stations were calculated to identify linear trends. These are considered to be exploratory rather than significance testing, for the purpose of focusing more detailed analyses

2.9.4 Cluster and Significance Testing

Cluster analyses using Bray-Curtis similarity (Bray and Curtis 1957), along with significance and power testing of cluster groups (Nemec and Brinkhurst 1988; Nemec 2000) were applied to total abundance composition, total organic biomass composition, proportional trophic composition (as per Macdonald et al. 2012a) and proportional size class composition (Macdonald et al. 2012b). These analyses determine the consistency of faunal characteristics throughout the survey area, as well as identify any outlier stations with unusual fauna due to confounding influences which may affect interpretation of future sediment impacts from a new outfall.

Using the replicate data for each station, a statistical re-sampling or “bootstrap” method called SIGTREE (Nemec and Brinkhurst 1988) was used to generate multiple simulations to test the generalized null hypothesis (H_o) at each cluster linkage that two groups being linked together were homogeneous. SIGTREE is a non-parametric test, and makes no assumptions about the underlying distribution of the multivariate data. The method examines the relative variability within and between station groups independently for each linkage, to determine whether or not a cluster grouping is statistically valid. The power testing is actually a form of confidence interval testing for the statistically significant groups (Nemec 2000). Type I (from null hypothesis) and II (from alternate hypothesis) errors to be used will be balanced as recommended in the Pulp and Paper EEM Technical Guidance Document for Cycle II (Environment Canada 1997).

The assumptions of the method are that: 1) groups linked together at a probability >1%, but subsequently linked with other groups at a probability of <1% are significantly homogeneous and distinct from all other groups; 2) if a significantly distinct and homogeneous grouping is present, then all other groups linked to it at a lower similarity level are, by definition, significantly distinct from that group, even if the linkage between the homogeneous grouping and the other stations has a probability >1%; and 3) once a significantly distinct and homogeneous grouping has been identified, all other groups linked to it at a lower similarity are significantly distinct from the first group, but cannot be determined to be significantly homogeneous.

3. RESULTS - SEDIMENT CHEMISTRY

Analytical results for all parameters and analyses for the 2011 data are provided in Tables 3-1 through 4-2. The corresponding parameter group, analysis and table are outlined in Table I. The analytical results of the 2010 sediment chemistry data are not included in this report. The 2010 sediment chemistry data was however used as background data for the benthic infauna analyses.

Table I Analytical Results Tables

Parameter Group	Analysis	Table
Microbiological	Fecal Coliform	3-1
AVS/SEM	AVS	3-2
	SEM	
Physical	Particle Size	3-3
	TOC	3-4
	TC	3-4
	Moisture	3-4
Nutrients	Nitrogen	3-4
	TP	3-4
Trace Metals	Total Trace Metal Suite	3-5
Organics (Group 1)	PAHs	3-6
	OC	3-7
	Chlorinated Phenolics	3-8
	VOCs including BTEX	3-9 & 3-10
	Phthalates	3-9
	PBDEs	3-11
Organics (Group 2)	PCBs	3-12
	Nonylphenol & its Ethoxylates	3-13
	PPCP	3-14,3-15,3-16
Bioassay and Bioaccumulation	Marine Polychaete Sediment Bioaccumulation	4-1
	Marine Amphipod and Polychaete Toxicity	4-2

3.1 Sediment Quality Criteria and Guideline Exceedances

Federal sediment quality guidelines and provincial sediment quality criteria exceedances were measured for four total metals and 14 PAHs. The measured criteria and guideline exceedances for total metals are summarized in Table J and PAH in Table K.

Table J Total Metals – Sediment Quality Guideline Exceedances

		Arsenic	Cadmium	Copper	Mercury
		(µg/g)	(µg/g)	(µg/g)	(µg/g)
CCME Marine Sediment	**ISQG**	**7.24**	**0.7**	**18.7**	**0.13**
	PEL	**41.6**	**4.2**	**108**	**0.7**
MOE - Marine & Estuarine Sediment	**Sensitive**	**26**	**2.6**	**67**	**0.43**
	Typical	**50**	**5**	**130**	**0.84**
Pre-Discharge Monitoring Stations					
FC3500NE		4.53	0.124	10.2	< 0.050
FC4000ENE		3.54	0.086	7.89	< 0.050
M1300E		**7.45**	0.337	**52.9**	**0.305**
M500SE		6.29	**4.47**	**24.9**	< 0.050
M1400ESE		3.87	**0.994**	15.1	< 0.050
M1600SE		5.58	**1.07**	**20.8**	< 0.050
M2300ESE		5.93	**2.97**	**41.9**	< 0.050
M800NE		6.2	0.331	15.7	< 0.050
Receiving Environment Monitoring Stations					
M1E		**11.1**	**1.88**	**52**	0.0893
M2E		7.14	**0.874**	**37.2**	0.0885
M8E		4.56	**0.941**	16.8	0.0536
PB1		3.99	0.088	10.6	0.0306

Highlighting Legend

- indicates parameters above CCME Marine Sediment – ISQG
- indicates parameters above MOE - Marine & Estuarine Sediment - Sensitive
- indicates parameters above CCME Marine Sediment – PEL
- indicates parameters above MOE - Marine & Estuarine Sediment – Typical

Table K PAH – Sediment Quality Criteria and Guideline Exceedances

		2-Methylnaphthalene (mg/kg)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Anthracene (mg/kg)	Benzo[a]anthracene (mg/kg)	Benzo[a]pyrene (mg/kg)	Chrysene (mg/kg)	Dibenzo[a,h]anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)	Total PAHs (mg/kg)
CCME - Marine Sediment	**ISQGs**	0.0202	0.00671	0.00587	0.0469	0.0748	0.0888	0.108	0.00622	0.113	0.0212	0.0346	0.0867	0.153	---
	PEL	0.201	0.0889	0.128	0.245	0.693	0.763	0.846	0.135	1.494	0.144	0.391	0.544	1.398	---
MOE - Marine & Estuarine Sediment	**Sensitive**	0.12	0.055	0.079	0.15	0.43	0.47	0.52	0.084	0.93	0.089	0.24	0.34	0.87	10
	Typical	0.24	0.11	0.15	0.29	0.83	0.92	1	0.16	1.8	0.17	0.47	0.65	1.7	20
Pre-Discharge Monitoring Stations															
FC3500NE		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
M1400ESE		< 0.050	< 0.050	< 0.050	0.054	0.079	0.063	0.082	< 0.050	0.17	< 0.050	< 0.050	0.17	0.14	0.76
M1600SE		< 0.050	0.072	0.40	1.8	2.4	2.7	2.2	0.30	8.3	0.64	0.079	5.5	7.7	32
M2300ESE		< 0.050	< 0.050	0.075	0.15	0.57	0.61	0.52	0.083	1.1	< 0.050	< 0.050	0.23	1.2	4.5
M800NE		< 0.050	< 0.050	0.054	< 0.050	0.12	0.097	0.098	< 0.050	0.11	< 0.050	< 0.050	< 0.050	0.15	0.62
Receiving Environment Monitoring Stations															
M1E[1]		---	---	---	---	---	---	---	---	---	---	---	---	---	---
M2E		0.24	0.28	< 0.090	0.48	0.75	0.64	0.88	0.095	1.4	0.29	0.46	1.9	1.6	9.1
M8E		0.10	< 0.090	< 0.090	< 0.080	< 0.070	< 0.070	< 0.090	< 0.080	< 0.080	< 0.090	0.092	< 0.080	< 0.080	0.19
PB1		< 0.030	< 0.090	< 0.090	< 0.080	< 0.070	< 0.070	< 0.090	< 0.080	< 0.080	< 0.090	< 0.070	< 0.080	< 0.080	< 0.090

Highlighting Legend

indicates parameters above CCME Marine Sediment – ISQG
indicates parameters above MOE - Marine & Estuarine Sediment – Sensitive
indicates parameters above CCME Marine Sediment – PEL
indicates parameters above MOE - Marine & Estuarine Sediment -Typical
indicates detection limit exceeds applicable guideline value.

[1] Data Quality objectives for PAHs were not achieved in the analysis of station M1E. Data was rejected for this station.

The exceedances of sediment quality guidelines and criteria were measured at stations in the vicinity of the proposed McLoughlin Point outfall (near the existing Macaulay Point outfall). Reference stations in Finnerty Cove and Parry Bay had no sediment quality guideline and criteria exceedances.

Four total metals (arsenic, cadmium, copper and mercury) exceeded sediment quality provincial criteria and/or federal guidelines at several stations east of the existing Macaulay Point outfall. The remaining total metals results were within the BC contaminated sites criteria and the federal CCME guidelines. Cadmium concentrations exceeded the BC MOE contaminated sites criteria (sensitive) at station M500SE and M2300SE and the CCME PEL guideline at station M500SE. Concentrations of arsenic, copper and mercury were measured above the CCME ISQG, but below the less stringent CCME PEL and both the BC MOE contaminated sites criteria.

PAH guideline and criteria exceedances were measured at all of the stations within the vicinity of the existing discharges (M1400ESE, M1600SE, M2300ESE, M800NE, M2E and M8E). In total, there were 43 PAH sediment quality guideline and/or criteria exceedances measured within the six stations with exceedances. Of the 43 exceedances, 16 of them were within five times the detection limit (5xDL), and therefore should only be considered “possible exceedances” due to the reduced precision on analytical results near the detection limit of the analysis (Golder, 2007).

Highest concentrations and the largest number of the possible exceedances were measured at M1600SE and M2E. The PAH concentrations at M1600SE were higher than other stations in the vicinity and may have been the result of a confounding factor (Section 3.1.1). The detection limit exceeded sediment quality guidelines and/or criteria for seven of the 14 PAHs (Table K).

Measured PCBs with sediment quality criteria and/or guidelines (aroclor 1254 and total PCBs) were less than their detection limits and within the sediment quality limits and all stations. Organochlorinated pesticides were measured below sediment quality criteria and/or guidelines or below the method detection limits. Pentachlorophenol concentrations were within sediment quality criteria.

3.1.1 Confounding Factors

Multiple sediment samples (both benthic and chemistry) collected as part of the pre-discharge monitoring program included obvious visible anthropogenic waste such as glass at M800NE and M1300E, a shoe at M500SE (sample was not used) and plastic at M2300ESE. Given the visible waste observed in these samples there was likely additional waste buried within the samples which was not observed. Therefore, exceedances of the sediment quality criteria and guidelines may have been the result of seabed debris from various sources.

The waters in the vicinity of the proposed McLoughlin Point outfall discharge have a long history of industrial use. For 50 years (1908-1958) garbage was deposited into the marine environment off of Ogden Point (Ringuette 2005) Victoria Harbour has had a number of industrial activities conducted in and adjacent to it, including a coal gasification facility, a propane tank farm, concrete batch plant, asphalt plant, saw milling and log booming, machine manufacturing, tannery and ship building and repair (CRD 2013). The coal gasification facility resulted in the contamination of soil, groundwater and

sediment on the site, on the neighboring properties and within the seabed of Rock Bay. Remediation is proposed for this contaminated site, which includes remediation of soil, groundwater and seabed sediments (CEAA 2013). Storm water from the CRD Core Area is discharged into the marine environment of Portage Inlet, Gorge Waterway and Victoria Harbour and subsequently discharged into the Juan de Fuca Strait. The historic use of the waters near Ogden Point by the Department of National Defence has not been characterized.

An analysis of PAH distributions from Macaulay Point and Clover Point receiving environment monitoring sediment samples (Yunker et al. 2012) suggest that PAHs likely originate from numerous sources including:

- coal from the SS San Pedro collier which sunk off Brochie Ledge in 1891;
- dreged sediments containing pyrolised coal waste from a former coal gas plant in Victoria Harbour; and,
- combustion PAHs introduced by a combination of atmospheric deposition and delivery via stormwater and the outfalls.

3.2 Quality Assurance / Quality Control

3.2.1 Analytical Results

The calculated relative standard deviation of field triplicates are reported in Tables 3-1 through 4-2, along with the reported results of the analysis of method blanks. Laboratory replicates, matrix spikes and spiked blank results are provided in laboratory COA's included as Appendix 2. QA/QC results that did not achieve DQOs are summarized on Table 3-17 and data qualifiers were assigned to suspect results. Significant data quality objective (DQO) failures include:

SEM and AVS: There were severe exceedances of the DQOs for the RSD of field triplicates resulting in rejection of data for the analysis of sulphide, chromium and lead.

Total Metals: There were severe exceedances of the DQOs for the RSD of field triplicates resulting in rejection of data for the analysis of total lead. In addition, a matrix spike recovery was 260% for the analysis of total silver resulting in the rejection of results for stations PB1, M1E and M8E.

PAHs: Lab duplicate RPDs were above the control limit resulting in the rejection of results for station M1E.

All other data quality objectives were either met or resulted only in marginal failures.

4. RESULTS - BIOACCUMULATION AND TOXICITY

Bioaccumulation and toxicity tests were conducted on sediment samples collected at stations; M1400ESE, FC3500NE, M800E in triplicate (T1000, T2000), PB1, M1E, M2E, and M8E. Lab reports with full details of the methods, statistics and quality assurance are included as Appendix 5.

4.1 Bioaccumulation

4.1.1 28-Day *Nereis virens* Bioaccumulation Test

Bioaccumulation is the accumulation of contaminants in the tissue of organisms through respiration, ingestion, as well as direct contact with contaminated water, sediment or pore water (USEPA and USACE 1998). The bioaccumulation test determines the bioaccumulation potential of contaminants in polychaete *N. virens.*

Following the 28-day exposure to sediment, the polychaete tissue was analyzed for a suite of metals including methyl mercury. Full results of the bioaccumulation test are included in Table 4-1 for both dry weight and wet weight of the polychaetes. Four metals: arsenic, cadmium, copper, and mercury were found to have concentrations at or near the provincial criteria and/or federal sediment quality guidelines.

The dry weight concentrations of these metals in the tissue of polychaetes collected alongside the test polychaetes (with no exposure to the sediment samples) identified as T=0 are, plotted against the measured concentrations in the test polychaete tissue after the 28-day exposure in Figures 9 and 10. The T=0 tissue was analysed in triplicate and the standard deviation between the three results is also plotted as error bars on the T=0 concentrations.

Concentrations of arsenic and copper were lower than the T=0 concentrations at all stations. The one exception being that there was no statistical difference between the two results for arsenic at the reference station PB1. Concentrations of cadmium were higher at stations M1E and the reference station PB1 in comparison to T=0, all other concentrations were either lower or no statistical differences between the T=0 and the 28 day result. Mercury concentrations were below the detection limit of the analysis for all REM stations, and no statistical differences in the mercury concentrations were measured between the T=0 and samples collected from the pre-discharge monitoring stations.

Analysis of wet weight metal concentrations yielded similar results to the dry weight concentrations. Arsenic and copper concentrations were lower in the test polychaete tissue as compared to the T=0 concentrations. Mercury concentrations were either below the method detection limit or showed no significant difference with T=0 results.

Methyl mercury results were generally below the data quality limits for the pre-discharge monitoring stations, except for a duplicate sample from station M1400ESE measured 104 ng/g. For the REM sites methyl mercury concentrations were 4.3 ng/L at T=0, tissue concentrations from the REM station samples were either below or showed no statistical change in comparison to T=0.

Concentrations of cadmium were slightly higher in the M1E, M2E, M8E and the reference station PB1 test results in comparison to the T=0 results.

4.1.2 Quality Assurance / Quality Control

The 28-day *N. virens* bioaccumulation test was considered valid as the QA/QC passed the test validity criteria Table L.

Table L Bioaccumulation QA/QC Test Validity

Validity Criteria	QA/QC	Pass/Fail
Mean survival in the test sediments must be ≥90%	Mean survival in the test sediments was 100%	Pass
Initial sediment mass should exceed 1,680 g	Initial sediment mass was 2,500 g per replicate	Pass
Initial sediment depth must be greater than 2 cm	Sediment depth was ~ 4 cm	Pass

4.2 Toxicity

4.2.1 10-day *Eohaustorius estuaries* Toxicity Test

Results of the toxicity testing are summarized in Table 4-2. Results from the 10-day *E. estuaries* survival and reburial test found a statistically significant decrease in mean survival between the laboratory control and sediment samples M1E, M2E and M800NE and one of its triplicates (T2000). Mean survival in these samples ranged from 87 ±8 % to 93±6 % in comparison to the lab controls of 99±2% and 98±3%.

4.2.2 20-day *Neanthes arenaceodentata* Toxicity Test

Results from the 20-day *N. arenaceodentata* growth and survival test found no statistically significant difference in mean survival between the test sediments and the laboratory controls.

Statistically significant decreases in individual dry weights and mean growth rates were measured between the laboratory control test sediments from stations M1E, M2E, M800NE Triplicate (T1000), M1400ESE, and FC3500NE.

4.2.3 Quality Assurance / Quality Control

The 10-day *E. estuaries* toxicity test was considered valid as the QA/QC passed the test validity criteria. Table M identifies how the test passed the validity criteria.

Table M 10-day *E. estuaries* Toxicity QA/QC Test Validity

Validity Criteria	QA/QC	Pass/Fail
Mean survival in the test controls must be ≥90%	Mean survival in the control was 99%	Pass
Survival in each test control replicate must be ≥80%	Lowest control replicate survival was 95%	Pass

The 20-day *N. arenaceodentata* growth and survival test was considered valid as the QA/QC passed the validity criteria. Table N identifies how the test passed the validity criteria.

Table N 20-day *N. arenaceodentata* Growth and Survival Test Validity

Validity Criteria	QA/QC	Pass/Fail
Mean survival in the laboratory control must be ≥90%	Mean survival in the control was 100%	Pass
Mean growth rate in the laboratory control must be ≥0.38 mg/day/worm	Mean growth rate in the control was 1.00 mg/day/worm	Pass

5. RESULTS - BENTHIC INFAUNA

Tables 5-1 and 5-2 include a summary of total abundance of major taxonomic groups, shown separately for the two surveys, 2010 (Albert Head) and 2011. Fauna were dominated by polychaetes in both survey areas. Sedentariate polychaetes were the most abundant overall, except in several stations (2010 stations 9, 10 and 2011 stations at Finnerty Cove FC3500NE) which were dominated by bivalves. Errantiate polychaete abundances were more variable site-by-site. There also appeared to be an almost complete lack of miscellaneous taxa in the 2011 samples, which may have been the result of the sorting methodology employed by Benthic Services Group.

Although no stations in either study area showed signs of unusual or extreme faunal impoverishment, there were exceedances of the 95th percentile thresholds for some factors in the 2011 samples, which were not evident in the 2010 samples (Tables 5-3 and 5-4). This was most evident in station M1E, which is close to the Macaulay outfall. However, there were also chronic 95th percentile exceedances in errantiate polychaete abundance, organic biomass and production.

The organic biomass exceedances are also reflected in Figure 6, which shows the cumulative frequency distributions for $\log_2$ size categories of organic biomass (averaged for each study area). Figure 6 indicates that the 2011 samples show a distinct lack of the larger fauna expected in this region. Although not as obvious in this figure, much lower abundances of the smallest fauna in the 2011 data compared with the Albert Head 2010 data also account for the production exceedances observed in Table 5-4. The lack of smaller fauna may be a result of methodological difference in field sieving methods employed between the 2010 and 2011 surveys.

Table 5-5 includes a summary of available sediment data for all stations from both surveys. Sample depths ranged from 45-87 m (45-66 m in 2011 stations and 60-87 m in 2010 Albert Head stations). Substrate types were mixed, with varying amounts of gravel and sand dominating. Sediment AVS levels were within background range (Burd et al. 2009; <2 µmol/g) for all stations except M1E. Similarly total organic carbon values were relatively low at all stations except M1E. Metals generally show expected low levels at all stations except those closest to the Macaulay outfall (M1E, M2E) (particularly arsenic, cadmium, lead, silver and zinc).

Table 5-6 shows Pearson correlations of summary biotic factors with the sediment factors measured for all stations. There were no notable correlations, suggesting that the fauna in the area respond to a complex of factors not captured in the measured sediment parameters. This was true even when each survey area was examined separately (data not shown). Although sediment organic contaminants (VOCs) were measured in a few stations, values were not considered to be outside background ranges, except in stations closest to the Macaulay outfall (M1E, M2E). These VOCs were not considered further.

Table 5-7 shows the mean comparative total abundance, organic biomass and taxa number for a) all the Albert Head 2010 stations combined, b) mean values for the combined 4 historical Macaulay REM stations for 2000-2006 which were the same ones sampled in 2011 (M1E, M2E, M8E, PB1), and c) time-series data from 2000-2011 for the Macaulay REM reference station PB1 only. Note that organic biomass has not been estimated for any of the Macaulay REM stations since 2006. Mean abundance and taxa values for all years (2000-2012) for station PB1 were extracted from the CRD Macaulay monitoring database. Biomass and abundance values were similar for all Albert Head 2010 stations and the CRD 2000 and 2001 historical stations[2]. However, from 2002 onward, there is a downward shift in all factors, with some indication that these values are declining over time. The 2011 samples had the lowest values of any of the historical surveys. This was true for stations near to and distant from the Macaulay outfall. Since 2002, different field sieving and laboratory sorting methods have been employed which may have affected results[2].

Figure 7 and Figure 8 show the distribution of organic biomass and production for both sets of survey samples, superimposed on all background samples from the Strait of Georgia/Juan de Fuca Strait database (N~2000), relative to depth, sediment percent sand and estimated organic flux/$\delta\Delta^{15}$N (see Burd et al. 2012a for model). As observed in the 95th percentile thresholds (Tables 5-3 and 5-4), the chronically low biomass and production values for the 2011 data are most obvious in relation to depth and percent sand. However, values were also at the low end of the background range for some samples near the Macaulay outfall with higher organic flux, which may be related to faunal stress from excessive organic enrichment, or may be methodological.

[2] Note that field and lab processing for the 2000 CRD samples was completed by Aquametrix Ltd, Comox, BC. All samples from 2002 onward (with the exception of the 2010 samples) were processed by Benthic Services Group. The 2010 samples were field and lab processed by Biologica Environmental Services.

5.1 Community analyses

Appendices 6A-6F show the results of cluster and SIGTREE analyses for all Albert Head 2010 and 2011 stations. Most of the Albert Head stations had only 1 replicate, so that significant linkages amongst these stations were not possible, and probability/power values are meaningless. For the remaining stations, linkages with a probability less than 1% were considered significant. In the analysis of total faunal abundance, there were no significant linkages, indicating high within-cluster variability for the stations with replicates. However, stations M1E and M2E formed a significantly distinct group at p=0.015, and station PB1 was significantly distinct from the other 2011 stations at p=1%. The most striking feature of this analysis was a distinct separation between the Albert head stations and the 2011 stations, which can likely be explained primarily by the considerable difference in overall abundance (and taxonomic precision) between the 2010 and 2011 surveys. Stations FC3500NE from the 2011 samples was slightly more similar to the Albert Head samples than to the remaining 2011 samples.

Appendix 6B shows the cluster and SIGTREE analysis of total abundance of fauna for 2003-2011 for the 4 stations common to both the 2011 data and the historical Macaulay Point monitoring program (M1E, M2E, M8E, and PB1). Stations M1E and M2E were intermixed over time and formed one large cluster. Station PB1 formed a distinct cluster with no evident temporal patterns. Station M8E formed a distinct cluster most similar to the larger grouping of M1E and M2E. This pattern clearly suggests a biotic gradient related to distance from the Macaulay outfall. This pattern was identified as part of the routine REM conducted by the CRD (CRD 2011). Because of the high number of linkages in this analysis, a probability for rejection of <0.5% was used. Based on this, several significantly homogeneous groupings are evident;

- M1E,M2E (2009)
- M1E,M2E (all remaining years)
- M8E (2003)
- M8E (all remaining years)

Although all higher linkages separating the three stations groups were significant, the relevant groupings could not be considered homogeneous.

Appendix 6C shows the cluster and SIGTREE analysis for organic carbon biomass for all fauna from the two survey areas (Albert Head 2010 and 2011). This analysis clearly shows the distinct biomass structure between the two survey areas, in spite of considerable variability within each survey area. Only 1 linkage was significantly distinct, producing the following significantly homogeneous groupings at p<1%;

- M500SE
- FC3500NE
- PB1, M2E, M1E, M8E, M800NE

All other station groups could not be considered to be statistically homogeneous at the required probability level.

Appendix 6D shows the cluster and SIGTREE analysis for total faunal production from both survey areas (as in Appendix 6C). There were no significant linkages and the separation of survey areas was present as in previous analyses. No other pattern was evident.

Appendix 6E shows the cluster and SIGTREE analysis for proportional faunal organic biomass grouped by size classes (instead of taxa). Because data values are transformed as proportions of total sample biomass, this analysis bypasses the problem of different taxonomic sufficiency and overall biomass between the 2010 and 2011 surveys. Essentially, it examines the size structure of all stations based on $\log_2$ size categories. There were no significant linkages (or any even close) in this analysis, reflecting the finding that overall size structure tends to be relatively conservative throughout the Strait of Georgia/Juan de Fuca Strait within narrow habitat ranges (Macdonald et al. 2012b). The stations from both surveys were mixed together in no discernible pattern, except for Albert Head stations 1,6,7,8 and 13, which had more biomass in moderate to high size classes than the other stations. The different taxonomic methods employed between the 2010 and 2011 samples are under review by the CRD.

Appendix 6F shows the proportional trophic biomass structure (trophic groupings are described in Macdonald et al. 2012a) for all stations from both the 2010 and 2011 surveys. As in the previous analysis, this tends to override differences in total abundance, biomass and taxonomy. There were no significant linkages in this analyses (or even close). As in the size category analysis (Appendix 6E), the stations from both areas tended to be mixed based on trophic structure, reflecting the conservative nature of this feature in infaunal communities from similar habitats (Macdonald et al. 2012a).

5.2 Discussion of Benthic Community Results

No evidence of serious defaunation was evident using standard summary biotic indicators (total abundance, taxa number, diversity indices) typically used in environmental monitoring programs, except that expected moderate biotic differences were evident at the two stations closest to the existing Macaulay Point outfall (M1E and M2E). However, 95th percentile thresholds analyses based on the extensive background databases for the BC coast (Burd et al. 2009) and the Strait of Georgia (Burd et al. 2008, 2012a) suggest serious impoverishment for this habitat type in total biomass and production for most of the 2011 stations. This can be explained by the reduced abundance or absence of both the largest (contributing most to biomass) and smallest fauna (contributing most to production) in the 2011 samples. The lack of large fauna is clearly evident in the size class cumulative frequency distributions, whereas the lack of small fauna is mainly evident in the community analyses based on total abundance, biomass and production. This may be a result of the field sieving and sorting differences between the 2010 and 2011 surveys.

However the multivariate comparisons based on proportional size classes and trophic structure show the same basic community structure in both survey areas. The conclusion is that intermediate sized fauna, which comprise most of the biomass in both survey areas, seems to be relatively similar in size

and trophic structure in both survey areas. This is expected based on the similarity in current and sedimentation structure, basic substrate type and narrow depth range encompassing both survey areas.

A comparative community analysis for data from the four historical CRD stations sampled in 2011 and in previous years showed that faunal composition for each station (based on existing methodology) has not changed significantly since 2003. However, a table showing summary biotic factors for these same stations suggests that faunal biomass in particular, and abundance and taxa number to a lesser extent, were considerably lower in the 2011 samples than in previous years. Based on thresholds analyses, the conclusion could easily be that a progressive faunal impoverishment is occurring in the four historical CRD stations which encompass the Macaulay outfall near-field to the Parry Bay reference area. However, this conclusion is not supported by the 2010 Albert Head station results, which show a normal, healthy fauna with all biotic factors well above thresholds for the region. This is in contradiction with statistical observations performed on the CRD's routine wastewater and marine environment program (CRD, 2010). Further investigation is recommended to determine whether the results are attributed to methodological differences.

Neither survey area showed significant faunal responses to habitat type (depth, substrate type, sediment sulphides) or to sediment metals. Sediment contaminants were typically close to background in all stations except those closest to the Macaulay outfall (M1E, M2E primarily). Within the relatively limited depth range, sediment types and geographic region for both studies, along with expected homogeneous current and sedimentation conditions, it is expected that the faunal communities throughout both survey areas would show considerable homogeneity.

5.3 Original Hypotheses and Questions

Question 1: Are the benthic infauna homogeneous throughout the sample area?

$H_{o(1)}$: There are no significant differences in the benthic infaunal composition (based on abundance or biomass) throughout the sample area.

The abundance, biomass and production community analyses show that fauna were not significantly distinct between stations within each survey area (i.e. Albert Head station 1 vs Albert Head station 5), but were clearly distinct between the two survey areas (i.e. Albert Head 2010 vs Macaulay/McLoughlin Point 2011).

Question 2: Are the benthic infauna similar between the survey area and historical background stations for the Macaulay Point monitoring program or the baseline Albert Head survey?

$H_{o(2)}$: There are no significant differences in infaunal composition between the survey area and background Macaulay Point areas (particularly Parry Bay).

As stated above, the 2011 faunal composition, abundance, biomass, taxa number, and contribution from the smallest and largest fauna were different from the Albert Head 2010 samples. In spite of this, proportional size and trophic structure of communities between the two areas were not distinguishable. This is expected based on background studies for the Strait of Georgia/Juan de Fuca Strait, which

show that both proportional size and trophic structure of infauna are highly conservative within constrained depth, substrate and organic flux ranges such as those found in the present study (Macdonald et al. 2012a,b). In addition, based on the existing sampling methodologies, it could be concluded that faunal composition has not changed significantly in the four historical CRD stations since 2003. As previously stated, this is in contradiction with statistical observations performed on the CRD's routine wastewater and marine environment program (CRD, 2010) and further investigation is recommended.

Question 3: Are the benthic infauna predictable based on sediment conditions (depth, organic content, sediment AVS, stable isotopes of C and N, substrate type, etc.)

$H_{o(3)}$: There are no relationships between sediment parameters (see above list) and benthic infaunal summary factors (abundance, taxa richness, diversity, production, biomass)

The benthic faunal patterns and composition were not predictable by either natural habitat conditions, or by sediment metals. Most of the stations had contaminant levels within expected background ranges, except for the two 2011 stations closest to the Macaulay outfall (M1E and M2E). This further suggests that infaunal structure in the overall region should be relatively homogeneous. However, it should be noted that there is an ocean disposal site in the Albert Head survey area, which did not have any stations included in the present survey. Biotic effects are potentially possible in this region, depending on the history of deposition.

5.4 Quality Assurance / Quality Control

For the 2010 Albert Head samples, the estimated mean sorting efficiency was estimated to be approximately 95%, thus no resorting was performed.

For identifications QC, of any new, rare or unusual specimens were checked by more than one taxonomist, and the specimens retained in a voucher collection. If agreement on the identification was not reached, the specimen was generally identified to a higher taxonomic level (e.g. genus instead of species and retained for future external verification.

For the 2011 McLoughlin Point samples, Benthic Services Group conducted laboratory QA/QC procedures for sorting, species identification and enumeration, as well as comparison to their taxonomic reference collection. Sorting efficiencies were calculated for all QA/QC samples and exceeded the 95% sorting efficiency criterion, with values of 97% or higher. Taxonomic QA/QC was achieved by comparing unusual specimens with the in-house reference collections maintained by Benthic Services Group. For details of the QA/QC results see the Benthic Services Group final data report provided in Appendix 4.

6. RECOMMENDATIONS FOR MONITORING

As a result of the analysis of pre-discharge data collected in 2011, the following sections provide recommendations for supplemental pre-discharge monitoring as well as post discharge monitoring.

6.1.1 Additional Pre-discharge Monitoring

Due to project schedule timelines and the shift in proposed project design from two outfalls to one, only one year of sediment monitoring was conducted at six stations in the vicinity of the proposed McLoughlin Point outfall (M500SE, M800NE, M1300E, M1400ESE, M1600SE, M2300ESE) and at two reference stations (FC3500NE, FC4000ENE) near Finnerty Cove. For the scale of the discharge proposed, a data set of one year at these stations provides limited opportunity to verify the pre-discharge conditions at these stations. It is recommended that a second year of pre-discharge sediment monitoring be conducted sometime prior to outfall commissioning. This would provide a robust data set for future post-discharge monitoring analysis and would provide the opportunity to confirm the quality of the existing data collected. Once the final location of the outfall terminus is known with more certainty, and the future Receiving Environment Monitoring program is finalized, the protocol of the Receiving Environment Monitoring program should be executed for 1 year prior to outfall commissioning.

6.1.2 Post Discharge Monitoring

The Receiving Environment Monitoring program for the existing Macaulay Point and Clover Point discharges was recently re-developed by the CRD in conjunction with the MOE (CRD 2012). This revised monitoring program can be adopted for the proposed McLoughlin Point outfall, with modifications. The following subsections provide recommended amendments to the sediment sub-component, primarily related to benthic community sampling, although the recommended sampling stations should apply to all sediment sub-components.

Schedule and Timing

To balance costs from increased effort in other components of the monitoring program, the proposed sampling frequency was reduced from annually to every second year and the number of benthic invertebrate sampling stations was reduced from 23 stations to 16 stations. The benthic invertebrate monitoring component is proposed to be conducted two times in each five-year cycle (years 3, 5); however, benthic invertebrate monitoring should be conducted every second year. As planned by the CRD, sediment chemistry samples with toxicity, bioaccumulation and pore water assessments (CRD 2012) should be conducted concurrent with benthos.

A core grouping of long-term monitoring stations should be maintained (identified in consultation with CRD) to check that temporal patterns related to the outfall are not missed because of changing background conditions (climate patterns). Typically, if certain thresholds are reached in benthos conditions, rapid changes may occur thereafter. In order to identify cause, a reasonable frequency of sampling is required.

Sample Stations

The recommended sampling stations include primarily existing Macaulay Point monitoring stations, but additionally several stations should also be included which were sampled in 2011 as part of this Stage 2 EIS. The addition of these stations to the sampling grid provides a clear gradient along the direction of prevailing sediment transport away from the outfall, and will thus help to determine spatial extent and subtle effects (assuming revised sampling protocols) related to the outfall discharge and confounding background (climate-related) effects.

The recommended near-field, far-field and reference sediment stations include:

- M0
- M100W
- M100SW
- M100S
- M100SE
- M100E
- M200NW
- M200NE
- M200SE
- M400E
- M400SE
- M800E
- M1300E (2011 pre-discharge)
- M2300ESE (2011 pre-discharge)
- Parry Bay Reference Station #1
- Parry Bay Reference Station #5

Sample Analysis

Recommended additional analyses include:

- Stable carbon and nitrogen isotope analyses for each benthic invertebrate location should be added to the list of analysis. Samples can typically be analyzed by the UBC mass spec lab in CEOS in conjunction with sediment %TOC and %TN. The isotopes are excellent tracers of outfall deposition for untreated, primary or secondary treated municipal wastewater (Gordon 1997, Lynch *et al* 2011).
- The numbers and categorization (0-3) of the bivalve *Axinopsida serricata* with and without a rusty deposit on their shells should be recorded (see Burd et al., 2008), as this is an excellent indicator of 3-4 year integrated organic enrichment patterns in the upper 4 cm of sediments in the habitats of these organisms.

Field Sampling and Laboratory Processing

Some of the differences observed in the 2010 and 2011 data are indicative of differences in methods used between the two years. Therefore, to minimize such confounding factors in the future, the CRD is reviewing taxonomic methods. The methodologies and experience level of personnel conducting the

field work and laboratory processing are extremely important for data quality and subsequent data analysis and interpretation. The taxonomy of many of the organisms are challenging and are very small in size, can be concealed in debris (eg. wood, shell), and have delicate tissues easily damaged. It is recommended that the details of field sampling and laboratory methods be compiled, reviewed and accepted in a written manual that the procedures could be audited against for quality control. Some of the important topic areas include:

- Field washing
- Debris processing
- Personnel training and supervision
- Sorting procedures
- Taxa and life stage identification procedures
- Reference collections
- Sample handling, preservation, transport and storage
- Data and photographic records

Data Endpoints

Minimum data endpoints should consist of measured biotic factors including adult, intermediate and juvenile abundance, taxonomic richness and biomass-converted abundance for use in historical endpoints, as described in past CRD monitoring programs. Additional recommended endpoints include;

- Total wet weight and organic carbon biomass (kj) per taxon and sample (see Burd et al. 2012a,b)
- Production per taxon and sample (Burd et al., 2012a,b)
- Trophic and size class frequency distributions (Macdonald et al., 2012a,b)
- 95th percentile thresholds analyses for relevant indicators based on the BC background database (Burd et al. 2009, 2012a). This allows determination of extraordinary faunal impoverishment relative to the outfall (baseline criteria)
- Additional multivariate community analyses as deemed appropriate to understand spatial and temporal patterns (typically based on abundance, organic biomass, production, trophic structure and size structure)

7. SUMMARY

This Technical Volume provides the sediment quality and benthic infauna baseline data for the proposed McLoughlin Point Outfall under the CRD Core Area Wastewater Treatment Program. One year of data was collected at a variety of stations, including reference stations. The data was collected in accordance with existing QA/QC procedures. The data that did not meet QA/QC criteria were identified herein and should not be used in future analyses. Otherwise, the remaining data collected is suitable to be used in future analysis such as the McLoughlin Point Outfall Environmental Impact Study and for Receiving Environment Monitoring.

8. CLOSURE

We trust that this report satisfies your current requirements and provides suitable documentation for your records. If you have any questions or require further details, please contact the undersigned at any time.

Report Prepared by

Original signed on file February 18, 2013.

Boone Barber, BIT, B.Sc.
Aquatic Biologist

Original signed on file February 18, 2013.

Peter Howland, B.Sc.
Physical Oceanographer

Senior Review by

Original signed and sealed on file February 18, 2013.

Brenda Burd, RPBio
Benthic Ecologist

David Jackson, MSc. Eng., MA (Econ), P. Eng.
Technical Director, Senior Environmental Engineer

Water Business Unit
Infrastructure & Environment
WorleyParsons Canada Services Ltd.

9. REFERENCES

British Columbia. 2012. Municipal Wastewater Regulation. B.C. Reg 87 / 2012.

British Columbia Ministry of Environment (MOE). 2011. BC MOE Sample Preservation and Holding Time Requirements. Published February 10, 2011. Website: http://www.elp.gov.bc.ca (visited January 2013).

BC Ministry of Environment (MOE). 1996. Marine and Estuarine Sediment Sensitive, Generic Numerical Sediment Criteria, Sch 9 [en. B.C Reg. 324/04, s. 70; am. B.C. Regs 239/07, s. 9; 343/08, s18.] (B.C Reg. 375/96))

British Columbia Ministry of Water, Land and Air Protection (MWLAP). 2003. British Columbia Field Sampling Manual. For continuous Monitoring and the collection of Air, Air Emissions, Water, Wastewater, Soil, Sediment and Biological Samples.

Benthic Services Group. 2012. Final Data Report. WorleyParsons Benthic Invertebrate Sample Processing Results. Report to WorleyParsons Canada Ltd.

Bray, J.R. and J.T. Curtis. 1957. An ordination of the upland forest communities of southwestern Wisconsin. Ecol. Monogr. 27:325-349.

Brey, T., 2001. Population dynamics in benthic invertebrates. A virtual handbook. Alfred Wegener Institute for Polar and Marine Research, Germany. http://www.awi-bremerhaven.de/Benthic/Ecosystem/FoodWeb/Handbook/main.html.

Brey, T., Rumohr, H., Ankar, S., 1988. Energy content of macrobenthic invertebrates: general conversion factors from weight to energy. Journal of Experimental Marine Biology and Ecology 117, 271-278.

Burd, B.J. 2000. Ecological effects and indicators analysis for the IONA receiving environment. Development of a receiving environment monitoring approach to liquid waste management: Progress workshop 2, GVRD, Burnaby, B.C.

Burd, B.J., Macdonald, R.W., Johannessen, S.C. and van Roodselaar, A. 2008. Responses of subtidal benthos of the Strait of Georgia, British Columbia Canada to ambient sediment conditions and natural and anthropogenic depositions. Mar. Env. Res. S66: S62-S79.

Burd, B.J., McGreer E., Taekema, B., Macdonald, T. 2009. Utility of large regional databases for understanding abundance and diversity characteristics of natural marine soft substrate fauna. Canadian Technical Report of Fisheries and Aquatic Sciences 2859: 121pp.

Burd, B.J., Macdonald, T.A., van Roodselaar, A. 2012a. Towards predicting basin-wide invertebrate organic biomass and production in marine sediments from a coastal sea. Plos One, July 2012, Volume 7 ,Issue 7. e40295.

Burd, B. Bertold, S. and Macdonald, T. 2012b. Responses of infaunal composition, biomass and production to discharges from a marine outfall over the past decade, Marine Pollution Bulletin 64(9):1837-52.

Canadian Council of Ministers of the Environment. 2001. Canadian sediment quality guidelines for the protection of aquatic life: Introduction. Updated. In: Canadian environmental quality guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.

Capital Regional District (CRD). 2010. Macualay and Clover Points Wastewater and Marine Environment Program. Annual Report 2010. Prepared by Capital Regional District, Marine Programs.

Capital Regional District (CRD). 2012. Revised Wastewater and Marine Environment Monitoring Program for the CRD's Macaulay Point and Clover Point Outfalls. October 2012. Final. Prepared by the CRD in conjunction with BC MOE and MacDonald Environmental Sciences Ltd.

Capital Regional District (CRD). 2013. Victoria Harbour History. Accessed January 2013. Available online at: http://www.crd.bc.ca/watersheds/protection/victoriaharbour/history.htm

Canadian Environmental Assessment Agency (CEAA). 2013. Victoria Harbour - Rock Bay Remediation Project Summary. Canadian Environmental Assessment Registry: *04-01-1829.* Accessed January 2013. Available online at: http://www.ceaa.gc.ca/052/details-eng.cfm?pid=1829#desc

CRD 2000. The trigger process: An early warning of adverse environmental effects for the Clover and MaCaulay Point outfalls, May 2000.

Cauffope, G., Heymans, S., 2005. Energy contents and conversion factors for sea lion's prey. UBC Fisheries Centre Research Reports 13, 1.

Clarke, A., 2008. Ecological stoichiometry in six species of Antarctic marine benthos. Marine Ecology Progress Series 369, 25-37.

Dinn, P.M., Johannessen, S.C., Ross, P.S., Macdonald, R.W., Whiticar, M.J., Lowe, C.J. and van Roodselaar, A., 2012. PBDE and PCB accumulation in benthos near marine wastewater outfalls: The role of sediment organic carbon. Environmental Pollution, 171: 241-248.

Elliott JM. 1977. Some methods for the statistical analysis of samples of benthic invertebrates. 2nd Ed. Scientific Publications of the Freshwater Biological Association, No. 25.

Environment Canada 1997. Benthic Invertebrate Community Expert Working Group Final Report. Recommendations from Cycle 1 Review. EEM/1997/7.

Environment Canada.1998. Biological Test Method: Reference Method for Determining Acute Lethality of Sediment to Marine or Estuarine Amphipods, EPS 1/RM/35

Fielman, K.T., Targett, N. M., 1995. Variation of 2,3,4-tribromopyrrole and its sodium sulfamate salt in the hemichordate *Saccoglossus kowalevskii* Marine Ecology Progress Series 116, 125-136.

Frithsen, J.B., Rudnick, D.T., Doering, P.H., 1986. The determination of fresh organic carbon weight from formaldehyde preserved macrofaunal samples. Hydrobiologia 133, 203-208.

Galeron, J., Sibuet, M., Mahaut, M-L, Dinet, A., 2000. Variation in structure and biomass of the benthic communities at three contrasting sites in the tropical Northeast Atlantic. Marine Ecology Progress Series 197, 121-137.

Golder Associates Ltd (Golder).. 2009a. Spring 2009 Water Quality Monitoring Survey for Baseline Monitoring at Proposed Outfall Study Areas Located In Finnerty Cove and Albert Head : Data Report. Submitted to Capital Regional District Environmental Services.

Golder Associates Ltd (Golder).. 2009b. Summer 2009 Water Quality Survey. Baseline Monitoring at Proposed Finnerty Cove Outfall Study Area. Submitted to Capital Regional District Environmental Services.

Golder Associates Ltd (Golder).. 2009c. Wastewater and Marine Environment Programs Quality Assurance and Quality Control Analytical Program Review. Submitted to Capital Regional District – Scientific Programs. 07-1421-0012.

Golder Associates Ltd (Golder). 2007. Wastewater and Marine Environment Programs Quality Assurance and Quality Control Analytical Program Review. Submitted to Capital Regional District –Scientific Programs.

Gordon, K. 1997. Sedimentary tracers of sewage inputs to the Southern Strait of Georgia. Master's Thesis, University of British Columbia Department of Earth and Ocean Sciences. December 1997.

Johannessen, S.C., Macdonald, R.W., Eek, M.K., 2005a. Historical trends in mercury sedimentation and mixing in the Strait of Georgia, Canada. Env. Sci. Tech. 39, 4361-4368.

Johannessen, S.C., Macdonald, R.W., Wright, C.A., Burd, B., Shaw, D.P. and van Roodselaar, A., 2008. Joined by geochemistry, divided by history: PCBs and PBDEs in the Strait of Georgia sediments. Marine Environmental Research S66, 112-120.

Johannessen, S.C., O'Brien, M.C., Denman, K.L., Macdonald, R.W., 2005b. Seasonal and spatial variations in the source and transport of sinking particles in the Strait of Georgia, British Columbia, Canada. Marine Geology, 216, 59-77.

Leuven, R.S., Brock, T.C., van Druten, H.A., 1985. Effects of preservation on dry- and ash-free dry weight biomass of some common aquatic macro-invertebrates. Hydrobiologia 127, 151-159.

Lie, U., 1968. A quantitative study of benthic infauna in Puget Sound. Fiskeridir Skr. (Havunders) 14, 556pp.

Lynch, B.R., B.J. Burd, J. Clarke, P. Howland, T. Tomliens, V. Macdonald, K. Pillay and I. Dyck. 2011. Iona Deep-Sea Outfall Receiving Environment Monitoring Program, 2010 Sediment Effects

Survey. Draft Report Prepared for Metro Vancouver, Burnaby, BC by WorleyParsons Canada Services Ltd., Victoria, BC. 175 pp. + Appendices.

Macdonald, T.A., Burd B., Macdonald, V.I., van Roodselaar, A., 2010. Taxonomic and feeding guild classification for the marine benthic macroinvertebrates of the Strait of Georgia, British Columbia. Canadian Technical Report of Fisheries and Aquatic Sciences 2874.

Macdonald, T.A., Burd, B.J., van Roodselaar, A. 2012a. Opportunism and conservatism in the trophic structure of a marine soft-bottom macrobenthic community**.** Mar. Ecol. Progr. Ser. 445, 129-140.

McPherson, C.A., Chapman, P.M, McKinnon, S., Burd, B.J, Fanning, L.E., J. Olson, Hamilton, M.C., Chen, F., 2008. Draft Report, Iona Deep-Sea Outfall, 2007 Environmental Monitoring Program: Sediment Effects Survey. Prepared for the Greater Vancouver Regional District (GVRD), Burnaby, BC by EVS Environment Consultants, North Vancouver, BC. 222 pp. + Appendices.

Nemec, A.F.L. and Brinkhurst, R.O. 1988. Using the bootstrap to assess statistical significance in the cluster analysis of species abundance data. C.J.F.A.S. 45: 965-970.

Nemec, A.F.L. 2000. Bootstrap estimation of the statistical power of hierarchical cluster analysis. Chapter 4 in Development of a Receiving Environment Monitoring Approach to liquid waste management. Prog. Workshop #2. December 6, 2000. Greater Vancouver Regional District Draft Technical Reports.

Ricciardi, A.,Bourget, E., 1998. Weight-to-weight conversion factors for marine benthic macroinvertebrates. Marine Ecology Progress Series 163, 245-251.

Ringuette, J. 2005. Beacon Hill Park History. Appendix C. Dallas Road Waterfront. Clover Point and Holland Point History. Beacon Hill Park History.

Rowe, G., 1983. Biomass and production in the deep-sea macrobenthos. In: Rowe, G. (Ed.), The sea. Deep-Sea Biology 8. Wiley, New York. Pp. 97-121.

Rudnick, D.T., Elmgren, R.., Frithsen, J., 1985. Meiofaunal prominence and benthic seasonality in a coastal marine ecosystem. Oecologia 67, 157-168.

Steimle, F., Terranova, R., 1985. Energy equivalents of amrine organisms from the continental shelf of the temperate northwest Atlantic. Journal of Northwest Atlantic Fisheries Science 6, 117-124.

Striplin Env. Assoc. Ltd. 1996. Development of refernce value ranges for benthic infauna assessment endpoints in Puget Sound. Rep. For Wash. State Dept. Ecology Sediment Managament Unit.

USEPA. 1993. Guidance Manual: Bedded Sediment Bioaccumulation Tests (EPA/600R-93/183); ASTM 2000, Standard Guide for Determination of the Bioaccumulation of Sediment-Associated Contaminants by Benthic Invertebrates (E1688-00a).

USEPA and Puget Sound Estuary Program.1995. Recommended Guidelines for Conducting Laboratory Bioassays on Puget Sound Sediments: Juvenile Polychaete Sediment Bioassay.

USEPA and USACE. 1998. Evaluation of dredged material proposed for discharge in waters of the U.S. – Testing Manual: Inland testing manual. EPA-823-B-98-004. U.S. Environmental Protection Agency and U.S. Army Corps of Engineers, Washington, DC.

Yunker M.B.,Perreault A, Lowe C, Source apportionment of elevated PAH concentrations in sediments near deep marine outfalls in Esquimalt and Victoria, BC, Canada: Is coal from an 1891 shipwreck the source? Organic Geochemistry 46 (2012) 12–37

Wacasey, J., Atkinson, E., 1987. Energy values of marine benthic invertebrates from the Canadian Arctic. Marine Ecology Progress Series 39, 243-250.

Wright, C.A., Johannessen, S.C., Macdonald, R.W., Burd, B.J., Hill, P.R., van Roodselaar, A., Bertold, S., 2008. The Strait of Georgia Ambient Monitoring Program, Phase I 2002-2007: Sediment and Benthos. Canadian Data Report of Fisheries and Aquatic Sciences No. 1208. 112 pp.

Tables – Sediment Chemistry

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Table 3-1

Sediment Quality Analytical Results: Fecal Coliform

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample Name	Fecal Coliform (MPN/100g)
CCME Marine Sediment (ISQGs), 1999[1]			---
CCME Marine Sediment (PEL), 1999[2]			---
MOE - Marine & Estuarine Sediment Typical Sch 9[3]			---
MOE - Marine & Estuarine Sediment Sensitive Sch 9[4]			---
Pre-Discharge Monitoring Stations			
FC3500NE - GRAB	27-Sep-2011	FC3500NE - GRAB	20
FC4000ENE - GRAB	27-Sep-2011	FC4000ENE - GRAB	< 20
M1300E - GRAB	29-Sep-2011	M1300E - GRAB	700
M1400ESE - GRAB	28-Sep-2011	M1400ESE - GRAB	330
M1600SE - GRAB	28-Sep-2011	M1600SE - GRAB	700
M2300ESE - GRAB	28-Sep-2011	M2300ESE - GRAB	790
M500SE - GRAB	28-Sep-2011	M500SE - GRAB	1100
M800NE - GRAB	29-Sep-2011	M800NE - GRAB	3500
QA/QC			
M800NE - GRAB	29-Sep-2011	M800NE - GRAB	3500
T100 - GRAB	29-Sep-2011	T100 - GRAB	11000
T200 - GRAB	29-Sep-2011	T200 - GRAB	17000
		RSD	64%

NOTES: *1. --- in guideline row(s) denotes no criteria for that parameter.*
2. --- in detail data row(s) denotes parameter not analyzed.
3. Highlighting indicates parameters above applied guideline/criteria.

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Table 3-2

Sediment Quality Analytical Results: SEM Metals & AVS

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample Name	SEM METAL: Cadmium (µmol/g)	Copper (µmol/g)	Lead (µmol/g)	Mercury (µmol/g)	Nickel (µmol/g)	Zinc (µmol/g)	AVS: Sulphide (µg/g)	Sulphide (µmol/g)	SEM/AVS: Ratio SEM / AVS
Pre-Discharge Monitoring Stations											
FC3500NE - GRAB	27-Sep-2011	FC3500NE - GRAB	0.0009	0.079	0.0167	< 0.0003	0.177	0.451	0.38	0.0119	60.89
FC4000ENE - GRAB	27-Sep-2011	FC4000ENE - GRAB	0.0004	0.052	0.0118	< 0.0003	0.151	0.23	0.56	0.0176	25.30
M1300E - GRAB	29-Sep-2011	M1300E - GRAB	0.0021	0.116	0.036	< 0.0003	0.177	0.613	5.69	0.177	5.33
M1400ESE - GRAB	28-Sep-2011	M1400ESE - GRAB	0.0013	0.129	0.0725	< 0.0003	0.159	0.458	1.66	0.0519	15.80
M1600SE - GRAB	28-Sep-2011	M1600SE - GRAB	0.0065	0.153	0.0931	< 0.0003	0.14	1.51	12.6	0.394	4.83
M2300ESE - GRAB	28-Sep-2011	M2300ESE - GRAB	0.0081	0.117	0.146	< 0.0003	0.162	0.804	47.9	1.5	0.82
M500SE - GRAB	28-Sep-2011	M500SE - GRAB	0.0086	0.251	0.0442	< 0.0003	0.197	0.588	50.9	1.59	0.68
M800NE - GRAB	29-Sep-2011	M800NE - GRAB	0.0028	0.193	0.0405	< 0.0003	0.223	0.659	8.02	0.25	4.47
Receiving Environment Monitoring Stations											
M1E	21-Sep-2011	M1E	0.0242	0.203	0.028	< 0.00030	0.135	1.17	253	7.89	0.20
M2E	21-Sep-2011	M2E	0.00206	0.133	0.0264	< 0.00030	0.159	0.494	18	0.562	1.45
M8E	22-Sep-2011	M8E	0.0013	0.124	0.0253	< 0.00030	0.164	0.47	1.35	0.0422	18.59
PB1	20-Sep-2011	PB1	0.00137	0.121	0.0275	< 0.00030	0.268	0.696	1.08	0.0337	33.05
QA/QC											
M800NE - GRAB	29-Sep-2011	M800NE - GRAB	0.0028	0.193	0.0405	< 0.0003	0.223	0.659	8.02	0.25	---
T100 - GRAB	29-Sep-2011	T100 - GRAB	0.0029	0.174	0.0472	< 0.0003	0.235	0.736	2.13	0.0664	---
T200 - GRAB	29-Sep-2011	T200 - GRAB	0.0014	0.159	0.0791	< 0.0003	0.180	0.541	4.15	0.129	---
		RSD	**35%**	**10%**	**37%**	**<5xDL**	**14%**	**15%**	**63%**	**63%**	---
M2E	21-Sep-2011	M2E	0.00206	0.133	0.0264	< 0.00030	0.159	0.494	18	0.562	---
(Duplicate)	21-Sep-2011	M2E-DUP	0.0146	0.195	0.2300	< 0.00030	0.220	0.632	282	8.79	---
(Duplicate)	21-Sep-2011	M2E-TRIP	0.00615	0.224	0.0588	< 0.00030	0.212	0.676	122	3.8	---
		RSD	**84%**	**25%**	**104%**	**<5xDL**	**17%**	**16%**	**95%**	**95%**	---

NOTES:

1. Highlighting indicates Moderate Data Quality Objective (DQO) Failure. Data Qulifier (J) i.e. reported concentration is an estimated value.
2. Highlighting indicates Severe DQO Failure, and Data Rejected
3. *--- in detail data row(s) denotes parameter not analyzed.*

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Table 3-3

Sediment Quality Analytical Results: Physical Parameters

PROJECT NO.: 307071-00020

			GENERAL														
Sampling Location	Date (d-m-y)	Sample Name	% Moisture (%)	% Sand of <2mm Fraction (<2.00mm & >0.053mm) (%)	% Silt of <2mm Fraction (<0.053mm & >0.002mm) (%)	<0.002mm Pipette (%)	<0.053mm Pipette (%)	Clay (%)	Gravel (%)	Sand (%)	Sieve #10 (<2.0mm) (%)	Sieve #120 (<0.125mm) (%)	Sieve #60 (<0.250mm) (%)	Sieve (<0.0020mm) (%)	Silt (%)	Texture Class (none)
Pre-Discharge Monitoring Stations																	
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	31	79.95	12.90	6.99	19.61	7.15	2.19	78.20	97.81	65.44	93.88	6.99	12.61	-999
FC3500NE - GRAB	27-Sep-2011	FC3500NE - GRAB	31	---	---	---	---	---	---	---	---	---	---	---	---	---
FC4000ENE - COMPOSITE	27-Sep-2011	FC4000ENE - COMPOSITE	---	86.87	8.38	3.90	10.79	4.75	17.84	71.38	82.17	16.89	42.45	3.90	6.89	-999
FC4000ENE - GRAB	27-Sep-2011	FC4000ENE - GRAB	27	---	---	---	---	---	---	---	---	---	---	---	---	---
M1300E - COMPOSITE	29-Sep-2011	M1300E - COMPOSITE	---	62.32	26.94	8.51	29.85	10.74	20.77	49.37	79.23	67.10	74.29	8.51	21.34	-999
M1300E - GRAB	29-Sep-2011	M1300E - GRAB	39	---	---	---	---	---	---	---	---	---	---	---	---	---
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	40	65.67	23.67	5.49	17.66	10.66	48.55	33.79	51.45	41.97	48.85	5.49	12.18	-999
M1400ESE - GRAB	28-Sep-2011	M1400ESE - GRAB	37	---	---	---	---	---	---	---	---	---	---	---	---	---
M1600SE - COMPOSITE	28-Sep-2011	M1600SE - COMPOSITE	32	71.91	18.62	5.79	17.18	9.47	38.86	43.96	61.14	43.42	57.85	5.79	11.39	-999
M1600SE - GRAB	28-Sep-2011	M1600SE - GRAB	35	---	---	---	---	---	---	---	---	---	---	---	---	---
M2300ESE - COMPOSITE	28-Sep-2011	M2300ESE - COMPOSITE	36	63.72	24.42	6.90	21.11	11.86	41.82	37.07	58.18	42.45	52.73	6.90	14.21	-999
M2300ESE - GRAB	28-Sep-2011	M2300ESE - GRAB	44	---	---	---	---	---	---	---	---	---	---	---	---	---
M500SE - COMPOSITE	28-Sep-2011	M500SE - COMPOSITE	---	62.72	26.43	8.06	27.71	10.85	25.67	46.63	74.33	64.27	71.72	8.06	19.65	-999
M500SE - GRAB	28-Sep-2011	M500SE - GRAB	39	---	---	---	---	---	---	---	---	---	---	---	---	---
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	34	55.87	31.40	11.59	40.16	12.73	8.99	50.85	91.01	84.21	89.00	11.59	28.58	-999
M800NE - GRAB	29-Sep-2011	M800NE - GRAB	38	---	---	---	---	---	---	---	---	---	---	---	---	---
Receiving Environment Monitoring Stations																	
M1E	21-Sep-2011	M1E	38	---	---	---	---	11	9.9	62	---	---	---	---	17	---
	22-Sep-2011	M1E	---	---	---	---	---	10	6.1	63	---	---	---	---	21	---
M2E	21-Sep-2011	M2E	35	---	---	---	---	10	2.5	65	---	---	---	---	22	---
	22-Sep-2011	M2E	---	---	---	---	---	9.9	2.8	63	---	---	---	---	24	---
M8E	22-Sep-2011	M8E	---	---	---	---	---	12	2.9	56	---	---	---	---	29	---
	22-Sep-2011	M8E	34	---	---	---	---	11	5.0	59	---	---	---	---	25	---
PB1	20-Sep-2011	PB1	29	---	---	---	---	8.3	< 2.0	71	---	---	---	---	21	---
	22-Sep-2011	PB1	---	---	---	---	---	7.4	< 2.0	73	---	---	---	---	20	---
QA/QC																	
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	34	55.87	31.4	11.59	40.16	12.73	8.99	50.85	91.01	84.21	89	11.59	28.58	-999
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	34	56.01	32.48	10.81	41.34	11.51	6.01	52.64	93.99	88.95	92.82	10.81	30.53	-999
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	34	52.85	34.5	10.8	40.24	12.66	14.67	45.09	85.33	77.98	82.25	10.8	29.44	-999
		RSD	**0%**	**3%**	**5%**	**4%**	**2%**	**6%**	**44%**	**8%**	**5%**	**7%**	**6%**	**4%**	**3%**	**0%**
M800NE - GRAB	29-Sep-2011	M800NE - GRAB	38	---	---	---	---	---	---	---	---	---	---	---	---	---
(Triplicate)	29-Sep-2011	T100 - GRAB	39	---	---	---	---	---	---	---	---	---	---	---	---	---
(Triplicate)	29-Sep-2011	T200 - GRAB	28	---	---	---	---	---	---	---	---	---	---	---	---	---
		RSD	**17%**													
M2E	21-Sep-2011	M2E	35	---	---	---	---	10	2.5	65	---	---	---	---	22	---
(Triplicate)	21-Sep-2011	M2E-DUP	34	---	---	---	---	7.9	22	50	---	---	---	---	19	---
(Triplicate)	21-Sep-2011	M2E-TRIP	33	---	---	---	---	11	2.3	64	---	---	---	---	23	---
		RSD	**3%**					**16%**	**127%**	**14%**					**10%**	

NOTES: *1. --- in detail data row(s) denotes parameter not analyzed.*

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Table 3-4

Sediment Quality Analytical Results: Routine Parameters

PROJECT NO.: 307071-00020			ANION	CARBON		FAB5/CATION				GENERAL	INDICATOR		PHOSPHORUS
Sampling Location	Sample Depth / Date (d-m-y)	Sample Name	Cyanide and Thiocyanate (µg/g)	Total Organic Carbon (%)	Total Carbon (mg/kg)	Calcium (mg/kg)	Magnesium (mg/kg)	Potassium (mg/kg)	Sodium (mg/kg)	pH (pH Units)	Iron (mg/kg)	Manganese (mg/kg)	Phosphorus (mg/kg)
Pre-Discharge Monitoring Stations													
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	---	0.43	5800	9590	6050	1630	4370	8.34	21700	176	486
FC4000ENE - COMPOSITE	27-Sep-2011	FC4000ENE - COMPOSITE	---	0.39	7100	73100	5060	1280	3690	8.53	16200	193	448
M1300E - COMPOSITE	29-Sep-2011	M1300E - COMPOSITE	---	0.63	8500	11900	7340	2300	7270	8.24	28500	206	735
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	---	0.64	9400	10900	6700	1930	6890	8.14	23400	193	637
M1600SE - COMPOSITE	28-Sep-2011	M1600SE - COMPOSITE	---	0.53	8900	15800	6710	1890	6330	8.27	26600	212	661
M2300ESE - COMPOSITE	28-Sep-2011	M2300ESE - COMPOSITE	---	0.62	8500	20900	6900	1970	6780	8.20	26100	201	729
M500SE - COMPOSITE	28-Sep-2011	M500SE - COMPOSITE	---	0.7	16000	5500	6740	1850	5910	8.24	28800	202	660
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	---	0.55	6800	9820	7310	2240	6580	8.28	29000	200	679
Receiving Environment Monitoring Stations													
M1E	21-Sep-2011	M1E	0.183	2.7	---	5370	6860	1970	9460	8.04	22000	170	927
	22-Sep-2011	M1E	---	---	---	---	---	---	---	---	---	---	---
M2E	21-Sep-2011	M2E	0.140	1.3	---	5250	8020	2140	7070	8.03	27800	224	729
	22-Sep-2011	M2E	---	---	---	---	---	---	---	---	---	---	---
M8E	22-Sep-2011	M8E	---	---	---	---	---	---	---	---	---	---	---
	22-Sep-2011	M8E	0.193	1.0	---	6220	7060	2000	7520	8.14	25700	205	668
PB1	20-Sep-2011	PB1	0.140	0.56	---	5170	6660	1640	4850	8.09	24000	196	575
	22-Sep-2011	PB1	---	---	---	---	---	---	---	---	---	---	---
QA/QC													
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	---	0.55	6800	9820	7310	2240	6580	8.28	29000	200	679
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	---	0.55	6900	5700	7270	2210	6670	8.22	25000	201	675
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	---	0.6	6700	6560	7390	2250	6630	8.24	27600	204	644
		RSD		**5%**	**1%**	**30%**	**1%**	**1%**	**1%**	**0%**	**7%**	**1%**	**3%**
M800NE - GRAB	29-Sep-2011	M800NE - GRAB	---	---	---	---	---	---	---	---	---	---	---
(Triplicate)	29-Sep-2011	T100 - GRAB	---	---	---	---	---	---	---	---	---	---	---
(Triplicate)	29-Sep-2011	T200 - GRAB	---	---	---	---	---	---	---	---	---	---	---
		RSD											
M2E	21-Sep-2011	M2E	0.14	1.3	---	5250	8020	2140	7070	8.03	27800	224	729
(Triplicate)	21-Sep-2011	M2E-DUP	0.176	1.3	---	4550	6690	1770	7090	8.03	22800	183	590
(Triplicate)	21-Sep-2011	M2E-TRIP	0.15	0.95	---	5600	7750	2060	7390	8.08	28500	221	688
		RSD	**12%**	**17%**		**10%**	**9%**	**10%**	**2%**	**0%**	**12%**	**11%**	**11%**

NOTES: *1. --- in detail data row(s) denotes parameter not analyzed.*

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Table 3-5

Sediment Quality Analytical Results: Total Metals and Trace Elements

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample Name	Total Metals and Trace Elements																																				
			Aluminum (µg/g)	Antimony (µg/g)	Arsenic (µg/g)	Barium (µg/g)	Beryllium (µg/g)	Bismuth (µg/g)	Cadmium (µg/g)	Calcium (µg/g)	Chromium (III) (µg/g)	Chromium (VI) (µg/g)	Chromium (µg/g)	Cobalt (µg/g)	Copper (µg/g)	Iron (µg/g)	Lead (µg/g)	Lithium (µg/g)	Magnesium (µg/g)	Manganese (µg/g)	Mercury (µg/g)	Molybdenum (µg/g)	Nickel (µg/g)	Phosphorus (µg/g)	Potassium (µg/g)	Selenium (µg/g)	Silver (µg/g)	Sodium (µg/g)	Strontium (µg/g)	Thallium (µg/g)	Tin (µg/g)	Titanium (µg/g)	Uranium (µg/g)	Vanadium (µg/g)	Zinc (µg/g)	Zirconium (µg/g)
CCME Marine Sediment, 1999[1]			---	---	7.24	---	---	---	0.7	---	---	---	52.3	---	18.7	---	30.2	---	---	---	0.13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	124	---
CCME Marine Sediment (PEL), 1999[2]			---	---	41.6	---	---	---	4.2	---	---	---	160	---	108	---	112	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	271	---
MOE - Marine & Estuarine Sediment Sensitive Sch 9[3]			---	---	26	---	---	---	2.6	---	---	---	99	---	67	---	69	---	---	---	0.43	---	---	---	---	---	---	---	---	---	---	---	---	---	---	170	---
MOE - Marine & Estuarine Sediment Typical Sch 9[4]			---	---	50	---	---	---	5	---	---	---	190	---	130	---	130	---	---	---	0.84	---	---	---	---	---	---	---	---	---	---	---	---	---	---	330	---
Pre-Discharge Monitoring Stations																																							
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	10600	0.16	4.53	23.3	< 0.40	< 0.10	0.124	9590	---	---	21.2	6.04	10.2	21700	5.14	15.7	6050	176	< 0.050	0.22	16.6	486	1630	< 0.50	< 0.050	4370	47.6	0.12	0.41	592	0.435	37.9	46.1	2.79
FC4000ENE - COMPOSITE	27-Sep-2011	FC4000ENE - COMPOSITE	6910	0.15	3.54	17.6	< 0.40	< 0.10	0.086	73100	---	---	16.6	5.11	7.89	16200	3.91	9.3	5060	193	< 0.050	0.21	15.7	448	1280	< 0.50	< 0.050	3690	376	0.098	0.27	403	0.417	30.5	30	0.83
M1300E - COMPOSITE	29-Sep-2011	M1300E - COMPOSITE	15700	0.65	7.45	54.5	< 0.40	< 0.10	0.337	11900	---	---	24.1	6.58	52.9	28500	21.6	20.8	7340	206	0.305	0.97	17.6	735	2300	< 0.50	0.07	7270	73.1	0.087	13	799	0.791	46.8	76.2	4.58
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	12900	0.23	3.87	44.3	0.43	< 0.10	0.994	10900	---	---	23.6	6.41	15.1	23400	13.7	19.7	6700	193	< 0.050	0.59	18.1	637	1930	< 0.50	0.055	6890	75.8	0.093	9.8	679	0.669	44.2	53.9	2.65
M1600SE - COMPOSITE	28-Sep-2011	M1600SE - COMPOSITE	12800	0.27	5.58	45.8	< 0.40	< 0.10	1.07	15800	---	---	24	6.87	20.8	26600	13.9	19.8	6710	212	< 0.050	0.72	20.1	661	1890	< 0.50	0.062	6330	94.2	0.082	10.6	688	0.659	44.1	58.5	3
M2300ESE - COMPOSITE	28-Sep-2011	M2300ESE - COMPOSITE	12700	0.33	5.93	43.1	< 0.40	0.16	2.97	20900	---	---	24.7	6.65	41.9	26100	12.1	19	6900	201	< 0.050	0.79	19.2	729	1970	< 0.50	0.106	6780	131	0.085	30.3	607	0.701	45	76.6	1.88
M500SE - COMPOSITE	28-Sep-2011	M500SE - COMPOSITE	13200	0.55	6.29	108	0.41	< 0.10	4.47	5500	---	---	30.5	7.25	24.9	28800	31.9	20.4	6740	202	< 0.050	1.42	23.5	660	1850	< 0.50	0.072	5910	44.4	0.083	45.1	686	0.947	45.8	75.7	4.1
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	15400	0.28	6.2	33.7	< 0.40	< 0.10	0.331	9820	---	---	23.8	6.52	15.7	29000	10.8	20.9	7310	200	< 0.050	0.87	16.8	679	2240	< 0.50	0.068	6580	63.6	0.082	2.76	759	0.785	46.3	91.7	4
Receiving Environment Monitoring Stations																																							
M1E	21-Sep-2011	M1E	11700	6.39	11.1	42.9	< 0.40	0.11	1.88	5370	23.9	1.3	25.2	6.12	52	22000	90.2	17.4	6860	170	0.0893	4.89	17.8	927	1970	< 0.50	0.974	9460	49	0.144	13.9	625	---	43.8	80.5	---
M2E	21-Sep-2011	M2E	14100	0.29	7.14	48.4	< 0.40	3.4	0.874	5250	27.6	< 1.0	27.6	7.95	37.2	27800	11.3	22.6	8020	224	0.0885	1.71	21.7	729	2140	< 0.50	0.092	7070	40.4	0.142	7.04	780	---	51.2	81.7	---
M8E	22-Sep-2011	M8E	13400	0.34	4.56	69.7	0.41	< 0.10	0.941	6220	24.5	< 1.0	24.5	7.52	16.8	25700	12.5	20.5	7060	205	0.0536	0.57	19.4	668	2000	0.73	1.31	7520	60.7	0.09	9.54	793	---	45.9	65.8	---
PB1	20-Sep-2011	PB1	11000	0.13	3.99	24.5	< 0.40	< 0.10	0.088	5170	23.4	< 1.0	23.4	6.97	10.6	24000	5.59	18.1	6660	196	0.0306	0.27	18.4	575	1640	< 0.50	< 0.050	4850	32.3	0.103	0.6	697	---	43.3	48.6	---
QA/QC																																							
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	15400	0.28	6.2	33.7	< 0.40	< 0.10	0.331	9820	---	---	23.8	6.52	15.7	29000	10.8	20.9	7310	200	< 0.050	0.87	16.8	679	2240	< 0.50	0.068	6580	63.6	0.082	2.76	759	0.785	46.3	91.7	4
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	14100	0.33	5.4	34.1	< 0.40	< 0.10	0.319	5700	---	---	23.1	6.44	14.8	25000	12.2	21.1	7270	201	< 0.050	0.48	16.4	675	2210	< 0.50	0.057	6670	35.2	0.083	5.63	649	0.68	43.6	67.5	3.47
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	15200	0.24	5.52	33.8	< 0.40	< 0.10	0.303	6560	---	---	24	6.58	18.5	27600	26.2	21.2	7390	204	< 0.050	0.66	17.1	644	2250	< 0.50	0.065	6630	38.3	0.089	2.59	785	0.801	46.5	63.7	3.88
		RSD	**5%**	**16%**	**8%**	**1%**	**<5xDL**	**<5xDL**	**4%**	**30%**			**2%**	**1%**	**12%**	**7%**	**52%**	**1%**	**1%**	**1%**	**<5xDL**	**29%**	**2%**	**3%**	**1%**	**<5xDL**	**9%**	**1%**	**34%**	**4%**	**47%**	**10%**	**9%**	**4%**	**20%**	**7%**
M2E	21-Sep-2011	M2E	14100	0.29	7.14	48.4	< 0.40	3.4	0.874	5250	27.6	< 1.0	27.6	7.95	37.2	27800	11.3	22.6	8020	224	0.0885	1.71	21.7	729	2140	< 0.50	0.092	7070	40.4	0.142	7.04	780	---	51.2	81.7	---
(Triplicate)	21-Sep-2011	M2E-DUP	12200	0.46	6.56	35.1	< 0.40	< 0.10	0.835	4550	23	< 1.0	23	6.27	23.6	22800	9.84	17.9	6690	183	0.0495	1.74	17.5	590	1770	< 0.50	0.056	7090	35.5	0.114	6.57	686	---	43.5	62.3	---
(Triplicate)	21-Sep-2011	M2E-TRIP	14400	0.47	7.44	37.3	< 0.40	< 0.10	0.549	5600	26.7	< 1.0	26.7	7.59	25.9	28500	21.6	21.4	7750	221	0.067	1.97	21.8	688	2060	< 0.50	0.074	7390	43.6	0.139	3.69	876	---	51.3	77.5	---
		RSD	**9%**	**25%**	**6%**	**18%**	**<5xDL**	**<5xDL**	**24%**	**10%**	**9%**	**<5xDL**	**9%**	**12%**	**25%**	**12%**	**45%**	**12%**	**9%**	**11%**	**29%**	**8%**	**12%**	**11%**	**10%**	**<5xDL**	**24%**	**2%**	**10%**	**12%**	**31%**	**12%**		**9%**	**14%**	

NOTES:

1. *--- in guideline row(s) denotes no criteria for that parameter.*
2. *--- in detail data row(s) denotes parameter not analyzed.*
3. *Highlighting indicates parameters above applied guideline/criteria.*
4. *Highlighting indicates detection limit exceeds applicable guideline value.*
5. *Superscript [1] denotes values exceeding (Canadian Environmental Quality Guidelines for Marine Sediment (ISQGs), (CCME, 1999))*
6. *Superscript [2] denotes values exceeding (Canadian Environmental Quality Guidelines for Marine Sediment (PEL), (CCME, 1999))*
7. *Superscript [3] denotes values exceeding (BC Ministry of Environment (MOE) - Marine and Estuarine Sediment Sensitive, Generic Numerical Sediment Criteria, Sch 9 [en. B.C Reg. 324/04, s. 70; am. B.C. Regs 239/07, s. 9; 343/08, s18.] (B.C Reg. 375/96))*
8. *Superscript [4] denotes values exceeding (BC Ministry of Environment (MOE) - Marine and Estuarine Sediment Typical, Generic Numerical Sediment Criteria, Sch 9 [en. B.C Reg. 324/04, s. 70; am. B.C. Regs 239/07, s. 9; 343/08, s18.] (B.C Reg. 375/96))*

Arsenic:
Sediment quality criteria is considered less reliable, or could not be fully evaluated.

9. *Highlighting indicates Moderate Data Quality Objective (DQO) Failure. Data Qulifier (J) i.e. reported concentration is an estimated value.*
10. *Highlighting indicates Severe DQO Failure, and Data Rejected*

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Table 3-6

Quality Analytical Results: Polycyclic Aromatic Hydrocarbons

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample Name	2-Methylnaphthalene (mg/kg)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Anthracene (mg/kg)	Benzo[a]anthracene (mg/kg)	Benzo[a]pyrene (mg/kg)	Benzo[b&j]fluoranthene (mg/kg)	Benzo[g,h,i]perylene (mg/kg)	Benzo[k]fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo[a,h]anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno[1,2,3-cd]pyrene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Polycyclic Aromatic Hydrocarbons (heavy) (mg/kg)	Polycyclic Aromatic Hydrocarbons (light) (mg/kg)	Pyrene (mg/kg)	Total PAHs (mg/kg)
CCME Marine Sediment (ISQGs), 1999[1]			**0.0202**	**0.00671**	**0.00587**	**0.0469**	**0.0748**	**0.0888**	**---**	**---**	**---**	**0.108**	**0.00622**	**0.113**	**0.0212**	**---**	**0.0346**	**0.0867**	**---**	**---**	**0.153**	**---**
CCME Marine Sediment (PEL), 1999[2]			**0.201**	**0.0889**	**0.128**	**0.245**	**0.693**	**0.763**	**---**	**---**	**---**	**0.846**	**0.135**	**1.494**	**0.144**	**---**	**0.391**	**0.544**	**---**	**---**	**1.398**	**---**
MOE - Marine & Estuarine Sediment Typical Sch 9[3]			**0.24**	**0.11**	**0.15**	**0.29**	**0.83**	**0.92**	**---**	**---**	**---**	**1**	**0.16**	**1.8**	**0.17**	**---**	**0.47**	**0.65**	**---**	**---**	**1.7**	**20**
MOE - Marine & Estuarine Sediment Sensitive Sch 9[4]			**0.12**	**0.055**	**0.079**	**0.15**	**0.43**	**0.47**	**---**	**---**	**---**	**0.52**	**0.084**	**0.93**	**0.089**	**---**	**0.24**	**0.34**	**---**	**---**	**0.87**	**10**
Pre-Discharge Monitoring Stations																							
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	< 0.050	< 0.050	< 0.050	**0.054**	**0.079**	0.063	0.055	< 0.050	0.061	0.082	< 0.050	**0.17**	< 0.050	< 0.050	< 0.050	**0.17**	0.53	0.23	0.14	0.76
M1600SE - COMPOSITE	28-Sep-2011	M1600SE - COMPOSITE	< 0.050	**0.072**	**0.40**	**1.8**	**2.4**	**2.7**	1.9	1.3	1.6	**2.2**	**0.30**	**8.3**	**0.64**	1.3	**0.079**	**5.5**	23	8.5	**7.7**	**32**
M2300ESE - COMPOSITE	28-Sep-2011	M2300ESE - COMPOSITE	< 0.050	< 0.050	**0.075**	0.15	**0.57**	**0.61**	0.32	0.20	0.47	0.52	**0.083**	**1.1**	< 0.050	0.25	< 0.050	**0.23**	4.1	0.45	**1.2**	4.5
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 0.050	< 0.050	**0.054**	< 0.050	**0.12**	**0.097**	0.10	< 0.050	< 0.050	0.098	< 0.050	0.11	< 0.050	0.051	< 0.050	< 0.050	0.57	0.054	0.15	0.62
Receiving Environment Monitoring Stations																							
M1E	21-Sep-2011	M1E	**2.0**	**0.47**	**1.2**	**0.61**	**3.7**	**5.3**	7.4	3.6	5.9	**9.0**	**1.3**	**26**	**2.8**	4.3	**2.5**	**27**	61	37	**16**	**98**
M2E	21-Sep-2011	M2E	**0.24**	**0.28**	< 0.090	**0.48**	**0.75**	**0.64**	0.58	0.41	0.42	**0.88**	**0.095**	**1.4**	**0.29**	0.43	**0.46**	**1.9**	5.4	3.7	**1.6**	9.1
M8E	22-Sep-2011	M8E	**0.10**	< 0.090	< 0.090	< 0.080	< 0.070	< 0.070	< 0.070	< 0.080	< 0.070	< 0.090	< 0.080	< 0.080	< 0.090	< 0.070	**0.092**	< 0.080	< 0.090	0.19	< 0.080	0.19
PB1	20-Sep-2011	PB1	< 0.030	< 0.090	< 0.090	< 0.080	< 0.070	< 0.070	< 0.070	< 0.080	< 0.070	< 0.090	< 0.080	< 0.080	< 0.090	< 0.070	< 0.070	< 0.080	< 0.090	< 0.090	< 0.080	< 0.090
QA/QC																							
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 0.050	< 0.050	**0.054**	< 0.050	**0.12**	**0.097**	0.10	< 0.050	< 0.050	0.098	< 0.050	0.11	< 0.050	0.051	< 0.050	< 0.050	0.57	0.054	0.15	0.62
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	< 0.050	< 0.050	< 0.050	< 0.050	<0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.063	< 0.050	< 0.050	< 0.050	**0.092**	0.16	0.092	0.097	0.25
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	< 0.050	< 0.050	< 0.050	< 0.050	**0.12**	**0.096**	0.096	< 0.050	< 0.050	0.10	< 0.050	0.11	< 0.050	< 0.050	< 0.050	< 0.050	0.58	< 0.050	0.15	0.58
		RSD	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**55%**	**<5xDL**	**23%**	**42%**
M2E	21-Sep-2011	M2E	**0.24**	**0.28**	< 0.090	**0.48**	**0.75**	**0.64**	0.58	0.41	0.42	**0.88**	**0.095**	**1.4**	**0.29**	0.43	**0.46**	**1.9**	5.4	3.7	**1.6**	9.1
(Triplicate)	21-Sep-2011	M2E-DUP	**0.033**	< 0.090	< 0.090	< 0.080	< 0.070	< 0.070	< 0.070	< 0.080	< 0.070	< 0.090	< 0.080	< 0.080	< 0.090	< 0.070	< 0.070	< 0.080	< 0.090	< 0.090	< 0.080	< 0.090
(Triplicate)	21-Sep-2011	M2E-TRIP	< 0.030	< 0.090	< 0.090	< 0.080	< 0.070	< 0.070	< 0.070	< 0.080	< 0.070	< 0.090	< 0.080	< 0.080	< 0.090	< 0.070	< 0.070	< 0.080	< 0.090	< 0.090	< 0.080	< 0.090
		RSD	**130%**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**

NOTES:

1. *--- in guideline row(s) denotes no criteria for that parameter.*
2. *--- in detail data row(s) denotes parameter not analyzed.*
3. *Highlighting indicates parameters above applied guideline/criteria.*
4. *Superscript [1] denotes values exceeding (Canadian Environmental Quality Guidelines for Marine Sediment (ISQGs), (CCME, 1999))*
5. *Superscript [2] denotes values exceeding (Canadian Environmental Quality Guidelines for Marine Sediment (PEL), (CCME, 1999))*
6. *Superscript [3] denotes values exceeding (BC Ministry of Environment (MOE) - Marine and Estuarine Sediment Typical, Generic Numerical Sediment Criteria, Sch 9 [en. B.C Reg. 324/04, s. 70; am. B.C. Regs 239/07, s. 9; 343/08, s18.] (B.C Reg. 375/96))*
   Total PAHs:
   Total PAHs include: 2-methylnaphthalene, acenanapthylene, acenaphthene, anthracene, benzo[a]anthracene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, fluorene, fluoranthene, naphthalene, phenanthrene and pyrene.
7. *Superscript [4] denotes values exceeding (BC Ministry of Environment (MOE) - Marine and Estuarine Sediment Sensitive, Generic Numerical Sediment Criteria, Sch 9 [en. B.C Reg. 324/04, s. 70; am. B.C. Regs 239/07, s. 9; 343/08, s18.] (B.C Reg. 375/96))*
   Total PAHs:
   Total PAHs include: 2-methylnaphthalene, acenanapthylene, acenaphthene, anthracene, benzo[a]anthracene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, fluorene, fluoranthene, naphthalene, phenanthrene and pyrene.
9. *Highlighting indicates Moderate Data Quality Objective (DQO) Failure. Data Qulifier (J) i.e. reported concentration is an estimated value.*
10. *Highlighting indicates Severe DQO Failure, and Data Rejected*

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Table 3-7

Sediment Quality Analytical Results: Organochlorinated Pesticides

PROJECT NO.: 307071-00020

Monitoring Station	Date (d-m-y)	Sample Name	Organochlorinated Pesticides																								
			Aldrin (ng/g)	Dieldrin (ng/g)	a-Chlordane (ng/g)	g-Chlordane (ng/g)	Chlordane (Total) (ng/g)	o,p-DDD (ng/g)	p,p-DDD (ng/g)	o,p-DDD + p,p-DDD (ng/g)	o,p-DDE (ng/g)	p,p-DDE (ng/g)	o,p-DDE + p,p-DDE (ng/g)	o,p-DDT (ng/g)	p,p-DDT (ng/g)	o,p-DDT + p,p-DDT (ng/g)	DDT+ Metabolites (ng/g)	Lindane (ng/g)	Endosulfan I (alpha) (ng/g)	Endosulfan II (ng/g)	Endosulfan sulfate (ng/g)	Total Endosulfan (ng/g)	Endrin (ng/g)	Heptachlor (ng/g)	Heptachlor epoxide (ng/g)	Hexachlorobenzene (ng/g)	Methoxychlor (ng/g)
CCME Marine Sediment, 1999[1]			---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
CCME Marine Sediment (PEL), 1999[2]			---	4.3	4.79	4.79	---	7.81	---	---	374	---	---	4.77	---	---	---	0.99	---	---	---	---	62.4	---	2.74	---	---
MOE - Marine & Estuarine Sediment Sensitive Sch 9[3]			---	2.7	3.0	3.0	---	4.8	---	---	230	---	---	3.0	---	---	---	0.61	---	---	---	---	39	1.7	1.7	---	---
MOE - Marine & Estuarine Sediment Typical Sch 9[4]			---	5.2	5.7	5.7	---	9.4	---	---	450	---	---	5.7	---	---	---	1.2	---	---	---	---	75	3.3	3.3	---	---
Pre-Discharge Monitoring Stations																											
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<10
M2300ESE - COMPOSITE	28-Sep-2011	M2300ESE - COMPOSITE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<10
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<10
M1600SE - COMPOSITE	28-Sep-2011	M1600SE - COMPOSITE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<10
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<10
Pre-Discharge Monitoring Stations																											
M1E	14-Sep-2011	M1E	---	0.178	0.037	0.038	---	---	---	---	---	---	---	---	---	---	---	---	0.06	---	---	---	---	---	0.009	0.073	0.236
M2E	14-Sep-2011	M2E	0.013	0.093	0.018	0.017	---	---	---	---	---	---	---	---	---	---	---	---	0.022	---	---	---	---	---	0.021	0.061	0.032
M8E	14-Sep-2011	M8E	---	0.048	0.007	0.007	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.003	0.052	0.01
PB1	14-Sep-2011	PB1	---	0.008	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.04	---
QA/QC																											
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<10
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<10
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<10
		RSD	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**
M2E	14-Sep-2011	M2E	---	0.093	0.018	0.017	---	---	---	---	---	---	---	---	---	---	---	---	0.022	---	---	---	---	---	0.021	0.061	0.032
(Triplicate)	14-Sep-2011	M2E-DUP	---	0.065	0.020	0.022	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.003	0.054	0.062
(Triplicate)	14-Sep-2011	M2E-TRIP	---	0.058	0.010	0.012	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.004	0.052	0.061
		RSD		**26%**	**33%**	**29%**																			**108%**	**8%**	**33%**

NOTES:

1. Highlighting indicates detection limit exceeds applicable guideline value.
2. --- in guideline row(s) denotes no criteria for that parameter.
3. --- in detail data row(s) denotes parameter not analyzed.

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Table 3-7

Sediment Quality Analytical Results: Organochlorinated Pesticides

PROJECT NO.: 307071-00020

Monitoring Station	Date (d-m-y)	Sample Name	Organochlorinated Pesticides																		
			Aroclor 1016 (ng/g)	Aroclor 1221 (ng/g)	Aroclor 1232 (ng/g)	Aroclor 1242 (ng/g)	Aroclor 1248 (ng/g)	Aroclor 1254 (ng/g)	Aroclor 1260 (ng/g)	Aroclor 1262 (ng/g)	Aroclor 1268 (ng/g)	Total PCB (ng/g)	alpha-BHC (ng/g)	beta-BHC (ng/g)	delta-BHC (ng/g)	Endrin aldehyde (ng/g)	Endrin ketone (ng/g)	Mirex (ng/g)	Octachlorostyrene (ng/g)	Toxaphene (ng/g)
CCME Marine Sediment, 1999[1]			---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
CCME Marine Sediment (PEL), 1999[2]			---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MOE - Marine & Estuarine Sediment Sensitive Sch 9[3]			---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MOE - Marine & Estuarine Sediment Typical Sch 9[4]			---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pre-Discharge Monitoring Stations																					
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	<30	<60	<30	<30	<30	<30	<30	<30	<30	<60	<4	<4	<4	<4	<4	<4	<4	<200
M2300ESE - COMPOSITE	28-Sep-2011	M2300ESE - COMPOSITE	<30	<60	<30	<30	<30	<30	<30	<30	<30	<60	<4	<4	<4	<4	<4	<4	<4	<200
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	<30	<60	<30	<30	<30	<30	<30	<30	<30	<60	<4	<4	<4	<4	<4	<4	<4	<200
M1600SE - COMPOSITE	28-Sep-2011	M1600SE - COMPOSITE	<30	<60	<30	<30	<30	<30	<30	<30	<30	<60	<4	<4	<4	<4	<4	<4	<4	<200
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	<30	<60	<30	<30	<30	<30	<30	<30	<30	<60	<4	<4	<4	<4	<4	<4	<4	<200
Pre-Discharge Monitoring Stations																					
M1E	14-Sep-2011	M1E	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.005	---	---
M2E	14-Sep-2011	M2E	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.002	---	---
M8E	14-Sep-2011	M8E	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
PB1	14-Sep-2011	PB1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
QA/QC																					
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	<30	<60	<30	<30	<30	<30	<30	<30	<30	<60	<4	<4	<4	<4	<4	<4	<4	<200
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	<30	<60	<30	<30	<30	<30	<30	<30	<30	<60	<4	<4	<4	<4	<4	<4	<4	<200
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	<30	<60	<30	<30	<30	<30	<30	<30	<30	<60	<4	<4	<4	<4	<4	<4	<4	<200
		RSD	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**
M2E	14-Sep-2011	M2E	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
(Triplicate)	14-Sep-2011	M2E-DUP	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
(Triplicate)	14-Sep-2011	M2E-TRIP	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		RSD																			

NOTES:

1. Highlighting indicates detec
2. --- in guideline row(s) denotes
3. --- in detail data row(s) denote

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Table 3-8

Sediment Quality Analytical Results: Phenols

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample Name	PHENOL																								PHENOL/PESTICIDE			
			2,3,4,5-Tetrachlorophenol (mg/kg)	2,3,4,6-Tetrachlorophenol (mg/kg)	2,3,4-Trichlorophenol (mg/kg)	2,3,5,6-Tetrachlorophenol (mg/kg)	2,3,5-Trichlorophenol (mg/kg)	2,3,6-Trichlorophenol (mg/kg)	2,3-Dichlorophenol (mg/kg)	2,4 & 2,5-Dichlorophenol (mg/kg)	2,4,5-Trichlorophenol (mg/kg)	2,4,6-Trichlorophenol (mg/kg)	2,4-Dimethylphenol (mg/kg)	2,4-Dinitrophenol (mg/kg)	2,6-Dichlorophenol (mg/kg)	2-Chlorophenol (mg/kg)	2-Methylphenol (mg/kg)	2-Nitrophenol (mg/kg)	3&4-Chlorophenol (mg/kg)	3&4-Methylphenol (mg/kg)	3,4,5-Trichlorophenol (mg/kg)	3,4-Dichlorophenol (mg/kg)	3,5-Dichlorophenol (mg/kg)	4,6-Dinitro-2-methylphenol (mg/kg)	4-Chloro-3-methylphenol (mg/kg)	Phenol (mg/kg)	Phenols (mg/kg)	4-Nitrophenol (mg/kg)	m&p-Cresol (mg/kg)	o-Cresol (mg/kg)	Pentachlorophenol (mg/kg)
MOE - Marine & Estuarine Sediment Typical Sch 9[1]			---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---	---	---	**0.69**
MOE - Marine & Estuarine Sediment Sensitive Sch 9[2]			---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---	---	**0.36**
Pre-Discharge Monitoring Stations																														
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.080	< 0.0050	< 0.0050	< 0.050	< 0.050	< 0.0050	< 0.050	< 0.0050	< 0.0050	< 0.0050	< 0.50	< 0.07	< 0.050	---	< 0.050	< 0.05	< 0.050	< 0.0050
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.051	< 0.080	< 0.0050	< 0.0050	< 0.050	< 0.050	< 0.0050	< 0.050	< 0.0050	< 0.0050	< 0.0050	< 0.50	< 0.07	0.072	---	< 0.050	0.06	< 0.050	< 0.0050
M1600SE - COMPOSITE	28-Sep-2011	M1600SE - COMPOSITE	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.080	< 0.0050	< 0.0050	< 0.050	< 0.050	< 0.0050	< 0.050	< 0.0050	< 0.0050	< 0.0050	< 0.50	< 0.07	0.053	---	< 0.050	0.06	< 0.050	< 0.0050
M2300ESE - COMPOSITE	28-Sep-2011	M2300ESE - COMPOSITE	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.080	< 0.0050	0.0050	0.0064	< 0.050	< 0.050	< 0.0050	< 0.050	< 0.0050	< 0.0050	< 0.50	< 0.07	< 0.050	---	< 0.050	0.28	< 0.050	< 0.0050
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.080	< 0.0050	< 0.0050	< 0.050	< 0.050	< 0.0050	< 0.050	< 0.0050	< 0.0050	< 0.0050	< 0.50	< 0.07	0.14	---	< 0.050	0.09	< 0.050	< 0.0050
Receiving Environment Monitoring Stations																														
M1E	21-Sep-2011	M1E	---	---	---	---	---	---	---	< 0.070	---	< 0.070	< 0.050	< 0.50	---	< 0.080	< 0.050	< 0.050	---	---	---	---	---	---	< 0.50	< 0.070	2.2	1.10	< 0.050	---	< 0.050	< 0.020
M2E	21-Sep-2011	M2E	---	---	---	---	---	---	---	< 0.070	---	< 0.070	< 0.050	< 0.50	---	< 0.080	< 0.050	< 0.050	---	---	---	---	---	---	< 0.50	< 0.070	1.0	< 0.20	< 0.050	---	< 0.050	< 0.020
M8E	22-Sep-2011	M8E	---	---	---	---	---	---	---	< 0.070	---	< 0.070	< 0.050	< 0.50	---	< 0.080	< 0.050	< 0.050	---	---	---	---	---	---	< 0.50	< 0.070	0.56	0.745	< 0.050	---	< 0.050	< 0.020
PB1	20-Sep-2011	PB1	---	---	---	---	---	---	---	< 0.070	---	< 0.070	< 0.050	< 0.50	---	< 0.080	< 0.050	< 0.050	---	---	---	---	---	---	< 0.50	< 0.070	0.28	0.547	< 0.050	---	< 0.050	< 0.020
QA/QC																														
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.080	< 0.0050	< 0.0050	< 0.050	< 0.050	< 0.0050	< 0.050	< 0.0050	< 0.0050	< 0.0050	< 0.50	< 0.07	0.14	---	< 0.050	0.09	< 0.050	< 0.0050
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.080	< 0.0050	< 0.0050	< 0.050	< 0.050	< 0.0050	< 0.050	< 0.0050	< 0.0050	< 0.0050	< 0.50	< 0.07	< 0.050	---	< 0.050	< 0.05	< 0.050	< 0.0050
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.080	< 0.0050	< 0.0050	< 0.050	< 0.050	< 0.0050	< 0.050	< 0.0050	< 0.0050	< 0.0050	< 0.50	< 0.07	< 0.050	---	< 0.050	< 0.05	< 0.050	< 0.0050
		RSD	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**		**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**
M2E	21-Sep-2011	M2E	---	---	---	---	---	---	---	< 0.070	---	< 0.070	< 0.050	< 0.50	---	< 0.080	< 0.050	< 0.050	---	---	---	---	---	---	< 0.50	< 0.070	1.00	< 0.20	< 0.050	---	< 0.050	< 0.020
(Triplicate)	21-Sep-2011	M2E-DUP	---	---	---	---	---	---	---	< 0.070	---	< 0.070	< 0.050	< 0.50	---	< 0.080	< 0.050	< 0.050	---	---	---	---	---	---	< 0.50	< 0.070	0.80	< 0.20	< 0.050	---	< 0.050	< 0.020
(Triplicate)	21-Sep-2011	M2E-TRIP	---	---	---	---	---	---	---	< 0.070	---	< 0.070	< 0.050	< 0.50	---	< 0.080	< 0.050	< 0.050	---	---	---	---	---	---	< 0.50	< 0.070	0.99	0.21	< 0.050	---	< 0.050	< 0.020
		RSD								**<5xDL**		**<5xDL**	**<5xDL**	**<5xDL**		**<5xDL**	**<5xDL**	**<5xDL**						**<5xDL**	**<5xDL**	**12%**	**<5xDL**	**<5xDL**		**<5xDL**	**<5xDL**

NOTES: *1. --- in guideline row(s) denotes no criteria for that parameter.*
2. --- in detail data row(s) denotes parameter not analyzed.
3. Highlighting indicates parameters above applied guideline/criteria.
4. Superscript [1] denotes values exceeding
(BC Ministry of Environment (MOE) - Marine and Estuarine Sediment Typical, Generic Numerical Sediment Criteria, Sch 9 [en. B.C Reg. 324/04, s. 70; am. B.C. Regs 239/07, s. 9; 343/08, s18.] (B.C Reg. 375/96))
Pentachlorophenol:
Criterion is set equal to the Washington State, Department of Ecology, 1991 criterion for the substance.
5. Superscript [2] denotes values exceeding
(BC Ministry of Environment (MOE) - Marine and Estuarine Sediment Sensitive, Generic Numerical Sediment Criteria, Sch 9 [en. B.C Reg. 324/04, s. 70; am. B.C. Regs 239/07, s. 9; 343/08, s18.] (B.C Reg. 375/96))
Pentachlorophenol:
Criterion is set equal to the Washington State, Department of Ecology, 1991 criterion for the substance.

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Table 3-9

Sediment Quality Analytical Results: Volatile Organic Compounds

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample Name	VOC – Volitiles: 1,1,1,2-Tetrachloroethane (mg/kg)	1,1,1-Trichloroethane (mg/kg)	1,1,2,2-Tetrachloroethane (mg/kg)	1,1,2-Trichloroethane (mg/kg)	1,1-Dichloroethane (mg/kg)	1,1-Dichloroethene (mg/kg)	1,2-Dichloroethane (mg/kg)	1,2-Dichloropropane (mg/kg)	Bromodichloromethane (mg/kg)	Bromomethane (mg/kg)	Carbontetrechloride (mg/kg)	Chlorobenzene (mg/kg)	Chlorodibromomethane (mg/kg)	Chloroethane (mg/kg)	Chloroform (mg/kg)	Chloromethane (mg/kg)	cis-1,2-Dichloroethene (mg/kg)	cis-1,3-Dichloropropene (mg/kg)	Dichloromethane (mg/kg)	Methyl-t-butyl-ether (MTBE) (mg/kg)	Styrene (mg/kg)	Tetrachloromethane (mg/kg)	trans-1,2-Dichloroethene (mg/kg)	trans-1,3-Dichloropropene (mg/kg)	Trichloroethene (mg/kg)	Trichlorofluoromethane (mg/kg)	Vinyl chloride (mg/kg)
Pre-Discharge Monitoring Stations																													
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
FC3500NE - GRAB	27-Sep-2011	FC3500NE - GRAB	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.30	< 0.025	< 0.025	< 0.050	< 0.10	< 0.050	< 0.10	< 0.025	< 0.050	< 0.10	< 0.10	< 0.030	< 0.025	< 0.025	< 0.050	< 0.0090	< 0.20	< 0.060
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M1400ESE - GRAB	28-Sep-2011	M1400ESE - GRAB	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.30	< 0.025	< 0.025	< 0.050	< 0.10	< 0.050	< 0.10	< 0.025	< 0.050	< 0.10	< 0.10	< 0.030	< 0.025	< 0.025	< 0.050	< 0.0090	< 0.20	< 0.060
M1600SE - COMPOSITE	28-Sep-2011	M1600SE - COMPOSITE	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M1600SE - GRAB	28-Sep-2011	M1600SE - GRAB	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.30	< 0.025	< 0.025	< 0.050	< 0.10	< 0.050	< 0.10	< 0.025	< 0.050	< 0.10	< 0.10	< 0.030	< 0.025	< 0.025	< 0.050	< 0.0090	< 0.20	< 0.060
M2300ESE - COMPOSITE	28-Sep-2011	M2300ESE - COMPOSITE	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M2300ESE - GRAB	28-Sep-2011	M2300ESE - GRAB	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.30	< 0.025	< 0.025	< 0.050	< 0.10	< 0.050	< 0.10	< 0.025	< 0.050	< 0.10	< 0.10	< 0.030	< 0.025	< 0.025	< 0.050	< 0.0090	< 0.20	< 0.060
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M800NE - GRAB	29-Sep-2011	M800NE - GRAB	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.30	< 0.025	< 0.025	< 0.050	< 0.10	< 0.050	< 0.10	< 0.025	< 0.050	< 0.10	< 0.10	< 0.030	< 0.025	< 0.025	< 0.050	< 0.0090	< 0.20	< 0.060
Receiving Environment Monitoring Stations																													
M1E	21-Sep-2011	M1E	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.30	< 0.025	< 0.025	< 0.050	< 0.10	< 0.050	< 0.10	< 0.025	< 0.050	< 0.10	< 0.10	< 0.030	< 0.025	< 0.025	< 0.050	< 0.0090	< 0.20	< 0.060
M2E	21-Sep-2011	M2E	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.30	< 0.025	< 0.025	< 0.050	< 0.10	< 0.050	< 0.10	< 0.025	< 0.050	< 0.10	< 0.10	< 0.030	< 0.025	< 0.025	< 0.050	< 0.0090	< 0.20	< 0.060
M8E	22-Sep-2011	M8E	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.30	< 0.025	< 0.025	< 0.050	< 0.10	< 0.050	< 0.10	< 0.025	< 0.050	< 0.10	< 0.10	< 0.030	< 0.025	< 0.025	< 0.050	< 0.0090	< 0.20	< 0.060
PB1	20-Sep-2011	PB1	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.30	< 0.025	< 0.025	< 0.050	< 0.10	< 0.050	< 0.10	< 0.025	< 0.050	< 0.10	< 0.10	< 0.030	< 0.025	< 0.025	< 0.050	< 0.0090	< 0.20	< 0.060
QA/QC																													
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		RSD																											
M800NE - GRAB	29-Sep-2011	M800NE - GRAB	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.30	< 0.025	< 0.025	< 0.050	< 0.10	< 0.050	< 0.10	< 0.025	< 0.050	< 0.10	< 0.10	< 0.030	< 0.025	< 0.025	< 0.050	< 0.0090	< 0.20	< 0.060
(Triplicate)	29-Sep-2011	T100 - GRAB	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.30	< 0.025	< 0.025	< 0.050	< 0.10	< 0.050	< 0.10	< 0.025	< 0.050	< 0.10	< 0.10	< 0.030	< 0.025	< 0.025	< 0.050	< 0.0090	< 0.20	< 0.060
(Triplicate)	29-Sep-2011	T200 - GRAB	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.30	< 0.025	< 0.025	< 0.050	< 0.10	< 0.050	< 0.10	< 0.025	< 0.050	< 0.10	< 0.10	< 0.030	< 0.025	< 0.025	< 0.050	< 0.0090	< 0.20	< 0.060
		RSD	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**
M2E	21-Sep-2011	M2E	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.30	< 0.025	< 0.025	< 0.050	< 0.10	< 0.050	< 0.10	< 0.025	< 0.050	< 0.10	< 0.10	< 0.030	< 0.025	< 0.025	< 0.050	< 0.0090	< 0.20	< 0.060
(Triplicate)	21-Sep-2011	M2E-DUP	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.30	< 0.025	< 0.025	< 0.050	< 0.10	< 0.050	< 0.10	< 0.025	< 0.050	< 0.10	< 0.10	< 0.030	< 0.025	< 0.025	< 0.050	< 0.0090	< 0.20	< 0.060
(Triplicate)	21-Sep-2011	M2E-TRIP	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.30	< 0.025	< 0.025	< 0.050	< 0.10	< 0.050	< 0.10	< 0.025	< 0.050	< 0.10	< 0.10	< 0.030	< 0.025	< 0.025	< 0.050	< 0.0090	< 0.20	< 0.060
		RSD	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**

NOTES: *1. --- in detail data row(s) denotes parameter not analyzed.*
2. Highlighting indicates Moderate Data Quality Objective (DQO) Failure. Data Qulifier (U)

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Table 3-9

Sediment Quality Analytical Results: Volatile Organic Compounds

PROJECT NO.: 307071-00020

			VOC																													
			Chlorobenzene					Base Neutrals																						Phthalate Esters					
Sampling Location	Date (d-m-y)	Sample Name	1,2,4-Trichlorobenzene (mg/kg)	1,2-Dichlorobenzene (mg/kg)	1,3-Dichlorobenzene (mg/kg)	1,4-Dichlorobenzene (mg/kg)	Hexachlorobenzene (mg/kg)	2-Chloronaphthalene (mg/kg)	2,4-Dinitrotoluene (mg/kg)	2,6-Dinitrotoluene (mg/kg)	3,3'-Dichlorobenzidine (mg/kg)	4-Bromophenyl phenyl ether (mg/kg)	4-Chlorophenyl phenyl ether (mg/kg)	Bis(2-chloroethoxy) methane (mg/kg)	Bis(2-chloroethyl) ether (mg/kg)	Bis(2-chloroisopropyl) ether (mg/kg)	Carbazole (mg/kg)	Dibenzofuran (mg/kg)	Hexachlorobutadiene (mg/kg)	Hexachlorocyclopentadiene (mg/kg)	Hexachloroethane (mg/kg)	Isophorone (mg/kg)	Nitrobenzene (mg/kg)	n-Nitrosodiphenylamine (mg/kg)	n-Nitrosodipropylamine (mg/kg)	Bis(2-ethylhexyl) phthalate (mg/kg)	Butyl benzyl phthalate (mg/kg)	Diethylphthalate (mg/kg)	Dimethylphthalate (mg/kg)	Dibutyl phthalate (mg/kg)	Dioctyl phthalate (mg/kg)
Pre-Discharge Monitoring Stations																																
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	< 0.06	< 0.1	< 0.1	< 0.1	< 0.06	< 0.08	< 0.05	< 0.05	< 0.5	< 0.06	< 0.07	< 0.08	< 0.06	< 0.2	< 0.1	< 0.1	< 0.05	< 1	< 0.06	< 0.06	< 0.07	< 0.08	< 0.06	< 2	< 0.1	< 0.09	< 0.07	< 0.07	< 0.1
FC3500NE - GRAB	27-Sep-2011	FC3500NE - GRAB	---	---	---	---	---		---	---	---	---	---	---	---	---	---		---	---	---	---	---	---		---	---	---	---	---	---
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	< 0.06	< 0.1	< 0.1	< 0.1	< 0.06	< 0.08	< 0.05	< 0.05	< 0.5	< 0.06	< 0.07	< 0.08	< 0.06	< 0.2	< 0.1	< 0.1	< 0.05	< 0.5	< 0.06	< 0.06	< 0.07	< 0.08	< 0.06	< 2	< 0.1	< 0.09	< 0.07	< 0.07	< 0.1
M1400ESE - GRAB	28-Sep-2011	M1400ESE - GRAB	---	---	---	---	---		---	---	---	---	---	---	---	---	---		---	---	---	---	---	---		---	---	---	---	---	---
M1600SE - COMPOSITE	28-Sep-2011	M1600SE - COMPOSITE	< 0.06	< 0.1	< 0.1	< 0.1	< 0.06	< 0.08	< 0.05	< 0.05	< 0.5	< 0.06	< 0.07	< 0.08	< 0.06	< 0.2	< 0.1	< 0.1	< 0.05	< 0.5	< 0.06	< 0.06	< 0.07	< 0.08	< 0.06	< 2	< 0.1	< 0.09	< 0.07	< 0.07	< 0.1
M1600SE - GRAB	28-Sep-2011	M1600SE - GRAB	---	---	---	---	---		---	---	---	---	---	---	---	---	---		---	---	---	---	---	---		---	---	---	---	---	---
M2300ESE - COMPOSITE	28-Sep-2011	M2300ESE - COMPOSITE	< 0.06	< 0.1	< 0.1	< 0.1	< 0.06	< 0.08	< 0.05	< 0.05	< 0.5	< 0.06	< 0.07	< 0.08	< 0.06	< 0.2	< 0.1	< 0.1	< 0.05	< 0.5	< 0.06	< 0.06	< 0.07	< 0.08	< 0.06	< 2	< 0.1	< 0.09	< 0.07	< 0.07	< 0.1
M2300ESE - GRAB	28-Sep-2011	M2300ESE - GRAB	---	---	---	---	---		---	---	---	---	---	---	---	---	---		---	---	---	---	---	---		---	---	---	---	---	---
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 0.06	< 0.1	< 0.1	< 0.1	< 0.06	< 0.08	< 0.05	< 0.05	< 0.5	< 0.06	< 0.07	< 0.08	< 0.06	< 0.2	< 0.1	< 0.1	< 0.05	< 0.5	< 0.06	< 0.06	< 0.07	< 0.08	< 0.06	< 2	< 0.1	< 0.09	< 0.07	< 0.07	< 0.1
M800NE - GRAB	29-Sep-2011	M800NE - GRAB	---	---	---	---	---		---	---	---	---	---	---	---	---	---		---	---	---	---	---	---		---	---	---	---	---	---
Receiving Environment Monitoring Stations																																
M1E	21-Sep-2011	M1E	< 0.060	< 0.10	< 0.10	< 0.10	< 0.060	< 0.080	< 0.050	< 0.050	< 0.50	< 0.060	< 0.070	< 0.080	< 0.060	< 0.20	< 0.1	---	< 0.050	< 1.0	< 0.060	< 0.060	< 0.070	< 0.08	< 0.06	64	< 0.10	< 0.090	< 0.070	0.44	< 0.10
M2E	21-Sep-2011	M2E	< 0.060	< 0.10	< 0.10	< 0.10	< 0.060	< 0.080	< 0.050	< 0.050	< 0.50	< 0.060	< 0.070	< 0.080	< 0.060	< 0.20	< 0.1	---	< 0.050	< 1.0	< 0.060	< 0.060	< 0.070	< 0.08	< 0.06	< 2.0	< 0.10	< 0.090	< 0.070	< 0.070	< 0.10
M8E	22-Sep-2011	M8E	< 0.060	< 0.10	< 0.10	< 0.10	< 0.060	< 0.080	< 0.050	< 0.050	< 0.50	< 0.060	< 0.070	< 0.080	< 0.060	< 0.20	< 0.1	---	< 0.050	< 0.50	< 0.060	< 0.060	< 0.070	< 0.08	< 0.06	< 2.0	< 0.10	< 0.090	< 0.070	< 0.070	< 0.10
PB1	20-Sep-2011	PB1	< 0.060	< 0.10	< 0.10	< 0.10	< 0.060	< 0.080	< 0.050	< 0.050	< 0.50	< 0.060	< 0.070	< 0.080	< 0.060	< 0.20	< 0.1	---	< 0.050	< 0.50	< 0.060	< 0.060	< 0.070	< 0.08	< 0.06	< 2.0	< 0.10	< 0.090	< 0.070	< 0.070	< 0.10
QA/QC																																
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 0.06	< 0.1	< 0.1	< 0.1	< 0.06	< 0.08	< 0.05	< 0.05	< 0.5	< 0.06	< 0.07	< 0.08	< 0.06	< 0.2	< 0.1	< 0.1	< 0.05	< 0.5	< 0.06	< 0.06	< 0.07	< 0.08	< 0.06	< 2	< 0.1	< 0.09	< 0.07	< 0.07	< 0.1
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	< 0.06	< 0.1	< 0.1	< 0.1	< 0.06	< 0.08	< 0.05	< 0.05	< 0.5	< 0.06	< 0.07	< 0.08	< 0.06	< 0.2	< 0.1	< 0.1	< 0.05	< 0.5	< 0.06	< 0.06	< 0.07	< 0.08	< 0.06	< 2	< 0.1	< 0.09	< 0.07	< 0.07	< 0.1
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	< 0.06	< 0.1	< 0.1	< 0.1	< 0.06	< 0.08	< 0.05	< 0.05	< 0.5	< 0.06	< 0.07	< 0.08	< 0.06	< 0.2	< 0.1	< 0.1	< 0.05	< 0.5	< 0.06	< 0.06	< 0.07	< 0.08	< 0.06	< 2	< 0.1	< 0.09	< 0.07	< 0.07	< 0.1
		RSD	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**
M800NE - GRAB	29-Sep-2011	M800NE - GRAB	---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
(Triplicate)	29-Sep-2011	T100 - GRAB	---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
(Triplicate)	29-Sep-2011	T200 - GRAB	---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		RSD																														
M2E	21-Sep-2011	M2E	< 0.060	< 0.10	< 0.10	< 0.10	< 0.060	< 0.080	< 0.050	< 0.050	< 0.50	< 0.060	< 0.070	< 0.080	< 0.060	< 0.20	< 0.1	---	< 0.050	< 1.0	< 0.060	< 0.060	< 0.070	< 0.080	< 0.060	< 2.0	< 0.10	< 0.090	< 0.070	< 0.070	< 0.10
(Triplicate)	21-Sep-2011	M2E-DUP	< 0.060	< 0.10	< 0.10	< 0.10	< 0.060	< 0.080	< 0.050	< 0.050	< 0.50	< 0.060	< 0.070	< 0.080	< 0.060	< 0.20	< 0.1	---	< 0.050	< 1.0	< 0.060	< 0.060	< 0.070	< 0.080	< 0.060	< 2.0	< 0.10	< 0.090	< 0.070	0.15	< 0.10
(Triplicate)	21-Sep-2011	M2E-TRIP	< 0.060	< 0.10	< 0.10	< 0.10	< 0.060	< 0.080	< 0.050	< 0.050	< 0.50	< 0.060	< 0.070	< 0.080	< 0.060	< 0.20	< 0.1	---	< 0.050	< 1.0	< 0.060	< 0.060	< 0.070	< 0.080	< 0.060	< 2.0	< 0.10	< 0.090	< 0.070	< 0.070	< 0.10
		RSD	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**		**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**

NOTES: *1. --- in detail data row(s) denotes parameter not analyzed.*
2. Highlighting indicates Moderate Data Quality Objective (DQO) Failure. Data Qulifier (U)

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Table 3-10

Sediment Quality Analytical Results: BTEX

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample Name	BTEX							
			Benzene (mg/kg)	Ethylbenzene (mg/kg)	m&p-Xylene (mg/kg)	o-Xylene (mg/kg)	Toluene (mg/kg)	Xylenes-Total (mg/kg)	PHC F1 (C6-C10) (mg/kg)	PHC F1 (C6-C10) - BTEX (mg/kg)
Pre-Discharge Monitoring Stations										
FC3500NE - GRAB	27-Sep-2011	FC3500NE - GRAB	< 0.0050	< 0.010	0.069	< 0.040	< 0.020	0.069	< 10	< 10
M1400ESE - GRAB	28-Sep-2011	M1400ESE - GRAB	< 0.0050	< 0.010	< 0.040	< 0.040	< 0.020	< 0.040	< 10	< 10
M1600SE - GRAB	28-Sep-2011	M1600SE - GRAB	< 0.0050	< 0.010	< 0.040	< 0.040	< 0.020	< 0.040	< 10	< 10
M2300ESE - GRAB	28-Sep-2011	M2300ESE - GRAB	< 0.0050	< 0.010	< 0.040	< 0.040	< 0.020	< 0.040	< 10	< 10
M800NE - GRAB	29-Sep-2011	M800NE - GRAB	< 0.0050	< 0.010	< 0.040	< 0.040	< 0.020	< 0.040	< 10	< 10
Receiving Environment Monitoring Stations										
M1E	21-Sep-2011	M1E	< 0.0050	< 0.010	< 0.040	< 0.040	0.032	< 0.040	< 10	< 10
M2E	21-Sep-2011	M2E	< 0.0050	< 0.010	< 0.040	< 0.040	< 0.020	< 0.040	< 10	< 10
M8E	22-Sep-2011	M8E	< 0.0050	< 0.010	< 0.040	< 0.040	< 0.020	< 0.040	< 10	< 10
PB1	20-Sep-2011	PB1	< 0.0050	< 0.010	< 0.040	< 0.040	< 0.020	< 0.040	< 10	< 10
QA/QC										
M800NE - GRAB	29-Sep-2011	M800NE - GRAB	< 0.0050	< 0.010	< 0.040	< 0.040	< 0.020	< 0.040	< 10	< 10
(Triplicate)	29-Sep-2011	T100 - GRAB	< 0.0050	< 0.010	< 0.040	< 0.040	< 0.020	< 0.040	< 10	< 10
(Triplicate)	29-Sep-2011	T200 - GRAB	< 0.0050	< 0.010	< 0.040	< 0.040	< 0.020	< 0.040	< 10	< 10
		RSD	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**
M2E	21-Sep-2011	M2E	< 0.0050	< 0.010	< 0.040	< 0.040	< 0.020	< 0.040	< 10	< 10
(Triplicate)	21-Sep-2011	M2E-DUP	< 0.0050	< 0.010	< 0.040	< 0.040	< 0.020	< 0.040	< 10	< 10
(Triplicate)	21-Sep-2011	M2E-TRIP	< 0.0050	< 0.010	< 0.040	< 0.040	< 0.020	< 0.040	< 10	< 10
		RSD	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**

NOTES:

1. Highlighting indicates Moderate Data Quality Objective (DQO) Failure. Data Qulifier (U)

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Table 3-11

Sediment Quality Analytical Results: Polybrominated Dephenyl Ethers

PROJECT NO.: 307071-00020

Sample Location	Date (d-m-y)	Sample Name	Polybrominated Dephenyl Ethers																						
			Br2-DPE-7 (pg/g)	Br2-DPE-8/11 (pg/g)	Br2-DPE-10 (pg/g)	Br2-DPE-12/13 (pg/g)	Br2-DPE-15 (pg/g)	Br3-DPE-17/25 (pg/g)	Br3-DPE-28/33 (pg/g)	Br3-DPE-30 (pg/g)	Br3-DPE-32 (pg/g)	Br3-DPE-35 (pg/g)	Br3-DPE-37 (pg/g)	Br4-DPE-47 (pg/g)	Br4-DPE-49 (pg/g)	Br4-DPE-51 (pg/g)	Br4-DPE-66 (pg/g)	Br4-DPE-71 (pg/g)	Br4-DPE-75 (pg/g)	Br4-DPE-77 (pg/g)	Br4-DPE-79 (pg/g)	Br5-DPE-85 (pg/g)	Br5-DPE-99 (pg/g)	Br5-DPE-100 (pg/g)	Br5-DPE-105 (pg/g)	Br5-DPE-116 (pg/g)
Pre-Discharge Monitoring Stations																									
FC3500NE - COMPOSITE	27-Sep-11	FC3500NE - COMPOSITE	NDR 0.860	0.792	<0.173	<0.099	0.499	2.68	1.85	<0.284	<0.220	<0.162	<0.149	44.8	3.29	NDR 0.409	1.36	<0.099	<0.099	<0.099	<0.099	2.52	43.1	9.79	<0.185	<0.265
M1400ESE - COMPOSITE	28-Sep-11	M1400ESE - COMPOSITE	5.11	2.92	< 0.262	0.228	1.69	12.6	5.45	< 0.343	< 0.266	< 0.196	0.235	91.1	10.6	1.52	3.14	0.86	NDR 0.182	< 0.096	NDR 0.512	2.77	65.1	18.3	< 0.394	< 0.563
M1600SE - COMPOSITE	28-Sep-11	M1600SE - COMPOSITE	5.18	3.46	NDR 0.127	0.262	1.97	11.9	5.44	< 0.210	< 0.163	< 0.120	0.235	80.3	9.5	1.26	NDR 2.31	0.923	NDR 0.209	< 0.095	< 0.095	1.77	52.4	16.5	< 0.173	NDR 0.357
M2300ESE - COMPOSITE	28-Sep-11	M2300ESE - COMPOSITE	6.19	3.04	< 0.205	0.22	1.71	11.6	5.44	< 0.375	< 0.291	< 0.214	0.26	80.5	9.68	1.31	3.45	1	0.217	< 0.097	NDR 0.390	1.78	53.9	17	< 0.387	< 0.554
M800NE - COMPOSITE	29-Sep-11	M800NE - COMPOSITE	7.33	5.95	<0.195	0.362	2.54	14.9	7.74	<0.349	<0.271	<0.199	NDR 0.245	83.6	11.7	1.89	2.96	NDR 1.46	NDR 0.416	<0.098	NDR 0.194	2.45	62.1	16	<0.440	<0.629
Receiving Environment Monitoring Stations																									
M1E	14-Sep-2011	M1E	57.5	29.6	---	2.06	3.92	63.3	20	---	0.297	0.299	0.501	455	67.3	7.39	12.1	6	1.1	---	2.4	13.1	348	74.9	---	---
M2E	14-Sep-2011	M2E	8.41	4.89	---	0.4	2.02	21.2	8.49	---	0.174	---	0.364	211	24.1	2.65	6.05	2.36	0.362	---	0.954	5.78	141	33.9	---	---
M8E	14-Sep-2011	M8E	3.65	2.69	1.36	0.145	1.25	8.77	4.11	---	---	---	---	61.3	7.4	1.08	3.1	1.2	0.17	---	0.625	1.72	45.2	12.3	---	1.03
PB1	14-Sep-2011	PB1	0.557	0.588	0.277	---	0.35	2.48	1.38	---	---	---	---	14	1.83	0.305	0.442	0.186	---	---	0.289	0.461	9.42	2.61	---	0.484
QA/QC																									
M800NE - COMPOSITE	29-Sep-11	M800NE - COMPOSITE	7.33	5.95	<0.195	0.362	2.54	14.9	7.74	<0.349	<0.271	<0.199	NDR 0.245	83.6	11.7	1.89	2.96	NDR 1.46	NDR 0.416	<0.098	NDR 0.194	2.45	62.1	16	<0.440	<0.629
(Triplicate)	29-Sep-11	T1000 - COMPOSITE	6.38	5.12	<0.160	0.359	2.49	11.9	6.79	<0.267	<0.207	<0.152	NDR 0.241	78.8	10.4	NDR 1.34	2.9	1.21	NDR 0.192	<0.096	<0.096	1.9	53.5	14.2	<0.336	<0.481
(Triplicate)	29-Sep-11	T2000 - COMPOSITE	6.48	5.11	<0.204	0.248	2.3	14.4	6.43	<0.333	NDR 0.288	<0.190	NDR 0.228	72.1	9.92	NDR 1.46	3.19	NDR 0.755	0.244	<0.096	<0.096	1.96	51.1	14.2	<0.322	<0.461
		RSD	**8%**	**9%**	**<5xDL**	**20%**	**5%**	**12%**	**10%**	**<5xDL**	**<5xDL**	**<5xDL**	**NC**	**7%**	**9%**	**NC**	**5%**	**NC**	**NC**	**<5xDL**	**<5xDL**	**14%**	**10%**	**7%**	**<5xDL**	**<5xDL**
M2E	21-Sep-2011	M2E	8.41	4.89	---	0.4	2.02	21.2	8.49	---	0.174	---	0.364	211	24.1	2.65	6.05	2.36	0.362	---	0.954	5.78	141	33.9	---	---
(Triplicate)	21-Sep-2011	M2E-DUP	10.4	5.89	---	0.478	2.33	23.7	8.32	---	0.224	0.12	0.298	163	24.1	2.79	4.82	3.09	0.316	---	1.09	4.27	109	24.2	---	---
(Triplicate)	21-Sep-2011	M2E-TRIP	8.14	4.88	---	0.396	2.17	20.9	7.67	---	0.238	---	0.416	173	24.5	2.85	5.11	2.91	0.176	---	1.35	4.99	125	31	---	---
		RSD	**14%**	**11%**		**11%**	**7%**	**7%**	**5%**		**16%**		**16%**	**14%**	**1%**	**4%**	**12%**	**14%**	**34%**		**18%**	**15%**	**13%**	**17%**		

NOTES:

1. *--- in detail data row(s) denotes parameter not analyzed.*
2. *--- in detail data row(s) denotes parameter not analyzed .*
3. NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration
4. NC = Not Calculated

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Table 3-11

Sediment Quality Analytical Results: Polybrominated Dephenyl Ethers

PROJECT NO.: 307071-00020

Sample Location	Date (d-m-y)	Sample Name	Polybrominated Dephenyl Ethers															
			Br5-DPE-119/120 (pg/g)	Br5-DPE-126 (pg/g)	Br6-DPE-128 (pg/g)	Br6-DPE-138/166 (pg/g)	Br6-DPE-140 (pg/g)	Br6-DPE-153 (pg/g)	Br6-DPE-154 (pg/g)	Br6-DPE-155 (pg/g)	Br7-DPE-181 (pg/g)	Br7-DPE-183 (pg/g)	Br7-DPE-190 (pg/g)	Br8-DPE-203 (pg/g)	Br9-DPE-206 (pg/g)	Br9-DPE-207 (pg/g)	Br9-DPE-208 (pg/g)	Br10-DPE-209 (pg/g)
Pre-Discharge Monitoring Stations																		
FC3500NE - COMPOSITE	27-Sep-11	FC3500NE - COMPOSITE	NDR 0.164	<0.099	NDR 0.320	0.592	0.198	3.78	3.4	0.549	NDR 0.162	0.946	NDR 0.311	1.89	4.66	6.54	4.32	56.8
M1400ESE - COMPOSITE	28-Sep-11	M1400ESE - COMPOSITE	NDR 0.604	< 0.183	< 1.46	0.789	0.309	6.75	6.76	1.2	< 0.334	NDR 2.73	< 0.586	5.8	NDR 29.2	51.6	37.8	578
M1600SE - COMPOSITE	28-Sep-11	M1600SE - COMPOSITE	0.438	< 0.095	< 1.18	NDR 0.701	NDR 0.288	6.13	6.7	1.13	< 0.267	2.36	NDR 0.691	5.91	33.2	54.1	35.9	533
M2300ESE - COMPOSITE	28-Sep-11	M2300ESE - COMPOSITE	0.476	< 0.178	< 1.91	0.486	0.331	6.43	6.17	1.23	< 0.489	2.65	< 0.858	7.11	40.9	57.3	NDR 45.3	584
M800NE - COMPOSITE	29-Sep-11	M800NE - COMPOSITE	0.443	<0.207	<1.12	NDR 0.891	0.307	6.6	6.13	1.38	<0.649	2.43	<1.14	7.63	39.3	65.3	46.5	789
Receiving Environment Monitoring Stations																		
M1E	14-Sep-2011	M1E	---	---	---	3.06	1.73	32.6	26.1	3	---	13	---	14.7	147	142	103	7510
M2E	14-Sep-2011	M2E	---	---	---	1.86	0.802	13.8	11.7	1.62	---	5.77	---	7.35	42.2	65.2	39.7	1130
M8E	14-Sep-2011	M8E	0.405	---	---	1.1	---	5.67	5.45	0.859	0.15	1.85	0.382	3	21.4	43.4	28	350
PB1	14-Sep-2011	PB1	---	---	---	0.612	---	1.12	1.1	0.156	---	0.566	---	3.1	15.1	33.9	20.7	240
QA/QC																		
M800NE - COMPOSITE	29-Sep-11	M800NE - COMPOSITE	0.443	<0.207	<1.12	NDR 0.891	0.307	6.6	6.13	1.38	<0.649	2.43	<1.14	7.63	39.3	65.3	46.5	789
(Triplicate)	29-Sep-11	T1000 - COMPOSITE	0.606	<0.163	<3.32	0.974	0.455	5.76	6.13	1.22	<0.329	1.89	NDR 1.00	6.78	29.1	47.9	32.6	520
(Triplicate)	29-Sep-11	T2000 - COMPOSITE	0.425	<0.154	<1.86	NDR 0.782	NDR 0.367	5.65	6.1	1.9	<0.513	1.98	<0.900	8	50.4	88.5	64.5	1030
		RSD	**20%**	**<5xDL**	**<5xDL**	**NC**	**27%**	**9%**	**0%**	**24%**	**<5xDL**	**14%**	**<5xDL**	**8%**	**27%**	**30%**	**33%**	**33%**
M2E	21-Sep-2011	M2E	---	---	---	1.86	0.802	13.8	11.7	1.62	---	5.77	---	7.35	42.2	65.2	39.7	1130
(Triplicate)	21-Sep-2011	M2E-DUP	0.504	0.226	---	1.88	0.558	10.8	10.4	1.7	---	4.59	0.266	3.57	36.3	54.4	33.1	1020
(Triplicate)	21-Sep-2011	M2E-TRIP	0.65	---	---	2.19	0.646	11.6	9.77	1.66	0.186	3.76	---	4.04	26.9	50.2	31	791
		RSD	**18%**			**9%**	**18%**	**13%**	**9%**	**2%**	**NC**	**21%**	**NC**	**41%**	**22%**	**14%**	**13%**	**18%**

NOTES:
1. *--- in detail data row(s) denotes parameter not analyzed.*
2. *--- in detail data row(s) denotes parameter not analyzed .*
3. NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration
4. NC = Not Calculated

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Table 3-12

Sediment Quality Analytical Results: Polychlorinated Biphenyls (PCB's)

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample Name	AROCLOR Aroclor 1242 (mg/kg)	Aroclor 1248 (mg/kg)	Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	PCBs-TOTAL (mg/kg)
CCME Marine Sediment (ISQGs), 1999[1]			---	---	**0.0633**	---	**0.0215**
CCME Marine Sediment (PEL), 1999[2]			---	---	**0.709**	---	**0.189**
MOE - Marine & Estuarine Sediment Typical Sch 9[3]			---	---	---	---	**0.23**
MOE - Marine & Estuarine Sediment Sensitive Sch 9[4]			---	---	---	---	**0.12**
Pre-Discharge Monitoring Stations							
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030
QA/QC							
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030
		RSD	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**

NOTES:

1. *--- in guideline row(s) denotes no criteria for that parameter.*
2. *--- in detail data row(s) denotes parameter not analyzed.*
3. *Highlighting indicates parameters above applied guideline/criteria.*
4. *Superscript [1] denotes values exceeding (Canadian Environmental Quality Guidelines for Marine Sediment (ISQGs), (CCME, 1999))*
5. *Superscript [2] denotes values exceeding (Canadian Environmental Quality Guidelines for Marine Sediment (PEL), (CCME, 1999))*
6. *Superscript [3] denotes values exceeding (BC Ministry of Environment (MOE) - Marine and Estuarine Sediment Typical, Generic Numerical Sediment Criteria, Sch 9 [en. B.C Reg. 324/04, s. 70; am. B.C. Regs 239/07, s. 9; 343/08, s18.] (B.C Reg. 375/96))*

   Aroclor 1254:

   No discrete criterion for Aroclor 1254 was derived, since the existing CCME interim PEL for that substance was inconsistent with the PEL provided for total PCBs and the PEL for Aroclor 1254 was derived using methods different from those used to derive the criterion for total PCBs listed in this schedule.

   PCBs-TOTAL:

   Total PCBs includes the sum of >=20 individual PCB congeners.

7. *Superscript [4] denotes values exceeding (BC Ministry of Environment (MOE) - Marine and Estuarine Sediment Sensitive, Generic Numerical Sediment Criteria, Sch 9 [en. B.C Reg. 324/04, s. 70; am. B.C. Regs 239/07, s. 9; 343/08, s18.] (B.C Reg. 375/96))*

   PCBs-TOTAL:

   Total PCBs includes the sum of >=20 individual PCB congeners.

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Table 3-13

Sediment Quality Analytical Results: Nonylphenol and its Ethoxylates

PROJECT NO.: 307071-00020

			Nonylphenol and its Ethoxylates			
Sample Location	**Date (d-m-y)**	**Sample Name**	**4-Nonylphenols (ng/g)**	**4-Nonylphenol monoethoxylates (ng/g)**	**4-Nonylphenol diethoxylates (ng/g)**	**Octylphenol (ng/g)**
Pre-Discharge Monitoring Stations						
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	<2.38	<8.17	<7.48	<0.824
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	10	<6.64	<8.60	1
M800NE - COMPOSITE	29-Sep-2011	M800NE-COMPOSITE	12.90	<3.13	<11.0	<7.06
Receiving Environment Monitoring Stations						
M1E	14-Sep-2011	M1E	288.00	96.40	22.50	---
M2E	14-Sep-2011	M2E	54.70	---	---	---
M8E	14-Sep-2011	M8E	37.70	---	---	---
PB1	14-Sep-2011	PB1	1.83	---	---	---
QA/QC						
M800NE - COMPOSITE	29-Sep-2011	M800NE-COMPOSITE	12.90	<3.13	<11.0	<7.06
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	5.14	<4.84	<8.68	0.327
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	7.52	<4.97	<6.61	<0.467
		RSD	**47%**	**<5XDL**	**<5XDL**	**<5XDL**
M2E	14-Sep-2011	M2E	54.70	---	---	---
(Triplicate)	14-Sep-2011	M2E-DUP	68.40	---	---	---
(Triplicate)	14-Sep-2011	M2E-TRIP	53.00	---	---	---
		RSD	**14%**			

NOTES: *1. --- in detail data row(s) denotes parameter not analyzed.*

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Table 3-14

Sediment Quality Analytical Results: Pharmaceuticals and Personal Care Products (AP5 and BP4)

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample Name	PPCP - AP5																														
			Alprazolam (ng/g)	Amitriptyline (ng/g)	Amlodipine (ng/g)	Benzoylecgonine (ng/g)	Benztropine (ng/g)	Betamethasone (ng/g)	DEET (ng/g)	Diazepam (ng/g)	Fluocinonide (ng/g)	Fluticasone propionate (ng/g)	Hydrocortisone (ng/g)	10-hydroxy-amitriptyline (ng/g)	Meprobamate (ng/g)	Metoprolol (ng/g)	Norfluoxetine (ng/g)	Norverapamil (ng/g)	Paroxetine (ng/g)	Prednisone (ng/g)	Promethazine (ng/g)	Propoxyphene (ng/g)	Propranolol (ng/g)	Sertraline (ng/g)	Simvastatin (ng/g)	Theophylline (ng/g)	Trenbolone (ng/g)	Trenbolone acetate (ng/g)	Valsartan (ng/g)	Verapamil (ng/g)
Pre-Discharge Monitoring Stations																																	
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	< 0.292	< 0.431	< 1.40	< 0.292	< 0.975	< 1.71	1.68	< 0.292	< 5.85	< 1.95	< 58.5	< 0.146	< 3.90	< 1.56	< 1.46	< 0.146	< 3.90	< 27.3	< 0.390	< 0.292	< 1.95	< 0.390	< 19.5	< 58.5	< 3.90	< 0.292	< 3.90	< 0.146
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	< 0.280	0.431	< 1.34	< 0.280	< 0.934	< 1.40	1.64	< 0.280	< 5.60	< 1.87	< 56.0	< 0.140	< 3.73	< 1.40	< 1.40	< 0.140	< 3.73	< 31.0	< 0.373	< 0.280	< 1.87	< 0.373	< 18.7	< 56.0	< 3.73	< 0.280	< 3.73	< 0.140
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 0.288	< 0.288	< 1.38	< 0.288	< 0.960	< 1.44	1.55	< 0.288	< 5.76	< 1.92	< 57.6	< 0.144	< 3.84	< 1.44	< 1.44	< 0.144	< 3.84	< 19.2	< 0.384	< 0.288	< 1.92	< 0.384	< 19.2	< 57.6	< 3.84	< 0.288	< 3.84	< 0.144
QA/QC																																	
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 0.288	< 0.288	< 1.38	< 0.288	< 0.960	< 1.44	1.55	< 0.288	< 5.76	< 1.92	< 57.6	< 0.144	< 3.84	< 1.44	< 1.44	< 0.144	< 3.84	< 19.2	< 0.384	< 0.288	< 1.92	< 0.384	< 19.2	< 57.6	< 3.84	< 0.288	< 3.84	< 0.144
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	< 0.273	< 0.296	< 1.31	< 0.273	< 0.911	< 1.44	1.46	< 0.273	< 5.47	< 1.82	< 54.7	< 0.137	< 3.65	< 1.37	< 1.37	< 0.137	< 3.65	< 20.8	< 0.365	< 0.273	< 1.82	< 0.365	< 18.2	< 54.7	< 3.65	< 0.273	< 3.65	< 0.137
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	< 0.293	< 0.293	< 1.41	< 0.293	< 0.976	< 1.46	2.27	< 0.293	< 5.86	< 1.95	< 58.6	< 0.158	< 3.91	< 2.34	< 1.46	< 0.146	< 3.91	< 63.3	< 0.391	< 0.293	< 1.95	< 0.391	< 19.5	< 58.6	< 3.91	< 0.293	< 3.91	0.152
		RSD	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**25%**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**

Notes: *1. NC = Not Calculated*

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Table 3-14

Sediment Quality Analytical Results: Pharmaceuticals and Personal Care Products (AP5 and BP4)

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample Name	PPCP - BP4 Albuterol (ng/g)	Amphetamine (ng/g)	Atenolol (ng/g)	Atorvastatin (ng/g)	Cimetidine (ng/g)	Clonidine (ng/g)	Codeine (ng/g)	Cotinine (ng/g)	Enalapril (ng/g)	Hydrocodone (ng/g)	Metformin (ng/g)	Oxycodone (ng/g)	Ranitidine (ng/g)	Triamterene (ng/g)
Pre-Discharge Monitoring Stations																
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	< 0.472	< 4.81	< 0.940	< 1.44	< 0.577	< 14.4	< 2.89	< 1.44	< 0.289	< 1.44	< 2.89	< 0.577	< 0.577	---
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	< 0.279	< 4.64	< 0.614	< 1.39	< 2.68	< 1.39	< 2.79	< 1.39	< 0.279	< 1.39	< 5.66	< 0.557	< 0.557	< 0.444
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 0.288	NDR 5.67	< 0.579	< 1.44	< 0.576	< 1.44	< 2.88	< 1.44	< 0.288	< 1.44	< 5.28	< 0.576	< 0.576	< 0.408
QA/QC																
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 0.288	NDR 5.67	< 0.579	< 1.44	< 0.576	< 1.44	< 2.88	< 1.44	< 0.288	< 1.44	< 5.28	< 0.576	< 0.576	< 0.408
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	< 0.295	NDR 4.82	< 0.734	< 1.41	< 0.566	< 14.1	< 2.83	< 1.41	< 0.283	< 1.41	< 6.44	< 0.566	< 0.911	---
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	< 0.375	NDR 6.16	0.768	< 1.49	< 0.597	< 1.49	< 3.55	< 1.49	< 0.298	< 1.49	< 4.74	< 0.597	< 0.612	< 0.445
		RSD	**<5XDL**	**NC**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**

Notes: *1. NC = Not Calculated*

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Table 3-15

Sediment Quality Analytical Results: Pharmaceuticals and Personal Care Products (AC2 and AN3)

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample Name	PPCP - AC2												PPCP - AN3									
			Anhydrochlortetracycline [ACTC] (ng/g)	Anhydrotetracycline [ATC] (ng/g)	Chlortetracycline [CTC] (ng/g)	Demeclocycline (ng/g)	Doxycycline (ng/g)	4-Epianhydrochlortetracycline [EACTC] (ng/g)	4-Epichlortetracycline [ECTC] (ng/g)	4-Epitetracycline [ETC] (ng/g)	Isochlortetracycline [ICTC] (ng/g)	Minocycline (ng/g)	Oxytetracycline [OTC] (ng/g)	Tetracycline [TC] (ng/g)	Bisphenol A (ng/g)	Gemfibrozil (ng/g)	Glipizide (ng/g)	Glyburide (ng/g)	2-Hydroxy-ibuprofen (ng/g)	Naproxen (ng/g)	Triclocarban (ng/g)	Triclosan (ng/g)	Warfarin (ng/g)
Pre-Discharge Monitoring Stations																								
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	< 14.6	< 14.6	< 5.85	< 14.6	< 5.85	< 58.5	< 14.6	< 5.85	< 5.85	< 58.5	< 5.85	< 5.85	< 487	< 1.46	< 5.85	< 2.92	< 78.0	< 2.92	< 2.92	< 58.5	< 1.46
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	< 14.0	< 14.0	< 5.64	< 14.0	< 5.60	< 56.0	< 14.0	< 5.60	< 5.60	< 56.0	< 5.60	< 5.60	< 467	< 1.40	< 5.60	< 2.80	< 74.7	< 2.80	3.9	< 56.0	< 1.40
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 14.4	< 14.4	< 5.76	< 14.4	< 5.76	< 57.6	< 14.4	< 5.76	< 5.76	< 57.6	< 5.76	< 5.76	< 480	< 1.44	< 5.76	< 2.88	< 76.8	< 2.88	4.37	< 57.6	< 1.44
QA/QC																								
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 14.4	< 14.4	< 5.76	< 14.4	< 5.76	< 57.6	< 14.4	< 5.76	< 5.76	< 57.6	< 5.76	< 5.76	< 480	< 1.44	< 5.76	< 2.88	< 76.8	< 2.88	4.37	< 57.6	< 1.44
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	< 13.7	< 18.2	< 5.47	< 13.7	< 5.47	< 54.7	< 13.7	< 5.47	< 5.47	< 54.7	< 5.47	< 5.47	< 456	< 1.37	< 5.47	< 2.73	< 72.9	< 2.73	3.39	< 54.7	< 1.37
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	< 14.6	< 20.2	< 5.86	< 14.6	< 5.86	< 58.6	< 14.6	< 5.86	< 5.86	< 58.6	< 5.86	< 5.86	< 488	< 1.46	< 5.86	< 2.93	< 78.1	< 2.93	4.16	< 58.6	< 1.46
		RSD	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**13%**	**<5XDL**	**<5XDL**

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Table 3-16

Sediment Quality Analytical Results: Pharmaceuticals and Personal Care Products (AP1)

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample Name	PPCP - AP1																				
			Acetaminophen (ng/g)	Azithromycin (ng/g)	Caffeine (ng/g)	Carbadox (ng/g)	Carbamazepine (ng/g)	Cefotaxime (ng/g)	Clarithromycin (ng/g)	Cloxacillin (ng/g)	Dehydronifedipine (ng/g)	Diphenhydramine (ng/g)	Diltiazem (ng/g)	Digoxin (ng/g)	Digoxigenin (ng/g)	Erythromycin-H2O (ng/g)	Flumequine (ng/g)	Fluoxetine (ng/g)	Lincomycin (ng/g)	Miconazole (ng/g)	Norgestimate (ng/g)	Ormetoprim (ng/g)	Oxacillin (ng/g)
Pre-Discharge Monitoring Stations																							
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	< 14.6	< 1.46	< 14.6	< 1.46	< 1.46	< 4.19	< 1.46	< 2.92	< 0.585	< 0.585	< 0.292	< 5.85	< 21.1	< 0.292	< 1.46	< 1.46	< 2.92	< 1.46	< 4.31	< 0.585	< 2.92
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	< 14.0	< 1.40	< 14.0	< 1.40	1.49	< 3.88	< 1.40	< 2.80	< 0.560	< 0.560	< 0.280	< 5.60	< 22.5	< 0.280	< 1.40	< 1.40	< 2.80	1.56	< 4.66	< 0.560	< 2.80
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 14.4	< 1.44	< 14.4	< 1.44	< 1.44	< 3.59	< 1.44	< 2.88	< 0.576	< 0.576	< 0.288	< 5.76	< 21.7	< 0.288	< 1.44	< 1.44	< 2.88	1.47	< 3.89	< 0.576	< 2.88
QA/QC																							
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 14.4	< 1.44	< 14.4	< 1.44	< 1.44	< 3.59	< 1.44	< 2.88	< 0.576	< 0.576	< 0.288	< 5.76	< 21.7	< 0.288	< 1.44	< 1.44	< 2.88	1.47	< 3.89	< 0.576	< 2.88
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	< 13.7	< 1.37	< 13.7	< 1.37	< 1.37	< 3.59	< 1.37	< 2.73	< 0.547	< 0.547	< 0.273	< 5.47	< 18.2	< 0.273	< 1.37	< 1.37	< 2.73	< 1.37	< 4.00	< 0.547	< 2.73
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	< 14.6	< 1.46	< 14.6	< 1.46	2.22	< 3.95	< 1.46	< 2.93	< 0.586	< 0.586	< 0.293	< 5.86	< 25.7	< 0.293	< 1.46	< 1.48	< 2.93	< 1.46	< 4.09	< 0.586	< 2.93
		RSD	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**

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Table 3-16

Sediment Quality Analytical Results: Pharmaceuticals and Personal Care Products (AP1)

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample Name	PPCP - AP1																		
			Oxolinic Acid (ng/g)	Penicillin G (ng/g)	Penicillin V (ng/g)	Roxithromycin (ng/g)	Sulfachloropyridazine (ng/g)	Sulfadiazine (ng/g)	Sulfadimethoxine (ng/g)	Sulfamerazine (ng/g)	Sulfamethazine (ng/g)	Sulfamethizole (ng/g)	Sulfamethoxazole (ng/g)	Sulfanilamide (ng/g)	Sulfathiazole (ng/g)	Thiabendazole (ng/g)	Trimethoprim (ng/g)	Tylosin (ng/g)	Virginiamycin (ng/g)	1,7-Dimethylxanthine (ng/g)
Pre-Discharge Monitoring Stations																					
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	< 0.585	< 2.92	< 2.92	< 0.292	< 1.46	< 1.46	< 0.292	< 0.585	< 0.585	< 0.585	< 0.585	< 14.6	< 1.46	< 1.46	< 1.46	< 5.85	< 2.92	< 58.5
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	< 0.560	< 2.80	< 2.80	< 0.280	< 1.40	< 1.40	< 0.280	< 0.560	< 0.560	< 0.560	< 0.560	< 14.0	< 1.40	< 1.40	< 1.40	< 5.60	< 2.80	< 56.0
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 0.576	< 2.88	< 2.88	< 0.288	< 1.44	< 1.44	< 0.288	< 0.576	< 0.576	< 0.576	< 0.576	< 14.4	< 1.44	< 1.44	< 1.44	< 5.76	< 2.88	< 57.6
QA/QC																					
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	< 0.576	< 2.88	< 2.88	< 0.288	< 1.44	< 1.44	< 0.288	< 0.576	< 0.576	< 0.576	< 0.576	< 14.4	< 1.44	< 1.44	< 1.44	< 5.76	< 2.88	< 57.6
(Triplicate)	29-Sep-2011	T1000 - COMPOSITE	< 0.547	< 2.73	< 2.73	< 0.273	< 1.37	< 1.37	< 0.273	< 0.547	< 0.547	< 0.547	< 0.547	< 13.7	< 1.37	< 1.37	< 1.37	< 5.47	< 2.73	< 54.7
(Triplicate)	29-Sep-2011	T2000 - COMPOSITE	< 0.586	< 2.93	< 2.93	< 0.293	< 1.46	< 1.46	< 0.293	< 0.586	< 0.586	< 0.586	< 0.586	< 14.6	< 1.46	< 1.46	< 1.46	< 5.86	< 2.93	< 58.6
		RSD	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**	**<5XDL**

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Table 3-17
Sediment Quality Analytical Results: QA/QC

PROJECT NO.: 307071-00020

	Lab Job #	QC_Batch	Group	Station / Sample	Representativeness (Blank)	Precision (Replicates)	Bias (Standards)	Data Qualifier	Note
Table 2: SEM Metals and AVS									
Sulphide	B192006, B193009, B192596	5232214, 5229129 5214141,	PDM	M800NE, T1000, T2000, M2300ESE, M1400ESE, M1600SE		S		R	Field RSD=63%, Severe Failure (>40%)
Sulphide	B191064	5214074	REM	M1E, M2E, M8E, PB1		S		R	Field RSD=98%, Severe Failure (>40%)
SEM Chromium	B192006, B193009, B192596	5232214, 5229129 5214141,	PDM	M800NE, T1000, T2000, M2300ESE, M1400ESE, M1600SE		S		R	Field RSD=35%, Severe Failure (>30%)
SEM Chromium	B191064	5214074	REM	M1E, M2E, M8E, PB1		S		R	Field RSD=84%, Severe Failure (>30%)
SEM Copper	B191064	5214141, 5214074	REM	M1E, M2E, M8E, PB1		M		J	Field RSD=25%, Marginal Failure (20 -30%)
SEM Lead	B192006, B193009, B192596	5232214, 5229129 5214141,	PDM	M800NE, T1000, T2000, M2300ESE, M1400ESE, M1600SE		S		R	Field RSD=37%, Severe Failure (>30%)
SEM Lead	B191064	5214074	REM	M1E, M2E, M8E, PB1		S		R	Field RSD=83%, Severe Failure (>30%)
Table 5: Total Metals and Trace Elements									
Total Cadminum	B191064	5222675	REM	PB1, M1E, M8E		M		J	Lab replicate RPD 81.3%, QC Limit 30%, The overall quality control for this analysis meets acceptability criteria.
Total Chromium	B191064	5222675	REM	PB1, M1E, M8E		M		J	Lab replicate RPD 106%, QC Limit 30%, The overall quality control for this analysis meets acceptability criteria.
Total Copper	B191064	5222675	REM	PB1, M1E, M8E		M		J	Lab replicate RPD 87.7 QC Limit 30%, The overall quality control for this analysis meets acceptability criteria.
Total Calcium	B193099	5229520	PDM	All PDM		M		J	Field triplicate RSD 30%, Maringal Failure 20 -30%
Total Lead	B193100	5229521	PDM	All PDM		S		R	Field triplicate RSD 52%, Severe Failure > 30%
Total Lead	B191064	5222675	REM	ALL REM		S	M	R	Field triplicate RSD 45%, Severe Failure > 30%, Lab Replicate RPD 67% QC limit 35%
Total Nickel	B191064	5222675	REM	PB1, M1E, M8E		M		J	Lab replicate RPD 92.4, QC Limit 30%, The overall quality control for this analysis meets acceptability criteria.
Total Mercury	B191064	5226242	REM	M2E, M2Ed, M2Et		M		J	Lab replicate RPD 141%, QC Limit 35%. The overall quality control for this analysis meets acceptability criteria.
Total Mercury	B191064	5226311	REM	PB1, M1E, M8E		M		J	Lab replicate RPD 120%, QC Limit 35%. The overall quality control for this analysis meets acceptability criteria.
Total Silver (Ag)	B191064	5222675	REM	PB1, M1E, M8E			S	R	Matrix Spike Recovery 260%, Severe Failure >140%
Total Tin	B191064	5222675	REM	PB1, M1E, M8E		M		J	Lab replicate RPD 84.6, QC Limit 35%. The overall quality control for this analysis meets acceptability criteria.
Total Zinc	B191064	5222675	REM	PB1, M1E, M8E		M		J	Lab replicate RPD 31.3, QC Limit 30%. The overall quality control for this analysis meets acceptability criteria.
Table 6: PAH's									
All	B191064	5227859	REM	M1E		S		R	Lab Duplicate RPD above control limit - non homogenious sample - Increased variabiltiy of result
All	B191064	5227860	REM	M1E, M2E, M8E, PB1					Field Triplcate RSD not calucalted, given that the majority of the samples were below detection limit. However, significant varibality observed between Sample and duplicate/triplicate values. Precision of M1E, M2E, M8E, and PB1 suspect.
Polycyclic Aromatic Hydrocarbons (heavy)	B192006, B193009, B192596	5232214, 5229129	PDM	M800NE, T1000, T2000, M2300ESE, M1400ESE, M1600SE			M	J	Field Tripicate RSD 55% - Marginal Failure (50-75%)

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Table 3-17
Sediment Quality Analytical Results: QA/QC

PROJECT NO.: 307071-00020

	Lab Job #	QC_Batch	Group	Station / Sample	Representativeness (Blank)	Precision (Replicates)	Bias (Standards)	Data Qualifier	Note
Table 8: PHENOLS									
2,4,6-TRIBROMOPHENOL (sur.)	B192006, B193099, B192596	5245678	PDM	Lab Blank					Surrogate recovery of Lab Blank below control limit - Pot. low bias of Lab Blank
D5-PHENOL (sur.)	B192006, B193099, B192596	5245678	PDM	Lab Blank					Surrogate recovery of Lab Blank below control limit - Pot. low bias of Lab Blank
4,6-dinitro-2-methylphenol	B192006, B193099, B192597	5245679	PDM	M800NE, T1000, T2000, M2300ESE, M1400ESE, M1600SE				J-	RDL raised due to Continuing Calibration Verification below criteria - Pot. low bias
Table 9: VOC's									
Vinyl Chloride	B191064	5219467	REM	M2E			M+	U	Matrix Spike above 150%
Bromomethane	B191064	5219467	REM	M2E			S+	U	Matrix Spike above 175%
Chloroethane	B191064	5219467	REM	M2E			S+	U	Matrix Spike above 175%
Trichlorofluoromethane	B191064	5219467	REM	M2E			S+	U	Matrix Spike above 150%
Table 10: BTEX									
m&p-Xylene		5231194	PDM	M800NE , T100, T200			M	U	Matrix Spike 147%, Maxam QC Limit 140%, CRD DQO 150%

Notes:

REM = Receiving Environment Mointoring Stations
PDM = Pre Discharge Monitoring Stations
S = Severe DQO Failure
S+ = Severe DQO Failure, that is believed to be biased high
M = Marginal DQO Failure
R = Datum Rejected
J = alanlyte has been positively idnetified , but the repoted concentration is an estimate value and the direction of the bias is unkown
J- = alanlyte has been positively idnetified , but the repoted concentration is an estimate value that is believed to be biased low
U = analyte was not detected above the sample DL

Tables – Bioaccumulation and Toxicity

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Table 4-1

Sediment Quality Analytical Results: Bioaccumulation

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample ID	Dry Weight: Lipid Content (%)	Mercury (Hg) (µg/g)	Aluminum (Al) (µg/g)	Antimony (Sb) (µg/g)	Arsenic (As) (µg/g)	Barium (Ba) (µg/g)	Beryllium (Be) (µg/g)	Bismuth (Bi) (µg/g)	Boron (B) (µg/g)	Cadmium (Cd) (µg/g)	Calcium (Ca) (µg/g)	Chromium (Cr) (µg/g)	Cobalt (Co) (µg/g)	Copper (Cu) (µg/g)	Iron (Fe) (µg/g)	Lead (Pb) (µg/g)	Magnesium (Mg) (µg/g)	Manganese (Mn) (µg/g)	Molybdenum (Mo) (µg/g)	Nickel (Ni) (µg/g)	Phosphorus (P) (µg/g)	Potassium (K) (µg/g)	Selenium (Se) (µg/g)	Silver (Ag) (µg/g)	Sodium (Na) (µg/g)	Strontium (Sr) (µg/g)	Thallium (Tl) (µg/g)	Tin (Sn) (µg/g)	Titanium (Ti) (µg/g)	Uranium (U) (µg/g)	Vanadium (V) (µg/g)	Zinc (Zn) (µg/g)
Pre-Discharge Monitoring Stations																																			
T=0	29-Sep-2010	CL3368	18.9	0.05	9	0.016	18.6	0.2	<0.1	<0.1	<5	0.38	1440	<0.2	0.62	11.3	496	1.28	5210	11.3	1.49	0.51	8000	18500	1.04	0.15	33800	25.2	0.004	0.2	2	1.04	0.8	207
M8000NE (T=28)	29-Sep-2010	CL3371	14	0.05	6	0.025	15.2	<0.1	<0.1	<0.1	<5	0.27	1620	<0.2	0.73	8.01	385	1.02	5250	5.4	1.21	0.83	7030	16800	0.97	0.12	34600	27.3	<0.002	0.2	<1	1.68	0.8	104
M1400ESE (T=28)	29-Sep-2010	CL3374	10.2	0.06	57	0.023	14.7	0.3	<0.1	<0.1	<5	0.32	1600	<0.2	0.64	8.33	510	0.98	5210	3.1	1.21	0.93	7310	17200	1.05	0.14	35200	28.7	<0.002	0.3	5	1.69	1	44.5
FC3500 (T=28)	29-Sep-2010	CL3375	14.1	0.06	9	0.025	16	<0.1	<0.1	<0.1	<5	0.27	1620	<0.2	0.63	8.34	391	0.87	5700	2.5	1.27	1.22	7650	17600	1.35	0.16	37800	29.9	<0.002	<0.1	<1	1.44	0.8	60.8
Receiving Environment Monitoring Stations																																			
T=0	27-Sep-2010	CF2950	23.1	<0.2	6	0.034	19.5	---	<0.1	---	---	0.3	---	<0.5	---	20.5	562	1.26	6390	7	---	1.3	---	---	1.62	0.2	---	---	<0.002	---	---	---	---	185
M2E T=28	30-Sep-2010	CF2953	13	<0.2	10	0.043	13.9	---	<0.1	---	---	0.28	---	<0.5	---	12.2	424	0.84	5290	2.3	---	1.2	---	---	1.57	0.11	---	---	<0.002	---	---	---	---	54.9
(Duplicate)	30-Sep-2010	CF2953	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M1E T=28	27-Sep-2011	CF2954	22.3	<0.2	23	0.055	14.6	---	<0.1	---	---	0.33	---	<0.5	---	14.4	496	1.21	6030	8.3	---	2.5	---	---	1.63	0.1	---	---	<0.002	---	---	---	---	218
M8E T=28	29-Sep-2011	CF2955	17.3	<0.2	7	0.022	12.4	---	<0.1	---	---	0.31	---	<0.5	---	10.6	363	0.75	4890	3.7	---	1	---	---	1.22	0.11	---	---	<0.002	---	---	---	---	102
PB1 T=28	28-Sep-2011	CF2957	40	<0.2	13	0.019	15.1	---	<0.1	---	---	0.33	---	<0.5	---	9.51	467	0.82	5460	4.5	---	0.9	---	---	1.38	0.15	---	---	<0.002	---	---	---	---	151
QA/QC																																			
T=0	29-Sep-2010	CL3368	18.9	0.05	9	0.016	18.6	0.2	<0.1	<0.1	<5	0.38	1440	<0.2	0.62	11.3	496	1.28	5210	11.3	1.49	0.51	8000	18500	1.04	0.15	33800	25.2	0.004	0.2	2	1.04	0.8	207
(Triplicate)	28-Sep-2010	CL3369	10.8	0.06	17	0.02	19.2	0.3	<0.1	<0.1	<5	0.48	1540	0.5	0.84	15.1	517	2.05	5660	15	2.09	0.68	8900	19600	1.14	0.35	36300	28.2	0.004	0.3	3	1.72	1.4	380
(Triplicate)	30-Sep-2010	CL3370	13.8	0.05	20	0.014	17.4	0.2	<0.1	<0.1	<5	0.27	1350	<0.2	0.61	17.2	478	1.52	5300	8.9	1.43	0.55	8300	19100	0.9	0.18	31300	23.8	0.004	0.3	2	1.45	0.7	157
		RSD	**28%**	**11%**	**37%**	**18%**	**5%**	**25%**	**<5xDl**	**<5xDl**	**<5xDL**	**28%**	**7%**	**<5xDl**	**19%**	**21%**	**4%**	**24%**	**4%**	**26%**	**22%**	**15%**	**5%**	**3%**	**12%**	**48%**	**7%**	**9%**	**0%**	**22%**	**25%**	**24%**	**39%**	**47%**
M8000NE (T=28)	29-Sep-2010	CL3371	14	0.05	6	0.025	15.2	<0.1	<0.1	<0.1	<5	0.27	1620	<0.2	0.73	8.01	385	1.02	5250	5.4	1.21	0.83	7030	16800	0.97	0.12	34600	27.3	<0.002	0.2	<1	1.68	0.8	104
T1000 (T=28)	29-Sep-2010	CL3372	13.4	0.05	5	0.019	16.4	<0.1	<0.1	<0.1	<5	0.29	1570	<0.2	0.8	8.03	396	0.91	5590	1.9	1.16	1.1	7420	17800	0.93	0.11	37300	28	<0.002	0.2	<1	1.69	0.8	46.6
T2000 (T=28)	28-Sep-2010	CL3373	12	0.05	24	0.022	16.4	0.2	<0.1	<0.1	<5	0.32	1800	<0.2	0.73	10.5	428	1.02	6030	2.5	1.3	1.05	7650	18700	0.95	0.09	40200	31.7	<0.002	0.2	3	1.7	1.1	71.8
(Duplicate)	30-Sep-2010	CL3373	12.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		RSD	**8%**	**0%**	**92%**	**14%**	**4%**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**9%**	**7%**	**<5xDL**	**5%**	**16%**	**6%**	**6%**	**7%**	**57%**	**6%**	**14%**	**4%**	**5%**	**2%**	**14%**	**7%**	**8%**	**<5xDL**	**0%**	**<5xDL**	**1%**	**19%**	**39%**
FC3500 (T=28)	29-Sep-2010	CL3375	14.1	0.06	9	0.025	16	<0.1	<0.1	<0.1	<5	0.27	1620	<0.2	0.63	8.34	391	0.87	5700	2.5	1.27	1.22	7650	17600	1.35	0.16	37800	29.9	<0.002	<0.1	<1	1.44	0.8	60.8
(Duplicate)	27-Sep-2010	CL3375	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
T=0	27-Sep-2010	CF2950	23.1	<0.2	6	0.034	19.5	---	<0.1	---	---	0.3	---	<0.5	---	20.5	562	1.26	6390	7	---	1.3	---	---	1.62	0.2	---	---	<0.002	---	---	---	---	185
(Duplicate)	30-Sep-2010	CF2951	14.5	<0.2	345	0.033	14.5	---	<0.1	---	---	0.23	---	1.5	---	36	948	2.19	5390	12.9	---	1.4	---	---	1.23	0.15	---	---	<0.002	---	---	---	---	193
(Duplicate)	27-Sep-2010	CF2952	15.7	<0.2	20	0.048	17.4	---	<0.1	---	---	0.29	---	<0.5	---	28	531	1.71	4910	10.5	---	1.2	---	---	1.29	0.17	---	---	<0.002	---	---	---	---	196
		RSD	**26%**	**<5xDL**	**155%**	**22%**	**15%**		**<5xDl**			**14%**		**<5xDl**		**28%**	**34%**	**27%**	**14%**	**29%**		**8%**			**15%**	**15%**			**<5xDL**					**3%**
M2E T=28	30-Sep-2010	CF2953	13	<0.2	10	0.043	13.9	---	<0.1	---	---	0.28	---	<0.5	---	12.2	424	0.84	5290	2.3	---	1.2	---	---	1.57	0.11	---	---	<0.002	---	---	---	---	54.9
(Duplicate)	30-Sep-2010	CF2953	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES: *1. --- in detail data row(s) denotes parameter not analyzed.*

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Table 4-1

Sediment Quality Analytical Results: Bioaccumulation

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample ID	Wet Weight: Aluminum (Al) (ug/g)	Antimony (Sb) (ug/g)	Arsenic (As) (ug/g)	Barium (Ba) (ug/g)	Beryllium (Be) (ug/g)	Bismuth (Bi) (ug/g)	Boron (B) (ug/g)	Cadmium (Cd) (ug/g)	Calcium (Ca) (ug/g)	Chromium (Cr) (ug/g)	Cobalt (Co) (ug/g)	Copper (Cu) (ug/g)	Iron (Fe) (ug/g)	Lead (Pb) (ug/g)	Magnesium (Mg) (ug/g)	Manganese (Mn) (ug/g)	Mercury (Hg) (ug/g)	Molybdenum (Mo) (ug/g)	Nickel (Ni) (ug/g)	Phosphorus (P) (ug/g)	Potassium (K) (ug/g)	Selenium (Se) (ug/g)	Silver (Ag) (ug/g)	Sodium (Na) (ug/g)	Strontium (Sr) (ug/g)	Thallium (Tl) (ug/g)	Tin (Sn) (ug/g)	Titanium (Ti) (ug/g)	Uranium (U) (ug/g)	Vanadium (V) (ug/g)	Zinc (Zn) (ug/g)	Moisture (%)	Hex. Chromium (Cr 6+) (ug/g)	Methyl Mercury (ng/g)
Pre-Discharge Monitoring Stations																																					
T=0	29-Sep-2010	CL3368	1.1	0.002	2.23	0.03	<0.02	<0.02	<1	0.045	173	<0.04	0.074	1.36	60	0.153	625	1.36	0.006	0.18	0.06	960	2220	0.12	0.017	4050	3.02	0.0005	0.03	0.2	0.125	0.1	24.9	88	---	BQL < 3.92
M8000NE (T=28)	29-Sep-2010	CL3371	0.8	0.004	2.11	<0.02	<0.02	<0.02	<1	0.038	225	<0.04	0.102	1.11	53	0.142	730	0.75	0.007	0.17	0.12	977	2330	0.13	0.016	4810	3.8	<0.0004	0.03	<0.2	0.233	0.11	14.4	86	---	BQL < 3.62
M1400ESE (T=28)	29-Sep-2010	CL3374	7.6	0.003	1.97	0.05	<0.02	<0.02	<1	0.043	214	<0.04	0.086	1.12	68	0.131	699	0.42	0.008	0.16	0.12	979	2310	0.14	0.018	4710	3.84	<0.0004	0.05	0.6	0.226	0.13	5.97	87	---	104
FC3500 (T=28)	29-Sep-2010	CL3375	1.2	0.003	2.03	<0.02	<0.02	<0.02	<1	0.034	206	<0.04	0.08	1.06	50	0.111	723	0.31	0.007	0.16	0.15	971	2240	0.17	0.021	4800	3.79	<0.0004	<0.02	<0.2	0.183	0.1	7.72	87	---	BQL < 3.56
Receiving Environment Monitoring Stations																																					
T=0	27-Sep-2010	CF2950	0.5	0.003	1.69	---	<0.02	---	---	0.026	---	<0.1	---	1.78	49	0.11	556	0.6	<0.03	---	0.1	---	---	0.14	0.017	---	---	<0.0004	---	---	---	---	16.1	91	<18 (1)	4.1
M2E T=28	30-Sep-2010	CF2953	1.3	0.005	1.72	---	<0.02	---	---	0.034	---	<0.1	---	1.51	53	0.104	656	0.29	<0.03	---	0.2	---	---	0.19	0.013	---	---	<0.0004	---	---	---	---	6.81	88	<7.0 (1)	3.9
(Duplicate)	30-Sep-2010	CF2953	1.1	0.006	1.75	---	<0.02	---	---	0.036	---	<0.1	---	1.55	52	0.115	673	0.73 (2)	<0.03	---	0.2	---	---	0.18	0.015	---	---	<0.0004	---	---	---	---	21.6 (2)	---	---	BQL
M1E T=28	27-Sep-2011	CF2954	2.7	0.006	1.66	---	<0.02	---	---	0.037	---	<0.1	---	1.64	57	0.138	688	0.95	<0.03	---	0.3	---	---	0.19	0.012	---	---	<0.0004	---	---	---	---	24.9	89	<12 (1)	BQL
M8E T=28	29-Sep-2011	CF2955	1	0.003	1.65	---	<0.02	---	---	0.041	---	<0.1	---	1.41	48	0.1	651	0.5	<0.03	---	0.1	---	---	0.16	0.014	---	---	<0.0004	---	---	---	---	13.6	87	<7.0 (1)	4.2
PB1 T=28	28-Sep-2011	CF2957	1.6	0.002	1.88	---	<0.02	---	---	0.041	---	<0.1	---	1.19	58	0.102	683	0.57	<0.03	---	0.1	---	---	0.17	0.019	---	---	<0.0004	---	---	---	---	18.8	88	<8.0 (1)	4.1
QA/QC																																					
T=0	29-Sep-2010	CL3368	1.1	0.002	2.23	0.03	<0.02	<0.02	<1	0.045	173	<0.04	0.074	1.36	60	0.153	625	1.36	0.006	0.18	0.06	960	2220	0.12	0.017	4050	3.02	0.0005	0.03	0.2	0.125	0.1	24.9	88	---	BQL < 3.92
(Triplicate)	28-Sep-2010	CL3369	1.9	0.002	2.17	0.03	<0.02	<0.02	<1	0.055	174	0.05	0.095	1.71	58	0.231	639	1.69	0.007	0.24	0.08	1010	2210	0.13	0.04	4100	3.19	0.0004	0.04	0.3	0.194	0.16	42.9	89	---	BQL < 3.30
(Triplicate)	30-Sep-2010	CL3370	2.4	0.002	2.08	0.03	<0.02	<0.02	<1	0.032	162	<0.04	0.073	2.06	57	0.182	636	1.07	0.006	0.17	0.07	996	2290	0.11	0.022	3760	2.86	0.0004	0.03	0.3	0.174	0.08	18.8	88	---	BQL < 3.82
		RSD	**36%**	**0%**	**3%**	**0%**	**<5xDL**	**<5xDL**	**<5xDL**	**26%**	**4%**	**<5xDL**	**15%**	**20%**	**3%**	**21%**	**1%**	**23%**	**9%**	**19%**	**14%**	**3%**	**2%**	**8%**	**46%**	**5%**	**5%**	**13%**	**17%**	**22%**	**22%**	**37%**	**43%**	**1%**		**<5xDL**
M8000NE (T=28)	29-Sep-2010	CL3371	0.8	0.004	2.11	<0.02	<0.02	<0.02	<1	0.038	225	<0.04	0.102	1.11	53	0.142	730	0.75	0.007	0.17	0.12	977	2330	0.13	0.016	4810	3.8	<0.0004	0.03	<0.2	0.233	0.11	14.4	86	---	BQL < 3.62
T1000 (T=28)	29-Sep-2010	CL3372	0.7	0.003	2.16	<0.02	<0.02	<0.02	<1	0.039	207	<0.04	0.105	1.06	52	0.12	738	0.25	0.007	0.15	0.15	979	2350	0.12	0.014	4920	3.7	<0.0004	0.02	<0.2	0.223	0.11	6.15	87	---	BQL < 3.46
T2000 (T=28)	28-Sep-2010	CL3373	3.2	0.003	2.2	0.03	<0.02	<0.02	<1	0.043	241	<0.04	0.097	1.41	57	0.137	808	0.33	0.006	0.17	0.14	1020	2510	0.13	0.012	5390	4.24	<0.0004	0.02	0.3	0.228	0.14	9.63	87	---	BQL < 3.92
(Duplicate)	30-Sep-2010	CL3373	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	87	---	---
		RSD	**90%**	**17%**	**2%**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**7%**	**8%**	**<5xDL**	**4%**	**16%**	**5%**	**9%**	**6%**	**61%**	**9%**	**7%**	**11%**	**2%**	**4%**	**5%**	**14%**	**6%**	**7%**	**<5xDL**	**25%**	**<5xDL**	**2%**	**14%**	**41%**	**1%**		**<5xDL**
FC3500 (T=28)	29-Sep-2010	CL3375	1.2	0.003	2.03	<0.02	<0.02	<0.02	<1	0.034	206	<0.04	0.08	1.06	50	0.111	723	0.31	0.007	0.16	0.15	971	2240	0.17	0.021	4800	3.79	<0.0004	<0.02	<0.2	0.183	0.1	7.72	87	---	---
(Duplicate)	27-Sep-2010	CL3375	1.3	0.003	2.02	<0.02	<0.02	<0.02	<1	0.036	216	<0.04	0.082	1.06	51	0.118	723	0.31	0.007	0.16	0.15	962	2240	0.16	0.022	4820	4	<0.0004	0.02	0.2	0.195	0.11	6.12	---	---	---
			6%	**0%**	**0%**	**<5xDL**	**<5xDL**	**<5xDL**	**<5xDL**	**4%**	**3%**	**<5xDL**	**2%**	**0%**	**1%**	**4%**	**0%**	**0%**	**0%**	**0%**	**0%**	**1%**	**0%**	**4%**	**3%**	**0%**	**4%**	**<5xDL**	**<5xDL**	**<5xDL**	**4%**	**7%**	**16%**			
T=0	27-Sep-2010	CF2950	0.5	0.003	1.69	---	<0.02	---	---	0.026	---	<0.1	---	1.78	49	0.11	556	0.6	<0.03	---	0.1	---	---	0.14	0.017	---	---	<0.0004	---	---	---	---	16.1	91	<18 (1)	4.1
(Duplicate)	30-Sep-2010	CF2951	33.5	0.003	1.4	---	<0.02	---	---	0.022	---	0.1	---	3.49	92	0.212	523	1.25	<0.03	---	0.1	---	---	0.12	0.014	---	---	<0.0004	---	---	---	---	18.7	90	---	BQL
(Duplicate)	27-Sep-2010	CF2952	2.1	0.005	1.79	---	<0.02	---	---	0.03	---	<0.1	---	2.88	55	0.176	506	1.08	<0.03	---	0.1	---	---	0.13	0.017	---	---	<0.0004	---	---	---	---	20.2	90	<8.0 (1)	4.4
		RSD	**155%**	**31%**	**12%**		**<5xDL**			**15%**		**<5xDL**		**32%**	**36%**	**31%**	**5%**	**35%**			**0%**			**8%**	**11%**			**<5xDL**					**11%**	**1%**		
M2E T=28	30-Sep-2010	CF2953	1.3	0.005	1.72	---	<0.02	---	---	0.034	---	<0.1	---	1.51	53	0.104	656	0.29	<0.03	---	0.2	---	---	0.19	0.013	---	---	<0.0004	---	---	---	---	6.81	88	<7.0 (1)	3.9
(Duplicate)	30-Sep-2010	CF2953	1.1	0.006	1.75	---	<0.02	---	---	0.036	---	<0.1	---	1.55	52	0.115	673	0.73 (2)	<0.03	---	0.2	---	---	0.18	0.015	---	---	<0.0004	---	---	---	---	21.6 (2)	---	---	BQL
			12%	**13%**	**1%**		**<5xDL**			**4%**		**<5xDL**		**2%**	**1%**	**7%**	**2%**	**#DIV/0!**	**<5xDL**		**0%**			**4%**	**10%**											

NOTES: *1. --- in detail data row(s*

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Table 4-2

Sediment Quality Analytical Results: Marine Polychaete Sediment Toxicity

PROJECT NO.: 307071-00020

Sampling Location	Date (d-m-y)	Sample Name	Neanthes Arenaceodentata 20-d Growth and Survival test: Mean Survival %	Mean Survival (Standard Deviation) ± %	Mean Growth Rate mg/day	Mean Growth Rate (Standard Deviation) : mg/day	Mean Total Dry Weight mg	Mean Growth Rate (Standard Deviation) ± mg	Mean Individaul Dry Weight mg	Mean Individual Wieght (Standard Deviation) ± mg	Eohaustorius Estuarius 10-d Survival Test: Mean Survival %	Mean Survival (Standard Deviation) ± %
Pre-Discharge Monitoring Stations												
CONTROL		CONTROL	100	0	1.00	0.13	102.90	12.93	20.58	2.59	99	2
M800NE - COMPOSITE	29-Sep-2011	M800NE - COMPOSITE	100	0	1.02	0.11	105.4	11.46	21.08	2.29	93	6
M1400ESE - COMPOSITE	28-Sep-2011	M1400ESE - COMPOSITE	88	18	0.15	0.09	17.57	10.14	3.71	1.83	98	3
FC3500NE - COMPOSITE	27-Sep-2011	FC3500NE - COMPOSITE	92	18	0.76	0.15	74.69	24.12	15.89	3.04	97	4
Receiving Environment Monitoring												
CONTROL		CONTROL	100	0	0.95	0.11	---	---	19.79	2.15	98	3
M1E		M1E	96	9	0.49	0.21	---	---	10.59	4.17	87	8
M2E		M2E	100	0	0.49	0.12	---	---	10.60	2.46	88	9
M8E		M8E	100	0	0.85	0.11	---	---	17.56	2.27	87	8
PB1		M8E	100	0	0.94	0.13	---	---	19.45	2.70	92	7
QA/QC												
M800NE - COMPOSITE	29-Sep-2011	M800NE	100	0	1.02	0.11	105.4	11.46	21.08	2.29	93	6
(Triplicate)	29-Sep-2011	T1000	100	0	0.80	0.07	83.30	7.24	16.66	1.45	95	5
(Triplicate)	29-Sep-2011	T2000	100	0	0.88	0.23	91.89	22.83	18.38	4.57	95	4
		RSD	0%		12%		12%		12%		1%	

NOTES:
1. --- in guideline row(s) denotes no criteria for that parameter.
2. --- in detail data row(s) denotes parameter not analyzed.
3. Highlighting indicates statistically significant difference between negative control and the sediment sample.
4. Highlighting indicates statistically significant difference between negative control and the sediment sample, and the sample is significantly different from the reference sample PB1

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Tables – Benthic Infauna

Table 5-1 Total abundance of major taxonomic groups (phyla or class) for each station and replicate for the Albert Head 2010 samples.

Station	Rep	POSE	POER	MOBI	MOGA	CRAM	CRCU	CRDE	NTEA	ECHO	SIPN	CROS	CRIS	CRTA	ECOP	MOPO	MOSC	Misc	ECAS	ANOL	CRLE	CHPY	ENTO	EURA	HEMI	MOAP	PHOR	PLTY	PRIA	URAS
95th percentile threshold		**13**	**7**	**7**																										
1	4	470	310	76	24	37	8	25	11	3	12	5	2	2	3	2	1	2		1		1								
1	6	777	857	114	33	82	17	17	19	25	14	9	2	2	2	10		11	1	1			4				1			4
1	7	731	625	125	35	121	37	24	18	26	20	13	3		5	16		18		2	1	3	7		1					4
2	3	574	750	62	21	67	29	2	11	27	8	27	2	1	4	2		9		3	3		1				1			1
2	4	361	389	83	34	32	6	1	11	14	3	1			4	1	1	4		1			1				1			1
2	7	848	855	112	42	97	49	16	18	17	14	22	3	1	5	1	2	21		6		3	5				1	1		5
3	4	464	583	68	24	99	14	8	22	8			1		2	7	1	9		2		2	4						1	
3	5	544	443	127	27	35	21	7	8	12	5	13	4		2		2	8		3		1								4
4	2	258	107	114	26	32	1		6	2	1	20	1		5	1	4	8		3			2							3
4	5	243	95	124	31	30	7		5	1	10	33					2	3		1		1	1							
5	6	516	632	115	37	61	26	14	6	40	10	5	1		9	5	1	13				3	2					1		7
6	5	642	478	79	13	20	12	11	8	10	4	7			1	1		11	1	2		3	1		2					2
7	4	257	144	45	5	20	5	1	4	3	6	8					1	4					2			1				1
8	3	192	56	151	18	33	1					15	1					0												
9	4	174	35	332	11	15	3	2			3	37		1			6	2						1		1				
10	4	271	62	106	7	41	2	6	1	2	1	50	1	2			1	0												
11	4	516	232	49	16	35	2	17	6		4	18	1			2	1	3								2				1
12	5	171	27	261	16	31	6	4				20					2	4		3						1				
13	1	279	107	65	60	44	5		6		6	39	5		4			2							1	1				

Notes: POSE=sedentariate polychaetes; POER=errantiate polychaetes; MOBI=bivalves; MOGA=gastropods; CRAM=amphipoda; CRCU=cumacea; CRDE=decapoda; NTEA=nemertea; SIPN=sipuncula; CROS=ostracoda; CRIS=isopods; CRTA=tanaidacea; ECOP=ophiuroida; MOPO=polyplacophora; MOSC=scaphopoda; Misc includes all following groups (ECAS=asteroidea; ANOL=oligochaeta; CRLE=leptostraca; CHPY=Pycnogonida; ENTO=enteropneusta; HEMI=hemichordata; MOAP=aplacophora; PHOR=Phoronida; PLTY=platyhelminthes; PRIA=priapulida; URAS=ascideacea. Ninety-fifth percentile thresholds for available biotic factors (30-90 m depth) from the BC coastal database are included (see Burd et al., 2009), with values highlighted in yellow exceeding these thresholds.

Table 5-2 Total abundance of major taxonomic groups (phyla or class) for each station and replicate for the 2011 samples.

Station	Rep	POSE	POER	MOBI	MOGA	CRAM	CRCU	CRDE	NTEA	ECHO	SIPN	CROS	CRIS	CRTA	ECOP	MOPO	MOSC	Misc	ECAS	ANOL	CRLE	CHPY	ENTO	EURA	HEMI	MOAP	PHOR	PLTY	PRIA	URAS
95th percentile threshold		**13**	**7**	**7**																										
FC3500NE	1	49	6	209	26	2	1		2																					
FC3500NE	2	98	8	245	46	8	2	1	2																					
FC3500NE	3	57	10	134	26	7	1	1	2	1																				
FC4000ENE	1	24	11	18	1	16			1	8						1														
FC4000ENE	2	38	5	8		14	1		1	2	1					1														
FC4000ENE	3	40	7	7	6	8		5	3	1	1					3														
M1300E	2	45	14	11		13	3	4	4	3	3				1	3														
M1300E	3	48	7	22	2	10	1	5	5	6	5				1	4														
M1300E	4	49	25	14	5	22	1	6	2	6	4					3														
M1400ESE	2	69	8	33	3	35	5	2						2		3														
M1400ESE	3	66	5	26	2	18	2	3								6														
M1400ESE	4	102	10	14	1	14	1	9					1			2														
M1600SE	1	77	9	26	1	16		7	1	9	2			1		3														
M1600SE	2	99	6	24	3	7		5		4	2					4														
M1600SE	3	114	6	22	3	32	2	4	1	3	1			2	3	3														
M1E	2	158	26	29	1	42				2		2	2	11																
M1E	3	222	15	7	2	63	1	3		3			4	12																
M1E	4	231	35	21	2	43	2	2	5	1		6	1	7																
M2300ESE	1	95	6	25	10	27	9	5			1		2	1	2	4														
M2300ESE	2	85	3	20	1	18	1	10	2		6			1	2	4														
M2300ESE	4	83	7	33		23	5	4	1		1				2	2	1													
M2E	1	198	56	31	8	28	3		4	4	3	26	1																	

Station	Rep	POSE	POER	MOBI	MOGA	CRAM	CRCU	CRDE	NTEA	ECHO	SIPN	CROS	CRIS	CRTA	ECOP	MOPO	MOSC	Misc	ECAS	ANOL	CRLE	CHPY	ENTO	EURA	HEMI	MOAP	PHOR	PLTY	PRIA	URAS
95th percentile threshold		**13**	**7**	**7**																										
M2E	3	93	47	33	4	34	2	2	2	22	1	20																		
M2E	4	133	50	28	4	44	4	8	1	16		9					1													
M500SE	1	59	28	23	7	29	3	1		1		2																		
M500SE	3	46	21	43	6	22	1					2																		
M500SE	4	40	11	21	3	19	1	3	1	1	1		1	1																
M800NE	2	39	38	10	10	18	11	6	4	5	6	7			1															
M800NE	3	85	22	5	3	16			2		2	5		1	1	1		1							1					
M800NE	4	38	32	7	3	10	2		1	1	1	2			1			1								1				
M8E	1	72	23	23	8	13	1	2	6	2	1	4	2	1																
M8E	3	51	19	18		24	6	5	1	1		3		2																
M8E	4	51	19	12	3	18		1		1	3	2			1															
PB1	2	66	29	65	27	26	6		1		1	29		1	4		3													
PB1	3	48	19	45	6	15	2	3	2		1	15			1		4	1								1				
PB1	4	63	31	81	13	39	5				1	50			6		9	1								1				

Notes: POSE=sedentariate polychaetes; POER=errantiate polychaetes; MOBI=bivalves; MOGA=gastropods; CRAM=amphipoda; CRCU=cumacea; CRDE=decapoda; NTEA=nemertea; SIPN=sipuncula; CROS=ostracoda; CRIS=isopods; CRTA=tanaidacea; ECOP=ophiuroida; MOPO=polyplacophora; MOSC=scaphopoda; Misc includes all following groups (ECAS=asteroidea; ANOL=oligochaeta; CRLE=leptostraca; CHPY=Pycnogonida; ENTO=enteropneusta; HEMI=hemichordata; MOAP=aplacophora; PHOR=Phoronida; PLTY=platyhelminthes; PRIA=priapulida; URAS=ascideacea. Ninety-fifth percentile thresholds for available biotic factors (30-90 m depth) from the BC coastal database are included (see Burd et al., 2009), with values highlighted in yellow exceeding these thresholds.

Table 5-3 Summary biotic factors for all 2010 Albert Head replicate samples, including total taxa, abundances for adults, intermediates and juveniles, organic biomass, production, biomass per organism and diversity measures.

Station	Rep	Taxa	Totals	Adults	Inter	Juveniles	Organic biomass (kj/0.1m^2)	Production (kj/0.1m^2/yr)	biomass/ organism	SDI	H'	1-D
95th percentile threshold		**20**	**72**				**15.9**	**13.7**		**5**	**2.25**	**0.81**
1	4	161	1017	635	302	80	60.3	42.1	0.1	31	3.81	0.93
1	6	193	2007	1305	494	208	108.9	71.2	0.1	29	3.61	0.89
1	7	238	1867	1196	452	219	97.2	71.6	0.1	41	4.00	0.92
2	3	179	1603	1070	367	166	71.4	54.5	0.0	28	3.49	0.86
2	4	179	987	614	274	99	63.7	43.8	0.1	33	3.61	0.89
2	7	226	2188	1388	493	307	58.2	50.7	0.0	32	3.70	0.90
3	4	176	1352	856	321	175	41.3	38.4	0.0	27	3.68	0.92
3	5	172	1256	887	246	123	39.6	37.7	0.0	29	3.62	0.91
4	2	129	595	421	118	56	24.1	25.8	0.0	31	3.91	0.96
4	5	115	587	385	157	45	25.5	24.8	0.0	32	3.96	0.96
5	6	176	1502	1076	327	99	108.3	75.5	0.1	32	3.74	0.90
6	5	172	1300	892	323	85	52.6	49.1	0.0	33	3.78	0.91
7	4	107	508	399	85	24	106.2	48.1	0.2	28	3.74	0.94
8	3	71	467	333	103	31	52.2	32.8	0.1	15	3.25	0.92
9	4	68	622	342	213	67	25.4	24.2	0.0	7	2.68	0.83
10	4	96	555	392	121	42	30.9	29.9	0.1	27	3.76	0.95
11	4	138	909	663	187	59	40.8	39.4	0.0	35	3.95	0.95
12	5	66	544	337	137	70	23.7	21.7	0.0	13	2.98	0.88
13	1	115	628	479	115	34	58.7	41.3	0.1	30	3.96	0.96

Notes: Ninety-fifth percentile thresholds for available biotic factors (30-90 m depth) from the BC coastal background database (Burd et al., 2009) or the Strait of Georgia/Juan de Fuca background database (organic biomass and production only; Burd et al., 2012a) are included, with values highlighted in yellow exceeding these thresholds.

Table 5-4 Summary biotic factors for the 2011 replicate samples, including total taxa, abundances for adults, intermediates and juveniles, organic biomass, production, biomass per organism and diversity measures.

Station	Rep	Taxa	Totals	Adults	Inter	Juveniles	Organic biomass (kj/0.1m^2)	Production (kj/0.1m^2/yr)	biomass/ organism	SDI	H'	1-D
95th percentile threshold		**20**	**72**				**15.9**	**13.7**		**5**	**2.25**	**0.81**
FC3500NE	1	32	295	184	0	111	9.5	9.1	0.0	6	2.44	0.86
FC3500NE	2	38	410	333	0	77	8.1	9.5	0.0	8	2.49	0.82
FC3500NE	3	36	239	187	0	52	6.0	6.4	0.0	10	2.80	0.90
FC4000ENE	1	36	80	50	0	30	14.5	9.5	0.2	18	3.31	0.95
FC4000ENE	2	36	71	34	0	37	7.1	5.6	0.1	19	3.29	0.95
FC4000ENE	3	39	81	51	0	30	5.4	5.4	0.1	19	3.39	0.96
M1300E	2	52	104	71	0	33	30.8	18.8	0.3	27	3.60	0.96
M1300E	3	52	116	68	0	48	12.2	8.7	0.1	24	3.61	0.96
M1300E	4	50	137	97	0	40	8.7	8.2	0.1	23	3.62	0.97
M1400ESE	2	48	160	93	0	67	12.0	11.4	0.1	19	3.42	0.95
M1400ESE	3	41	128	72	0	56	12.6	10.8	0.1	14	3.14	0.93
M1400ESE	4	41	154	95	0	59	13.0	14.0	0.1	12	3.04	0.92
M1600SE	1	39	153	77	0	76	10.9	8.4	0.1	15	2.98	0.90
M1600SE	2	41	154	71	0	83	7.0	6.6	0.0	12	2.69	0.84
M1600SE	3	49	196	107	0	89	12.3	10.2	0.1	14	2.84	0.84
M1E	2	37	273	113	0	160	10.5	9.6	0.0	9	2.62	0.85
M1E	3	40	332	113	0	219	6.6	8.1	0.0	5	2.13	0.70
M1E	4	49	356	139	0	217	7.0	8.1	0.0	7	2.42	0.78
M2300ESE	1	58	187	95	0	92	7.4	7.8	0.0	22	3.49	0.94
M2300ESE	2	48	153	76	0	77	9.7	10.9	0.1	16	3.23	0.93
M2300ESE	4	45	162	96	0	66	11.5	13.5	0.1	16	3.20	0.93
M2E	1	57	362	195	0	167	12.3	12.4	0.0	12	2.84	0.84

Station	Rep	Taxa	Totals	Adults	Inter	Juveniles	Organic biomass (kj/0.1m^2)	Production (kj/0.1m^2/yr)	biomass/ organism	SDI	H'	1-D
95th percentile threshold		**20**	**72**				**15.9**	**13.7**		**5**	**2.25**	**0.81**
M2E	3	55	260	177	0	83	27.4	17.4	0.1	15	3.32	0.94
M2E	4	56	298	195	0	103	18.3	14.5	0.1	16	3.24	0.93
M500SE	1	59	153	84	0	69	7.7	8.2	0.1	26	3.76	0.97
M500SE	3	42	141	83	0	58	10.5	9.9	0.1	17	3.26	0.94
M500SE	4	55	103	68	0	35	8.1	8.0	0.1	30	3.78	0.97
M800NE	2	60	155	92	0	63	8.4	7.6	0.1	27	3.67	0.96
M800NE	3	52	144	104	0	40	13.1	11.9	0.1	22	3.55	0.96
M800NE	4	43	99	71	0	28	10.2	9.4	0.1	19	3.28	0.94
M8E	1	60	158	118	0	40	9.6	9.4	0.1	25	3.68	0.96
M8E	3	57	130	91	0	39	8.6	9.1	0.1	30	3.84	0.97
M8E	4	48	111	91	0	20	6.3	6.9	0.1	22	3.51	0.96
PB1	2	57	258	178	0	80	6.0	7.4	0.0	21	3.55	0.96
PB1	3	57	162	101	0	61	5.2	6.3	0.0	23	3.68	0.97
PB1	4	64	299	225	0	74	8.1	9.1	0.0	23	3.56	0.95

Notes: Ninety-fifth percentile thresholds for available biotic factors (30-90 m depth) from the BC coastal background database (Burd et al., 2009) or the Strait of Georgia/Juan de Fuca background database (organic biomass and production only; Burd et al., 2012a) are included, with values highlighted in yellow exceeding these thresholds

Table5-5 Sediment physical and contaminant summary data, as available for all sample stations from both surveys.

Station	Location	Year	Depth	AVS	pH	TOC	Total flux	Organic C flux	δ 15N	Arsenic	Cadmium	Copper	Lead	Mercury	Silver	Zinc	Gravel	Sand	Silt	Clay	Total PAH	4-NP	Total PCBs	Sum of PBDEs	Sediment coliforms
			m	µmol/g	(pH units)	%	g/cm^2/yr	mg/cm^2/yr		(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	%	%	%	%	(mg/kg)	(ng/g)	(mg/kg)	(pg/g)	MPN/g
1	Albert	2010	65	0.27	8.26	0.75	0.38	2.85	4.5	5.3	0.15	16	6.9	< 0.05	< 0.05	52	35.76	41.15	5.79	17.3					20
2	Albert	2010	60	0.01	8.1	0.85	0.38	3.23	4.5	5.8	0.16	14.8	6	< 0.05	< 0.05	47	34.50	41.91	17.41	6.18	0.17	34.2		240.46	1100
3	Albert	2010	65	0.03	8.05	0.91	0.38	3.458	4.5	5.7	0.14	21.2	6.9	< 0.05	< 0.05	52	43.02	32.77	5.77	18.43					45
4	Albert	2010	65	0.28	8.2	0.97	0.38	3.686	4.5	6.6	0.14	15.8	7	< 0.05	< 0.05	52	3.49	53.77	3.70	39.04					790
5	Albert	2010	70	0.03	8.26	0.72	0.38	2.736	4.5	6.1	0.12	15.8	7.7	< 0.05	< 0.05	62	17.93	50.38	7.72	23.97	1.6	29.9		335.89	490
6	Albert	2010	75	0.15	8.09	0.69	0.38	2.622	4.5	5.2	0.11	14.5	7.2	< 0.05	< 0.05	56	6.97	57.53	8.96	26.54					210
7	Albert	2010	75	0.02	8.01	0.89	0.38	3.382	4.5	6.8	0.11	16.8	7.2	< 0.05	< 0.05	58	35.31	35.83	2.76	26.10	< 0.09	23.3		98.147	490
8	Albert	2010	75	0.24	8.06	0.97	0.38	3.686	4.5	5.9	0.12	18.3	8.7	< 0.05	0.05	65	4.17	41.37	11.54	42.92					68
9	Albert	2010	75	0.14	7.99	0.88	0.38	3.344	4.5	6.1	0.11	16.1	8.6	< 0.05	< 0.05	59	1.92	48.23	10.73	39.13					790
10	Albert	2010	73	0.01	7.49	0.59	0.38	2.242	4.5	4.8	0.08	13.1	6.7	< 0.05	< 0.05	51	1.35	66.55	2.93	29.17					1700
11	Albert	2010	80	0.01	8.26	0.65	0.38	2.47	4.5	4.7	0.08	14.9	7.5	< 0.05	< 0.05	47	2.74	66.20	7.18	23.88	< 0.09	19.6			130
12	Albert	2010	80	0.35	7.85	0.8	0.38	3.04	4.5	5.4	0.11	16.2	7.9	< 0.05	0.06	60	0.17	44.09	6.32	49.42	0.22	37		189.012	330
13	Albert	2010	87	0.01	8.07	0.46	0.38	1.748	4.5	4.8	0.1	12.6	5.8	< 0.05	< 0.05	51	2.05	75.25	2.69	20.01	< 0.09			61.796	330
FC3500NE	CRD	2011	62	0.01	8.34	0.43	0.38	1.634	4.5	4.53	0.124	10.2	5.14	< 0.050	< 0.050	46.1	2.19	78.2	12.61	7.15		<2.38		194.356	20
FC4000ENE	CRD	2011	59	0.02	8.53	0.39	0.38	1.482	4.5	3.54	0.086	7.89	3.91	< 0.050	< 0.050	30	17.84	71.38	6.89	4.75	< 0.050				10
M1300E	CRD	2011	61	0.18	8.24	0.63	0.38	2.394	4.5	7.45	0.337	52.9	21.6	0.305	0.07	76.2	20.77	49.37	21.34	10.74					700
M1400ESE	CRD	2011	66	0.05	8.14	0.64	0.38	2.432	4.5	3.87	0.994	15.1	13.7	< 0.050	0.055	53.9	48.55	33.79	12.18	10.66	0.76	10.1		910.631	330
M1600SE	CRD	2011	66	0.39	8.27	0.53	0.38	2.014	4.5	5.58	1.07	20.8	13.9	< 0.050	0.062	58.5	38.86	43.96	11.39	9.47	32			869.968	700
M2300ESE	CRD	2011	65	1.50	8.2	0.62	0.38	2.356	4.5	5.93	2.97	41.9	12.1	< 0.050	0.106	76.6	41.82	37.07	14.21	11.86	4.5			904.38	790
M2E	CRD	2011	60	0.562	8.03	1.3	0.9	11.7	3.4	7.14	0.874	37.2	11.3	0.089	0.092	81.7	3	65	22	10	9.1	54.7	2580	2803.5	
M500SE	CRD	2011	57	1.59	8.24	0.7	0.79	5.53	4	6.29	4.47	24.9	31.9	< 0.050	0.072	75.7	25.67	46.63	19.65	10.85					1100

Station	Location	Year	Depth	AVS	pH	TOC	Total flux	Organic C flux	δ 15N	Arsenic	Cadmium	Copper	Lead	Mercury	Silver	Zinc	Gravel	Sand	Silt	Clay	Total PAH	4-NP	Total PCBs	Sum of PBDEs	Sediment coliforms
			m	µmol/g	(pH units)	%	g/cm^2/yr	mg/cm^2/yr		(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	%	%	%	%	(mg/kg)	(ng/g)	(mg/kg)	(pg/g)	MPN/g
M800NE	CRD	2011	45	0.25	8.28	0.6	0.73	4.38	4.8	6.2	0.331	15.7	10.8	< 0.050	0.068	91.7	8.99	50.85	28.58	12.73	0.62	8.52		1184.542	3500
M8E	CRD	2011	65	0.0422	8.14	1	0.8	8	4	4.56	0.941	16.8	12.5	0.054	1.31	65.8	5	59	25	11	0.19	37.7	710	618.8	
PB1	CRD	2011	60	0.0337	8.09	0.56	0.38	2.128	4.5	3.99	0.088	10.6	5.59	0.031	<0.050	48.6	<2	71	21	8	<0.090	1.83	293	352	
M1E	CRD	2011	60	7.89	8.04	2.7	1.5	40.5	3.4	11.1	1.88	52	90.2	0.089	0.974	80.5	10	62	17	11	98	288	6740	9103.5	

Note: Sediment flux values are estimated from several nearby cores (see Burd et al., 2008a,2012a).

Table 5-6 Pearson correlations between selected biotic summary factors and sediment factors for all 2010 and 2011 stations. See Tables 5-3 and 5-4 for units of measurement.

Parameter	Taxa	Total Abundance	Organic biomass	Production	Mean organism size	SDI	H'
AVS	-0.28	-0.22	-0.25	-0.29	-0.17	-0.41	-0.44
%TOC	-0.09	-0.02	-0.09	-0.11	-0.21	-0.31	-0.41
Cadmium	-0.40	-0.41	-0.42	-0.46	-0.09	-0.22	-0.18
Copper	-0.32	-0.30	-0.30	-0.35	0.08	-0.28	-0.29
Zinc	-0.37	-0.37	-0.25	-0.33	0.08	-0.26	-0.21
%Gravel	0.16	0.13	0.15	0.07	0.20	0.12	0.07
%Sand	-0.20	-0.19	-0.25	-0.18	-0.18	-0.05	-0.05

Table 5-7 Comparison of mean abundance, organic biomass (when available) and taxa number for all stations in 2010, including the four historical REM stations (M1E, M2E, M8E) from 2000-2006 and 2011, and PB1 from 2000.

Location	Total abundance (#/0.1m^2)	Year	Organic biomass (kj/0.1m^2)	Taxa (per 0.1m^2)	Combined stations
Albert Head	1098	2010	59	162	All 2010
Macaulay Point	905	2000	62	76	M1E,M2E,M8E,PB1
Macaulay Point	1146	2001	65	114	M1E,M2E,M8E,PB1
Macaulay Point	626	2002	51	71	M1E,M2E,M8E,PB1
Macaulay Point	623	2003	35	74	M1E,M2E,M8E,PB1
Macaulay Point	571	2004	29	70	M1E,M2E,M8E,PB1
Macaulay Point	436	2005	32	66	M1E,M2E,M8E,PB1
Macaulay Point	396	2006	32	57	M1E,M2E,M8E,PB1

Macaulay Point	188	2011	11	48	M1E,M2E,M8E,PB1
Parry Bay	747	2000	58	82	R1
Parry Bay	397	2001	30	72	R1
Parry Bay	246	2002	25	60	R1
Parry Bay	262	2003	21	66	PB1
Parry Bay	393	2004	26	80	PB1
Parry Bay	311	2005	26	72	PB1
Parry Bay	238	2006	17	55	PB1
Parry Bay	258	2007	NA	72	PB1
Parry Bay	191	2008	NA	67	PB1
Parry Bay	329	2009	NA	75	PB1
Parry Bay	323	2010	NA	66	PB1
Parry Bay	240	2011	6	59	PB1

Note: The second part of the table includes data specific to station PB1.

R1 = PB1, the nomenclature of this station changed over the years.

Figures

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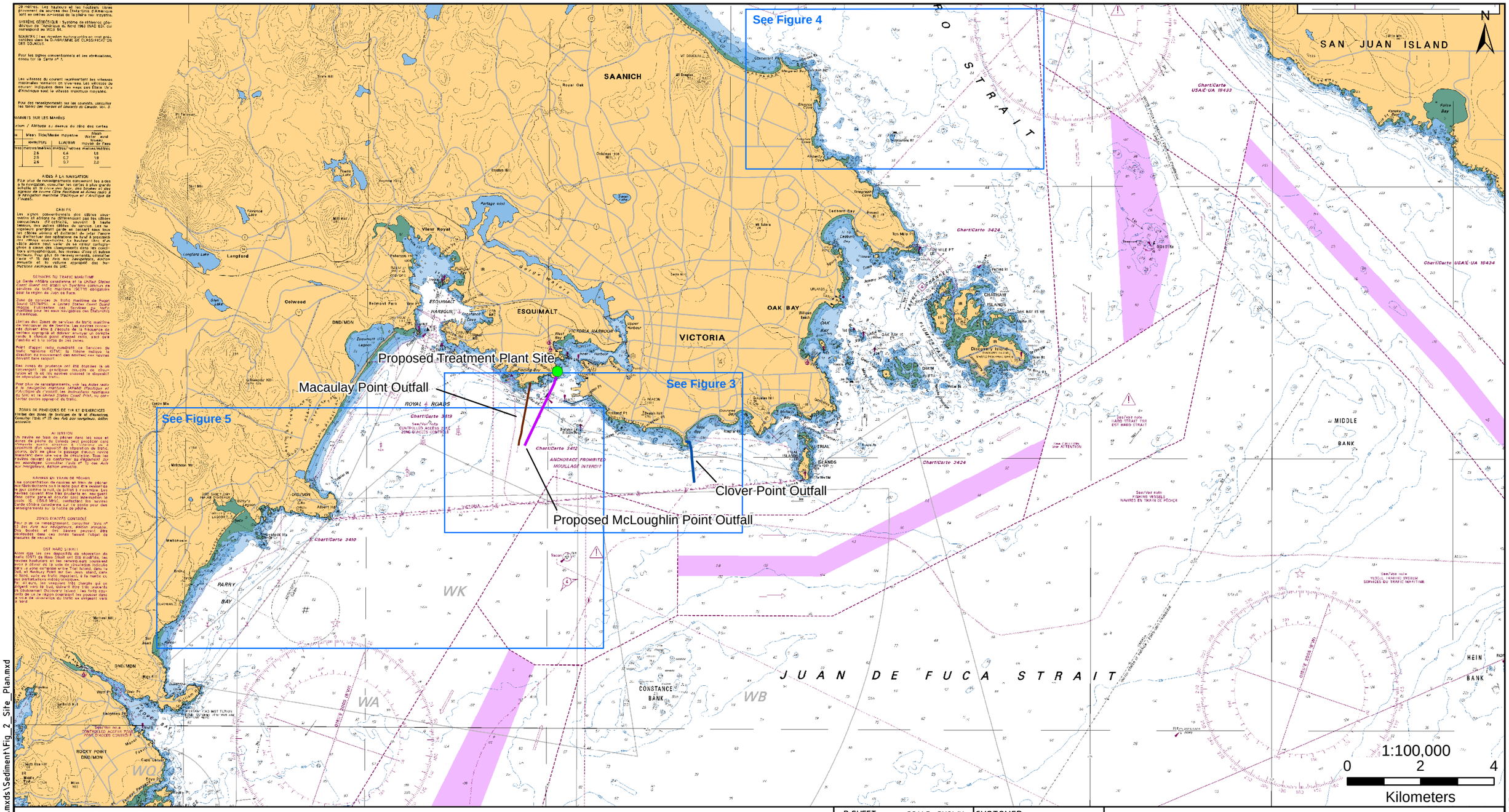

Legend

- Proposed Treatment Plant Site
- Macaulay Point Outfall
- Clover Point Outfall
- Proposed McLoughlin Point Outfall

Sources: Canadian Hydrographic Survey. 2009. Race Rocks to D'arcy Island. Marine Chart # 3440

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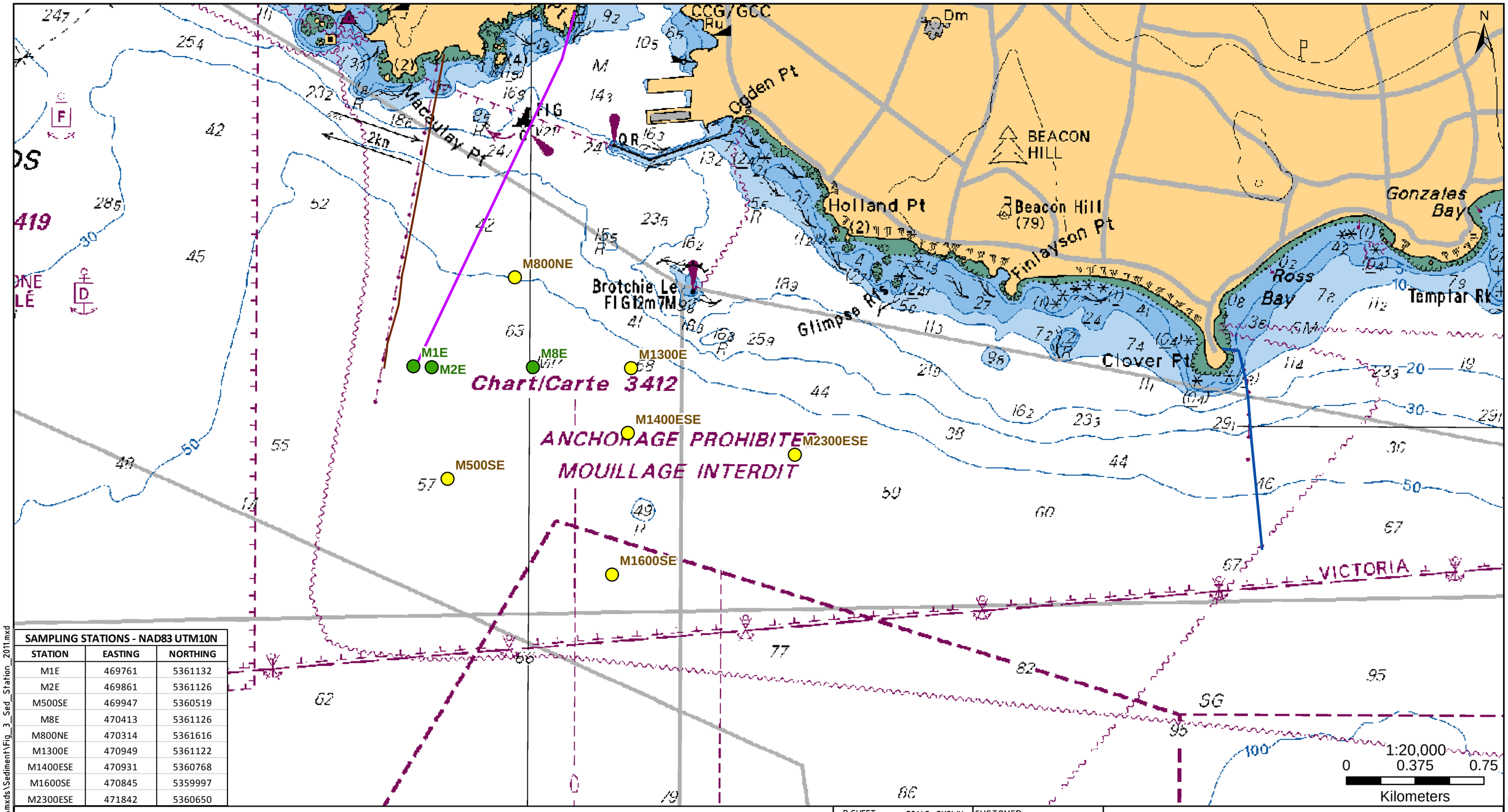

SAMPLING STATIONS - NAD83 UTM10N		
STATION	EASTING	NORTHING
M1E	469761	5361132
M2E	469861	5361126
M500SE	469947	5360519
M8E	470413	5361126
M800NE	470314	5361616
M1300E	470949	5361122
M1400ESE	470931	5360768
M1600SE	470845	5359997
M2300ESE	471842	5360650

Legend

Sediment Sampling Stations

- McLoughlin Point - Pre-Discharge Monitoring Station
- Macaulay Point - Receiving Environment Monitoring Station
- Macaulay Point Outfall
- Clover Point Outfall
- Proposed McLoughlin Point Outfall

Sources: Canadian Hydrographic Survey. 2009. Race Rocks to D'arcy Island. Marine Chart # 3440

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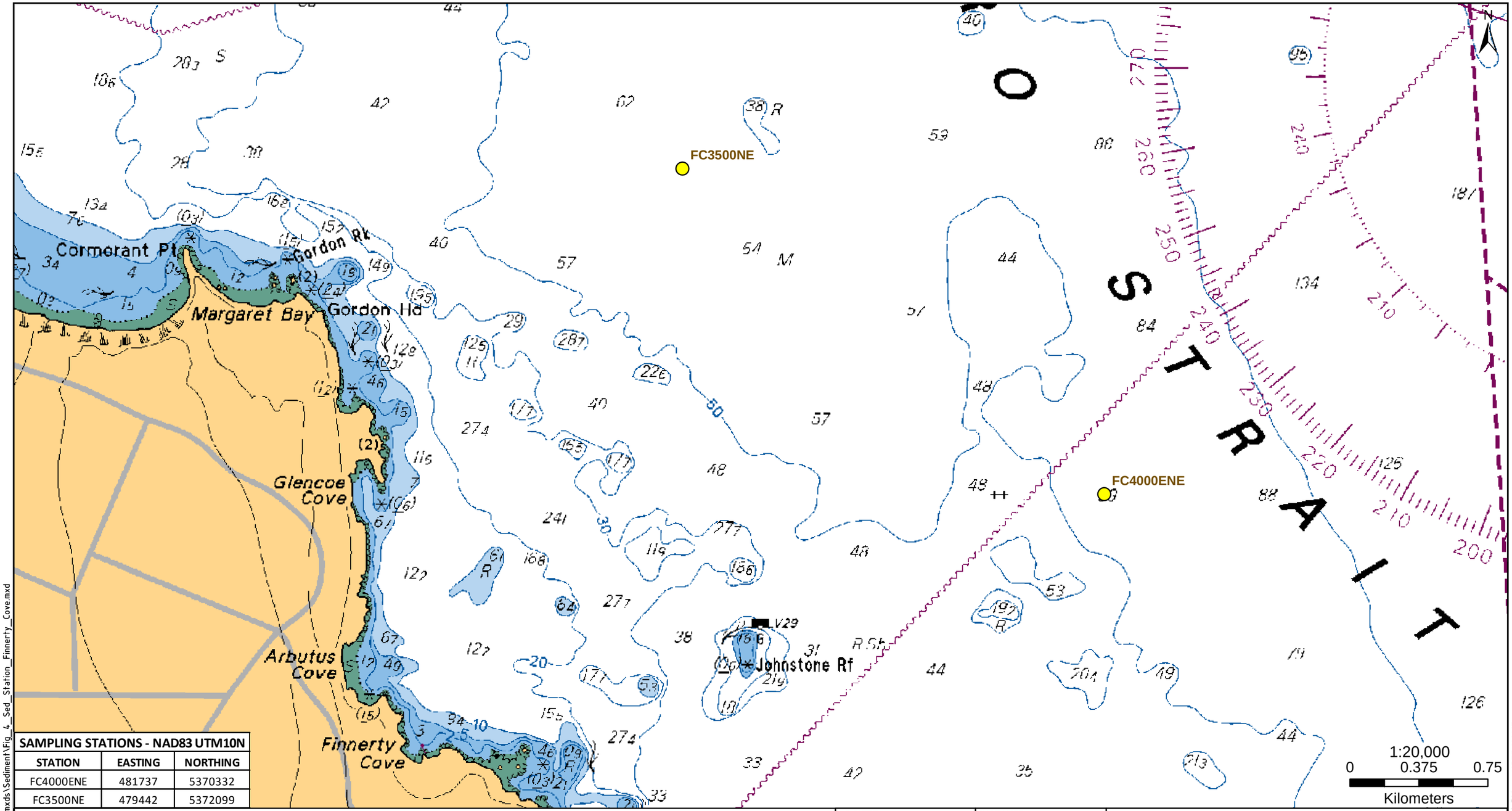

SAMPLING STATIONS - NAD83 UTM10N		
STATION	EASTING	NORTHING
FC4000ENE	481737	5370332
FC3500NE	479442	5372099

Legend

Sediment Sampling Stations

- Finnerty Cove – Pre-Discharge Monitoring Station

Sources: Canadian Hydrographic Survey. 2009. Race Rocks to D'arcy Island. Marine Chart # 3440

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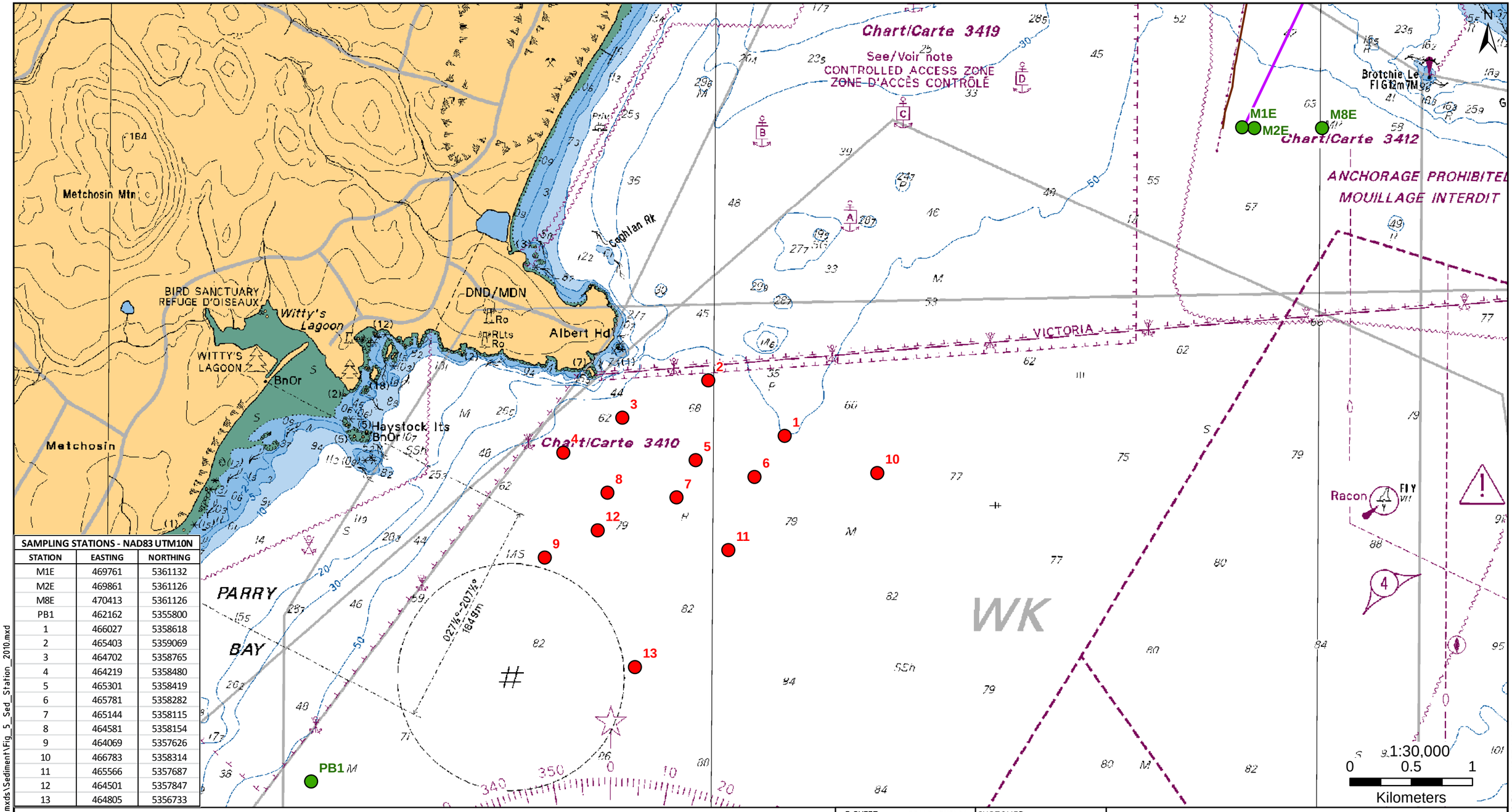


SAMPLING STATIONS - NAD83 UTM10N		
STATION	EASTING	NORTHING
M1E	469761	5361132
M2E	469861	5361126
M8E	470413	5361126
PB1	462162	5355800
1	466027	5358618
2	465403	5359069
3	464702	5358765
4	464219	5358480
5	465301	5358419
6	465781	5358282
7	465144	5358115
8	464581	5358154
9	464069	5357626
10	466783	5358314
11	465566	5357687
12	464501	5357847
13	464805	5356733

Legend

Sediment Sampling Stations

- Albert Head – Pre-Discharge Monitoring Station
- Macaulay Point/Parry Bay Receiving Environment Monitoring Station
- Macaulay Point Outfall
- Proposed McLoughlin Point Outfall

Sources: Canadian Hydrographic Survey. 2009. Race Rocks to D'arcy Island. Marine Chart # 3440

B SHEET SCALE: SHOWN

OneWay™ to zero harm

Date:	14/02/2013
Drawn by:	Y.M.
Edited by:	X.X.
App'd by:	J.C.

CUSTOMER

CRD Making a difference...together

WorleyParsons resources & energy

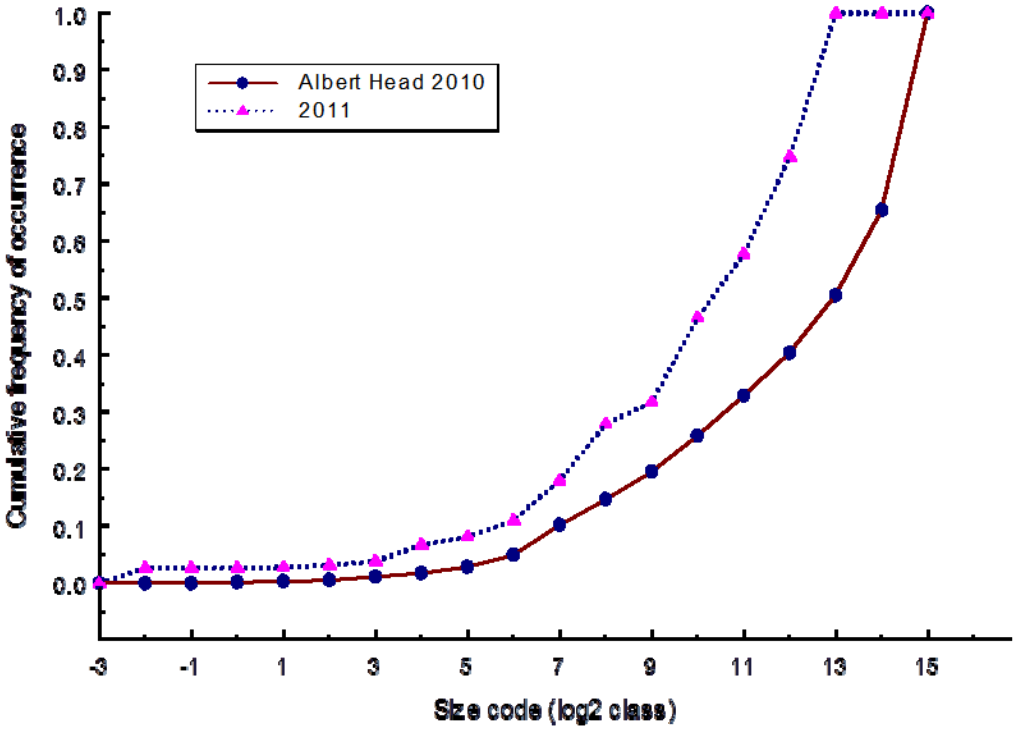
CRD Core Area Wastewater Treatment Program
Pre-Discharge Monitoring Program
Sediment Quality and Benthic Community Technical Volume
Sediment Sampling Stations Albert Head

WORLEYPARSONS PROJECT No.	FIG No.	REV
307071-00020	5	0

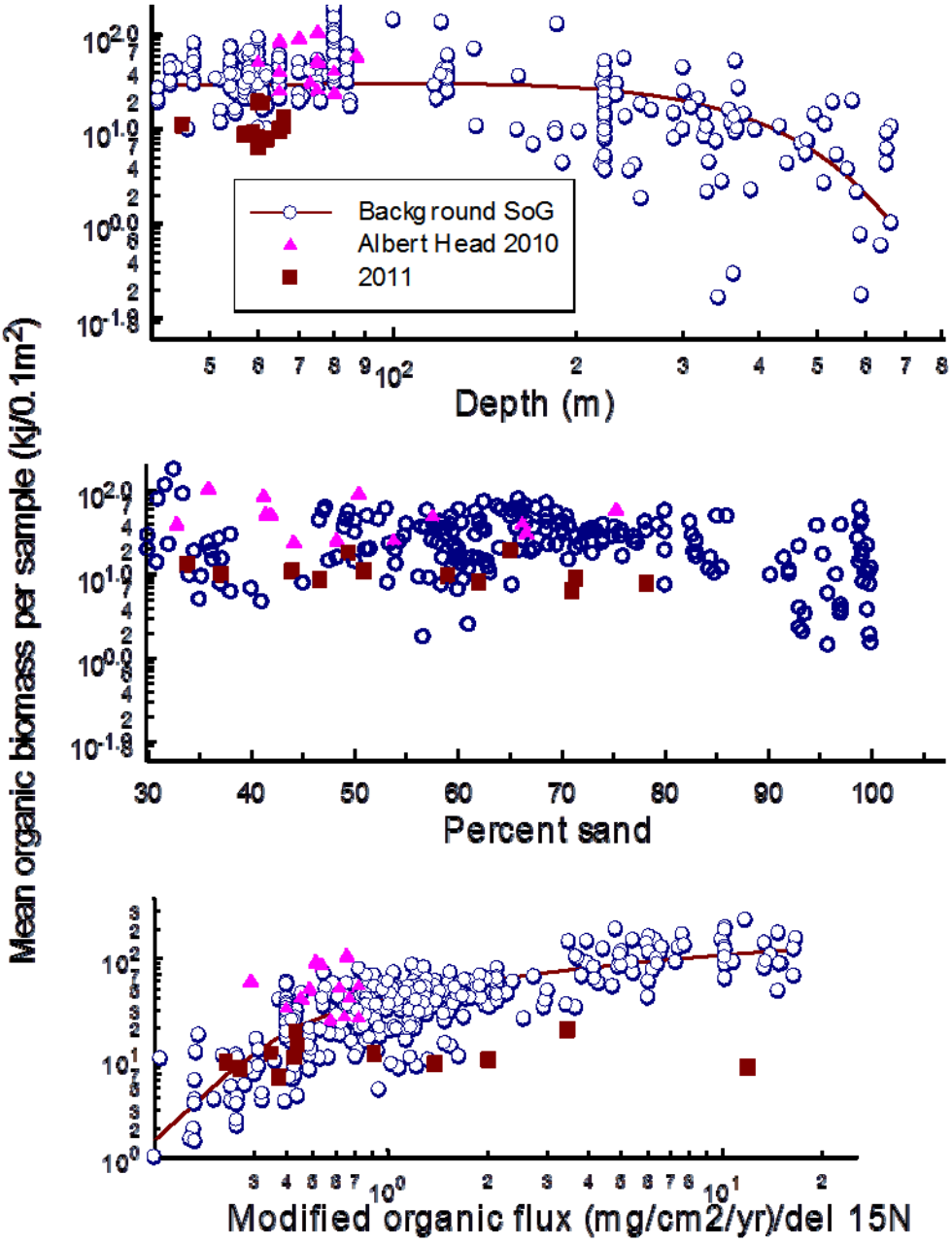
FILE LOCATION: Y:\Yao.Mo\307071-00020\mxds\Sediment\Fig_5_Sed_Station_2010.mxd

PLOT DATE & TIME: 24/04/2012 1:32:08 PM
SAVE DATE & TIME: 24/04/2012 1:32:08 PM

USER NAME: yao.mo
ISSUING OFFICE: BURNABY GIS



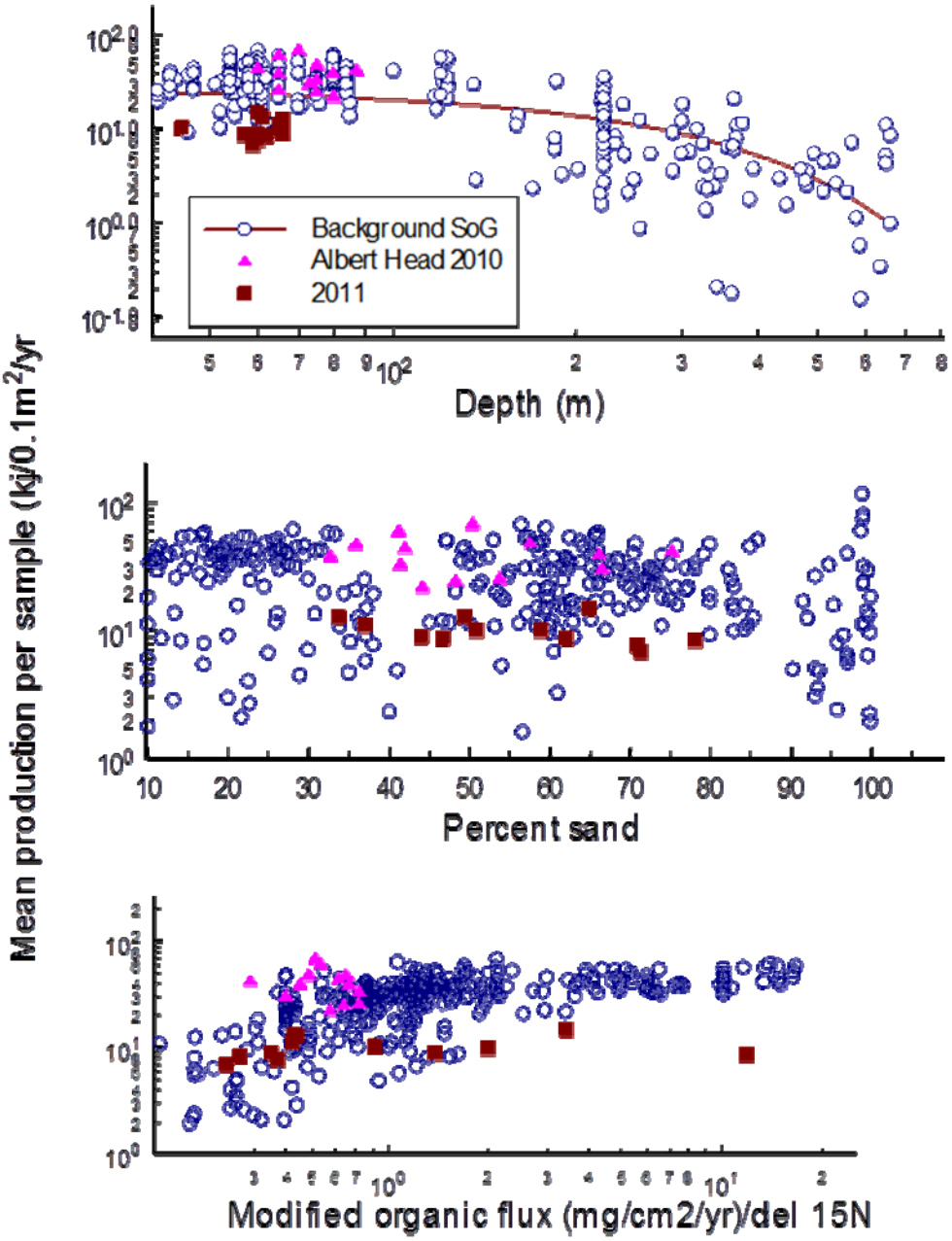
A SHEET | SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME CUMULATIVE FREQUENCY CURVES OF MEAN SIZE CLASS DISTRIBUTIONS FOR THE 2010 AND THE 2011 SAMPLES	
Date: 14-Feb-13			
Drawn by: BBurd / PH			
Edited by: BBarber			
App'd by:			
"This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing."	WORLEYPARSONS PROJECT No. 307071-00020	FIG No 6	REV A



Note:

Distributions are shown relative to three key habitat factors affecting background ranges in biomass. Comparative total faunal organic biomass for the two survey areas, superimposed on background distributions from the Strait of Georgia/Juan de Fuca database (Burd et al. 2012a).

A SHEET | SCALE NTS OneWay to zero harm Date: 14-Feb-13 Drawn by: BBurd / PH Edited by: BBarber App'd by:	CUSTOMER CRD Making a difference...together	WorleyParsons resources & energy CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME COMPARATIVE TOTAL FAUNAL ORGANIC BIOMASS
"This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing."	WORLEYPARSONS PROJECT No. 307071-00020 | FIG No 7	REV A



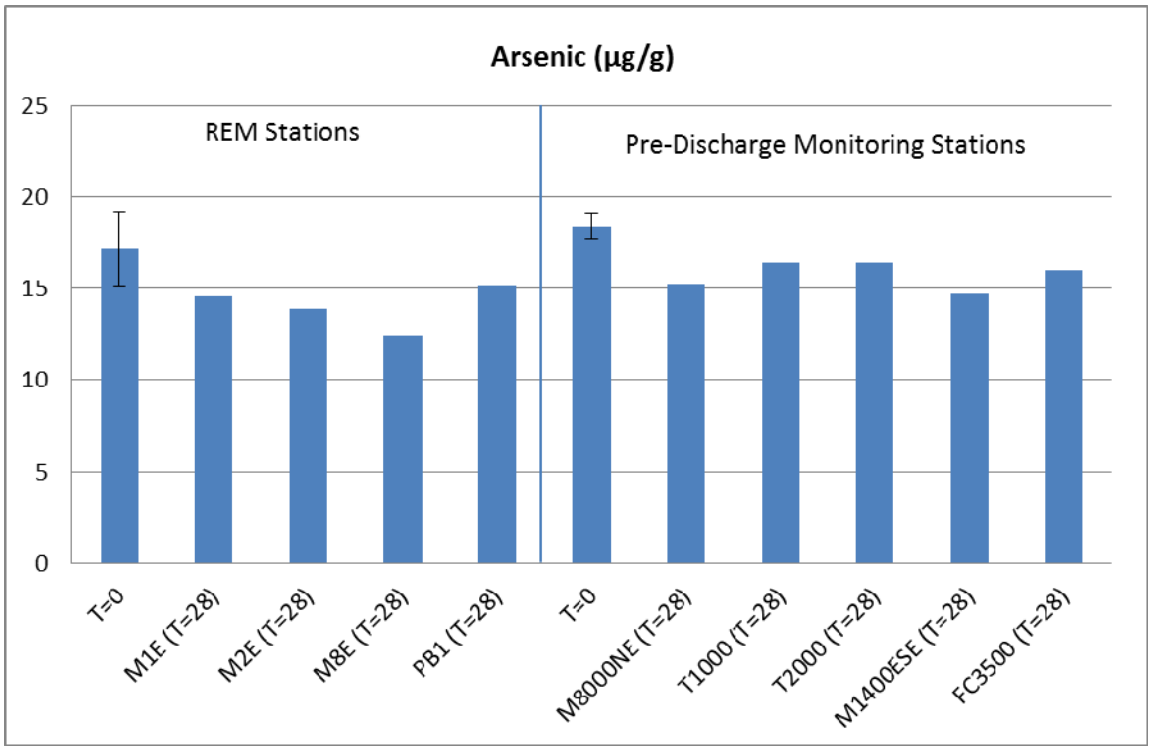
Note:

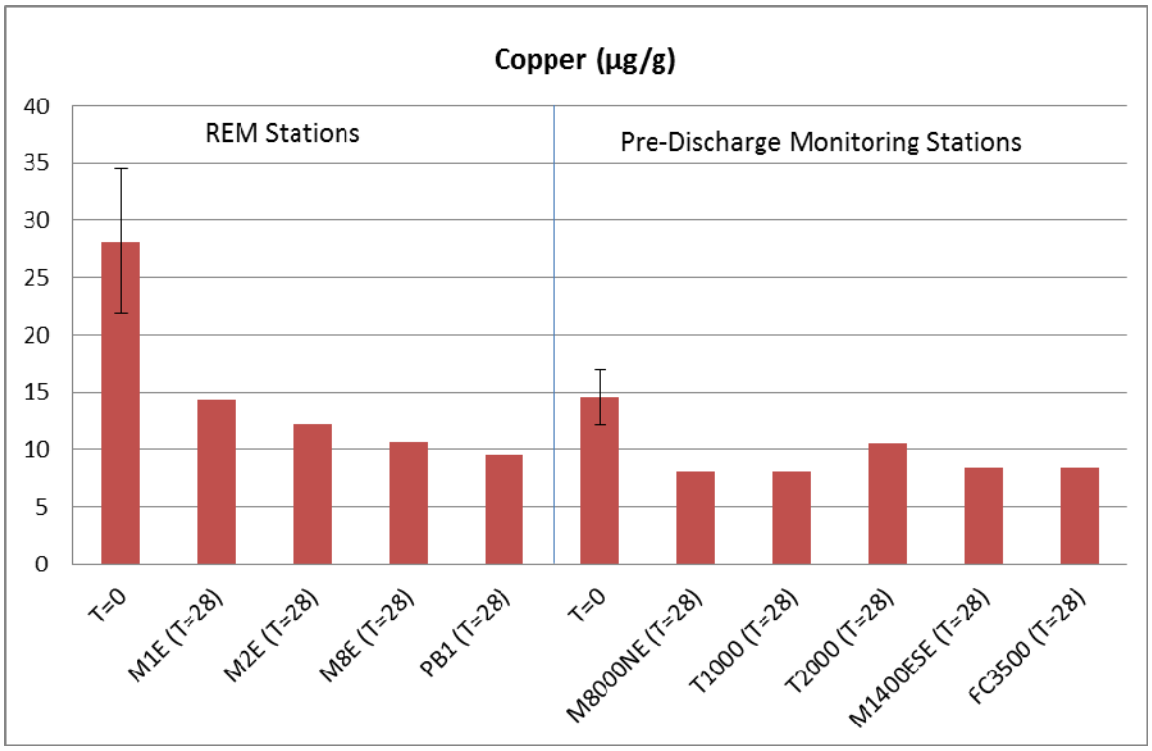
Distributions are shown relative to three key habitat factors affecting background ranges in biomass

Comparative total faunal production for the two survey areas, superimposed on background distributions from the Strait of Georgia/Juan de Fuca database (Burd et al. 2012a).

A SHEET SCALE NTS OneWay to zero harm Date: 14-Feb-13 Drawn by: BBurd / PH Edited by: BBarber App'd by:	CUSTOMER CRD Making a difference...together	WorleyParsons resources & energy CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME COMPARATIVE TOTAL FAUNAL PRODUCTION

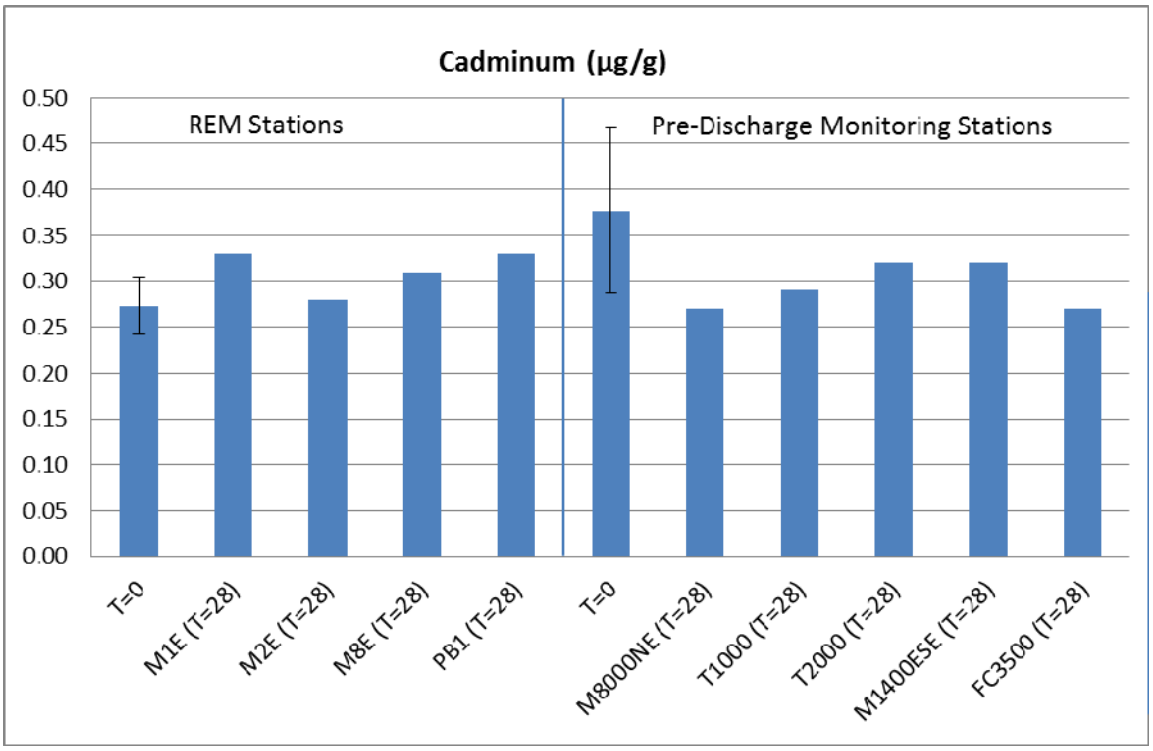
WORLEYPARSONS PROJECT No.	FIG No	REV
307071-00020	8	A

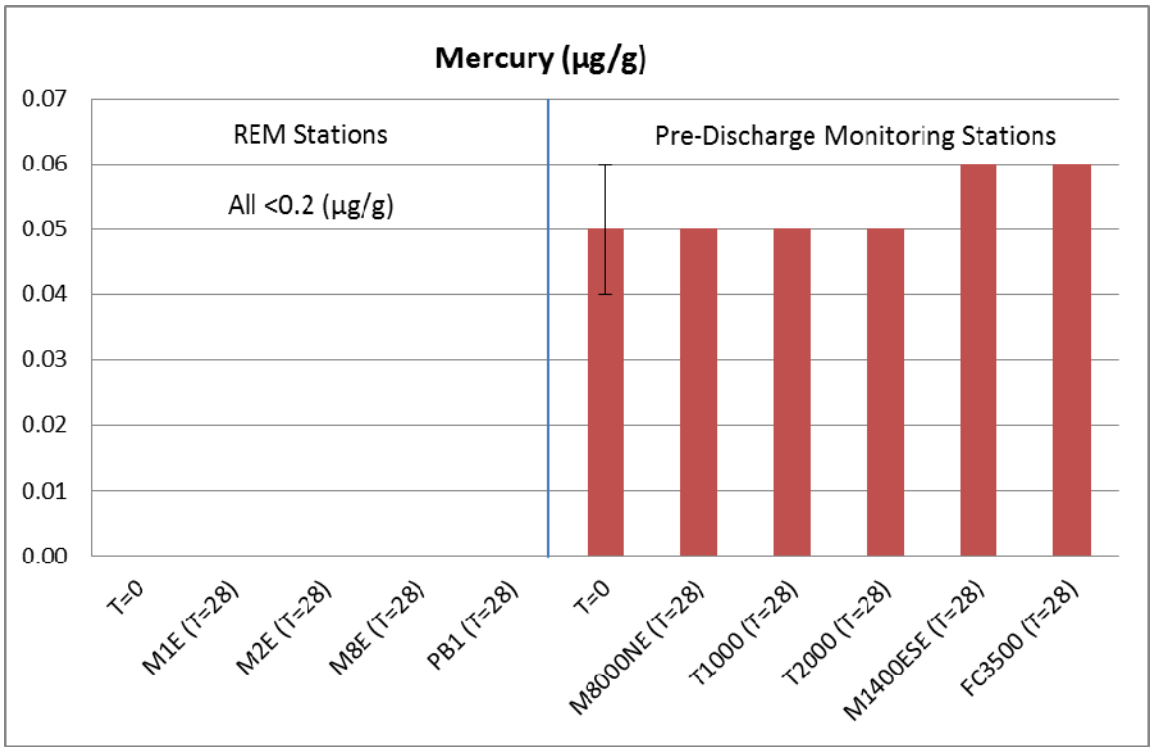




A SHEET SCALE NTS	CUSTOMER	WorleyParsons resources & energy
OneWay to zero harm	Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME BIOACCUMULATION—ARSENIC & COPPER
Date: 14-Feb-13		
Drawn by: BBurd / PH		
Edited by: BBarber		
App'd by:		

WORLEYPARSONS PROJECT No.	FIG No	REV
307071-00020	9	A





A SHEET SCALE NTS OneWay to zero harm Date: 14-Feb-13 Drawn by: BBurd / PH Edited by: BBarber App'd by:	CUSTOMER CRD Making a difference...together	WorleyParsons resources & energy CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME BIOACCUMULATION—CADMIUM AND MERCURY

WORLEYPARSONS PROJECT No.	FIG No	REV
307071-00020	10	A

Appendix 1 Field Data Sheets

WorleyParsons
resources & energy

Field Data Sheet

Client: CRD
Station ID: M8005E
Date: Sept 24/11
Weather: Fog, Calm

Project #: 09185
Location:
Latitude/Longitude:
Recorded by: BB.

SEDIMENT

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?
1	20%		Full		discarded				Scallops shell hash.			
2	20%		Full		discarded.				Scallops shell hash.			
3	10%		Full		discarded.				Scallops hermit crab	photos	1, 2, 3	
4	Rock in jaws - move to another site.											
5												
6												
7												
8												
9												
10												

Notes:

WorleyParsons
resources & energy

Field Data Sheet

Client: CRD
Station ID: M2600ESE
Date: Sept 25/11
Weather: cloudy

Project #: 09185
Location:
Latitude/Longitude:
Recorded by: BB

SEDIMENT

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?	
1	empty			8:45									
2	1			9:10		50%		grey, brown	—	scallops mussels	Benthics		Flew over board
3	35% Full			discarded 9:15									
4	2			9:25		65%		grey, brown	—	mussels scallops hermit crab	Benthics	5 bottles	
5	10-15%			9:35	Discarded.								
6	~20% Discarded.			9:40		Jaws closed but small sample.							
7	~15% Discarded			9:50		Jaws trapping shells, not closing tight photo taken							
8	10% Full Discarded			10:00		shell in Jaws.							
9	15% Full Discarded.			10:20		shell in Jaws.							
10													

Notes:

WorleyParsons
resources & energy

Field Data Sheet

Client: CRD
Station ID: M1600E
Date: Sept 25/11
Weather: light rain, wind ~5kts

Project #: 09185
Location:
Latitude/Longitude:
Recorded by:

SEDIMENT

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?
1				13:40			Rock in Jaws	-	Wind picked up. Did not sample anymore winds > 25kts.			
2												
3												
4												
5												
6												
7												
8												
9												
10												

Notes:

WorleyParsons
resources & energy

Field Data Sheet

Client: CRI
Station ID: FC 3500NE
Date: Sept 27/11
Weather: sun, few clouds, wind ~ 5 kts.

Project #: 09185
Location:
Latitude/Longitude:
Recorded by:

SEDIMENT

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?
1	1			13:00		85%	Sand, mud	brown	—	—	Benthic	1 bottle
2	2			13:15		90%	sand, mud	brown	—	—	Benthic	1 bottle
3	3			13:20		80%	Sand mud	brown	—	—	Benthic	1 bottle.
4	4			13:30		85%	Sand mud	brown	—	—	Benthic	1 bottle
5	5	Double V.Veen.		14:10		85%	Sand mud	brown	—	—	AVS/SEM FC VOC, Tox	
6	6	Double V.Veen		14:45		85%	Sand mud	brown	—	—	Comp. Bioaccum.	
7	7	D. Van Veen		14:50		90%	Sand mud	brown	—	—	Comp. Bioaccum	
8	8	D. V. veen		15:10		85%	Sand mud	brown			Bioaccum.	
9												
10												

Notes:

WorleyParsons
resources & energy

Field Data Sheet

Client: CRD
Station ID: FC 4000 ENE
Date: Sept 27/11
Weather: Sunny, light rain

Project #: 09185
Location:
Latitude/Longitude:
Recorded by:

SEDIMENT

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?
1				10:45		40%	Discarded. Sand					
2	1			10:50		50%	sand/shell hash	brown	—	—	Benthic	3 bottles
3	2			11:05		50%	sand, shell hash	brown	—	urchin	Benthic	3 bottles
4				11:10		chain caught, no sample, did not close						
5				11:15		Rock in Jaws, no sample						
6				11:25		insufficient sample?						
7				11:35		chain caught, no sample, did not close						
8				11:40		sample washed out, large pieces remained. Discarded.						
9	3			11:50		65%	sand, shell			urchin scallop	Benthic	4 bottles
10				12:05		empty						

Notes:

FC4000ENE

WorleyParsons
resources & energy

SEDIMENT SAMPLE QA/QC SAMPLES TAKEN: Yes / No (Circle)

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?
11	4			12:15		60%	Sand shell		—	Scallops	Benthics	5 bottles
12	5			15:40		55%	Sand shell		—	scallop shell	Comp. Fecal AUS/SEM	
13	6			1600		55%	"		—	"	Comp	
14												
15												
16												
17												
18												
19												

Field QA/QC Plan:

- decontaminate sediment sampling equipment by scrubbing with a brush and phosphate-free detergent
- Rinse sampling equipment 3 times with de-ionized water before each sampling event;
- Label all field samples and field data sheets using a pencil or waterproof ink
- Prevent sample contamination by carefully handing bottles and lids to prevent them from contact or drips
- Fill coolers with ice packs to maintain sample temperature
- Package ice packs in bags to prevent contamination of samples from ice pack contents
- Prepare daily field reports
- Photo document each sample
- Ensure Van Veen grabs are filled properly and representative grabs
- Ensure no debris is preventing Van Veen grab from fully closing
- Ensure samples are properly preserved
- Ensure samples have as little head space as possible
- Wear nitrile gloves when handling samples to prevent contamination
- Maintain a clean work area to prevent contamination

WorleyParsons
resources & energy

Field Data Sheet

Client: CRD
Station ID: M500SE
Date: Sept 28/11
Weather: Sun, calm

Project #: 09185
Location:
Latitude/Longitude:
Recorded by: BS

SEDIMENT

plume? gulls

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?
1				10:00		Sandle in jaws						
2	1			10:05		75% mud	brown/grey	—	scallops	Benthic	4 bottles	
3	2			10:15		75% mud	brown/grey	—	—	Benthic	2 bottles	
4	3			10:25		75% mud	brown/grey	—	—	Benthic	2 bottles	
5	4			10:40		60% mud	brown/grey	—	—	Benthic	3 bottles	
6	5	Double Van Veen - one sample good		11:15		65% mud	brown/grey	—	scallop	AVS/SEM fecal Col. Comp.		
7	6	Double Van Veen		11:30		mud	11		Brittle St. Decorator crab			
8												
9												
10												

Notes:

WorleyParsons
resources & energy

Field Data Sheet

Client: CRD
Station ID: M2300ESE
Date: Sept 28/11
Weather: Sun
Project #: 09185
Location:
Latitude/Longitude:
Recorded by: BB

SEDIMENT

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?
1	1			8:40		65%	~~[illegible]~~ silty, mud	brown	—	Mussel's scallops	Benthic	5 bottles
2				8:50		40%	Discarded					
3				9:00	almost empty		Discarded			scallops		
4	2			9:10		60%	silty mud	brown	—	~~Goby?~~ warbonet	Benthic	5 bottles
5	3			9:20		65%	silt mud	brown	—	scallops.	Benthic	5 bottles
6	4			9:30		60%	silt mud	brown		urchin	Benthic	4 bottles
7	5	Double Van Veen		13:10		70%	silt mud.	Brown		Mussels Scallops	fecal AVS sem VOCs Comp	
8		Double Van Veen		13:30		55%	silt mud	brown		mussels scallops	Comp.	
9												
10												

Notes:

SM11400

WorleyParsons
resources & energy

Field Data Sheet

Client: CRD
Station ID: M1600SE
Date: Sept 24/11
Weather: Fog; calm

Project #: 09185
Location:
Latitude/Longitude:
Recorded by: BB | BL

SEDIMENT

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?
1	Discarded					40%						
2	1			10:30		65%	silt, clay shell hash	brown, grey		scallops	benthics	4 bottles
3	2			10:50		65%	silt, clay shell hash	brown, grey		scallops	benthics	4 bottles
4	Discarded					30% Full						
5	Discarded					35%						
6	3			11:25		60%	silt, clay shell hash	Brown, grey		Scallops	benthics	3 bottles
7	4			11:35		75%	silt, clay shell hash	Brown, grey		Scallops	benthics	4 bottles
8	5	Double Van Veen		12:00		80%	silt, clay shell hash	Brown grey	—	urchin scallop	AVS/SEM Fecal VOC BTEX Comp.	
9	6			12:20		70%	silt, clay shell hash	Brown grey	—	Scallops urchin sponge	Composite	
10												

Sept 28/11

Notes:

WorleyParsons
resources & energy

Field Data Sheet

Client: CRD
Station ID: M14CODESE
Date: Sept 24/11
Weather: Foggy, Calm

Project #: 09185
Location:
Latitude/Longitude:
Recorded by: BB

SEDIMENT

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?
1	1			9:00	4	70%	silt, clay	brown/grey		Scallops sponges.	Benthics	5 bottles
2	Bottle in jaws											
3	2			9:25	S.C ✓	60%	silt/clay	Brown/grey		Scallops & sponge	Benthics	5 bottles
4	3					65%	silt, clay	Brown, grey		scallops sponge	Benthics	5 bottles
5	4			10:00		65%	silt/clay	Brown/grey		Scallops Sponges	Benthics	5 bottles
6		Double Van Veen.		14:00		large rock in jaws						
7	5	Double Van Veen		14:10		Sunflower star in jaws. One 70% ~~Silt~~ Van Veen good				scallops	Tox	
8	6	Double Van Veen.		14:30		70%	silt, clay	Brown/grey	—	scallops.	Recal, AVS/SEM VOC Comp. Tox	
9	7	Double Van Veen		14:50		Rock in Jaws. Lost sample. 65%					Comp. Tox	
10	6	Double Van Veen.		15:30								

Sept 28/11

Notes:

WorleyParsons
resources & energy

M1400ESE

2082

SEDIMENT SAMPLE QA/QC SAMPLES TAKEN: Yes / No (Circle)

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?
11	9	Double V.Veen		15:50	75%	no pic	silt, clay	brown grey	—	mussel / scallop	Tox	
12	10	D. V.V.		16:05	85%		silt clay	brown grey		Scallops	Tox	
13												
14												
15												
16												
17												
18												
19												

Field QA/QC Plan:

- decontaminate sediment sampling equipment by scrubbing with a brush and phosphate-free detergent
- Rinse sampling equipment 3 times with de-ionized water before each sampling event;
- Label all field samples and field data sheets using a pencil or waterproof ink
- Prevent sample contamination by carefully handing bottles and lids to prevent them from contact or drips
- Fill coolers with ice packs to maintain sample temperature
- Package ice packs in bags to prevent contamination of samples from ice pack contents
- Prepare daily field reports
- Photo document each sample
- Ensure Van Veen grabs are filled properly and representative grabs
- Ensure no debris is preventing Van Veen grab from fully closing
- Ensure samples are properly preserved
- Ensure samples have as little head space as possible
- Wear nitrile gloves when handling samples to prevent contamination
- Maintain a clean work area to prevent contamination

WorleyParsons
resources & energy

Field Data Sheet

Client: CRD
Station ID: M1300E
Date: Sept 27/11
Weather: Sun w cloud,

Project #: 09185
Location:
Latitude/Longitude:
Recorded by: BB

Tox?

SEDIMENT

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?
1				8:40	Rock in Jaws							
2	1			8:50		75%	Mud, silt	grey, brwn	—	Scallops small gastropods	Benthic	5 bottles
3	2			9:00		70%	mud silt	grey, brwn	—	scallop shrimp	Benthic	6 bottles
4	3			9:05		60%	mud, silt	grey, brwn	glass in Jaws	scallop	Benthic	4 bottles
5	4			9:15		65%	mud, silt	grey, brwn	—	Scallop	Benthic	5 bottles
6	5	Double Van Veen		08:40		Bottle in Jaw 80%	one V.Veen good		—	Scallops	Fecal AVS/SEM COMP	
7	6	Double V.Veen		9:00		Half 60%	V.Veen ~~scallops~~ mud silt			scallops	comp	
8	7			915		~~75%~~ 70%	mud silt		glass	scallops sponge	comp	
9												
10												

Sept 29/11 (written in left margin beside rows 6–8)

Notes:

WorleyParsons
resources & energy

Field Data Sheet

Client: CRD
Station ID: MSOGNE
Date: Sept 24/11
Weather: calm

Project #: 09185
Location:
Latitude/Longitude:
Recorded by: BB/BL

SEDIMENT — Tox site?

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?
1	1			12:00		70%	silt, clay	brown, grey	—	—	Benthics	3 bottles
2	Discarded					40%						
3	2			~~1230~~ 1230		75%	silt, clay	brown, grey	—	—	Benthics	4 bottles
4	~~3~~ Discarded					70%	silt, clay	brown, grey	—	—	Benthics discarded	
5	Cable in jaws			12:50		Discarded						
6	~~4~~ discarded			13:00		80%	silt, clay	brown, grey	—	—	Benthics discarded	
7	3			13:15		80%	silt, clay	brown grey	—	—	Benthic	3 bottles
8	4			13:25		75%	silt, clay	brown, grey	—	Brittle Star	Benthic	3 bottles
9	5			9:45		85%	silt, clay	brown grey	—	Scallop	Rec, VOCs AVS SEM Tox	
10	6	Double Van Veen		10:00		85%	silt, clay	brown grey	—	Sea star	Comp Bioaccum	

Sept 25/11 light rain wind 15 knts

Sept 24/11

Notes: end of day: discarded grabs 3 & 4 Sept 24/11

WorleyParsons
resources & energy

M800NT

2082

SEDIMENT SAMPLE QA/QC SAMPLES TAKEN: Yes / No (Circle)

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?
11	7	Double VanVeen		10:20		chain caught						
12	7	Double VanVeen		10:30		85%	mud silt	brown grey	—	Scallops	Comp Bioacc	
13	8	Double VanVeen		10:45		85%	Mud silt	brown grey	—	—	Bio Comp	
14												
15												
16												
17												
18												
19												

Field QA/QC Plan:

- decontaminate sediment sampling equipment by scrubbing with a brush and phosphate-free detergent
- Rinse sampling equipment 3 times with de-ionized water before each sampling event;
- Label all field samples and field data sheets using a pencil or waterproof ink
- Prevent sample contamination by carefully handing bottles and lids to prevent them from contact or drips
- Fill coolers with ice packs to maintain sample temperature
- Package ice packs in bags to prevent contamination of samples from ice pack contents
- Prepare daily field reports
- Photo document each sample
- Ensure Van Veen grabs are filled properly and representative grabs
- Ensure no debris is preventing Van Veen grab from fully closing
- Ensure samples are properly preserved
- Ensure samples have as little head space as possible
- Wear nitrile gloves when handling samples to prevent contamination
- Maintain a clean work area to prevent contamination

WorleyParsons
resources & energy

Field Data Sheet

Client: CRD
Station ID: TI050 - MIDDLE
Date: Sept 29/11
Weather: Sunny, calm

Project #: 09185
Location:
Latitude/Longitude:
Recorded by: BB

SEDIMENT

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?
1	1	Double Van Veen		11:10		85%	mud silt	brown grey	—	—	Feal SEM AVS VOC TOC	
2	2	Double Van Veen		11:30		90%	mud silt	brown grey	—	—	Comp Bioacc.	
3		Double Van Veen		11:45			Seastar	in Jaws.				
4	3	Double Van Veen		11:55		80%	silt mud	brown grey	glass sar	Brittle star scallops	Comp Bioacc.	
5	4	Double Van Veen		12:05		85%	silt mud	brown grey	—	scallop	comp Bioacc.	
6												
7												
8												
9												
10												

Notes:

WorleyParsons
resources & energy

Field Data Sheet

Client: CRD
Station ID: T2000 - MRDONE
Date: Sept 29/11
Weather: Sunny, Calm

Project #: 09185
Location:
Latitude/Longitude:
Recorded by: BB

SEDIMENT

Grab #	Sample ID	Winch Depth:	Sounder Water Depth (m)	Time:	Photo #:	Depth in Grab (%)	Substrate Type:	Colour/Texture/Odour:	Debris Presence:	Surface Biological Material & Structure	Analysis:	Sent to Lab?
1	1	Double Van Veen		13:00		80%	mud silt	brown/grey	glass	Brittle star	Recal Sem/AVS VOCs BTEX TOX	
2	2	Double Van Veen		13:15		85%	mud silt	brown, grey	—	mats? scallops	Comp Bioaccum	
3	3	1/2 Van Veen		13:30		85%	mud silt almost empty in 2nd V. Veen	brown/grey	—	scallops	Comp Bioaccum.	
4	4	Double Van Veen		13:45		80%	mud silt	brown, grey	— wood	Scallops	Comp Bioacc	
5	5	Double Van Veen		14:05		80%	mud silt	brown grey	—	Scallops	Bioacc	
6												
7												
8												
9												
10												

Notes:

Appendix 2 Certificates of Analysis

Your Project #: SEDIMENT CHEMISTRY
Your C.O.C. #: 08338060, 08338332

Attention: Shirley Lyons
CAPITAL REGIONAL DISTRICT
CRD-VIC
PO Box 1000
625 Fisgard Street
VICTORIA, BC
Canada V8W 2S6

Report Date: 2013/01/11
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B191064
Received: 2011/09/26, 13:45

Sample Matrix: Sediment
Samples Received: 37

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Soil by GC/MS (1)	5	2011/09/29	2011/10/10	BBY8SOP-00023	EPA SW846 3540C
ABN Compounds in Soil by GC/MS (1)	3	2011/09/29	2011/10/11	BBY8SOP-00023	EPA SW846 3540C
ABN Compounds in Soil by GC/MS (1)	8	2011/09/30	2011/10/11	BBY8SOP-00023	EPA SW846 3540C
ABN Compounds in Soil by GC/MS (1)	9	2011/10/06	2011/11/11	BBY8SOP-00023	EPA SW846 3540C
Cyanide + Thiocyanate (1)	25	2011/09/29	2011/09/30	BBY6SOP-00004	SM-4500-CN
Chromium III (Calc'd) (1)	24	2011/09/26	2011/10/01		
Chromium III (Calc'd) (1)	1	2011/09/26	2011/10/03		
Chromium, Hexavalent (soil) (1)	25	2011/09/29	2011/09/29	BBY6SOP-00015	SM3500 CR B
Mercury in Soil by CVAF (1)	25	2011/09/29	2011/10/01	65-C-015-03	EPA SW 846 7474
Elements by ICPMS (total) (1)	24	2011/09/29	2011/09/30	BBY7SOP-00001	EPA 6020A
Elements by ICPMS (total) (1)	1	2011/09/29	2011/10/03	BBY7SOP-00001	EPA 6020A
Simultaneously Extractable Metals-ICPMS (1)	21	2011/09/29	2011/09/29	BBY7SOP-00001	EPA 6020A
Simultaneously Extractable Metals-ICPMS (1)	4	2011/09/29	2011/09/30	BBY7SOP-00001	EPA 6020A
Moisture (1)	4	N/A	2011/09/28	BBY8SOP-00017	Ont MOE -E 3139
Moisture (1)	21	N/A	2011/09/29	BBY8SOP-00017	Ont MOE -E 3139
Total LMW, HMW, Total PAH Calc (1)	6	N/A	2011/10/17	BBY WI-00033	BC MOE Lab Method
Total LMW, HMW, Total PAH Calc (1)	6	N/A	2011/11/14	BBY WI-00033	BC MOE Lab Method
Total LMW, HMW, Total PAH Calc (1)	13	N/A	2011/11/15	BBY WI-00033	BC MOE Lab Method
Phenols (4-AAP) (1)	4	2011/09/30	2011/09/30	BBY6SOP-00008	SM 5530
Phenols (4-AAP) (1)	21	2011/09/30	2011/10/03	BBY6SOP-00008	SM 5530
pH (2:1 DI Water Extract) (1)	25	2011/09/30	2011/09/30	BBY6SOP-00028	Carter, SSMA 16.2
CSR VH C6-C10 in Soil by GC/FID (1)	4	2011/09/27	2011/09/29	BBY8SOP-00011	EPA SW8260C
CSR VH C6-C10 in Soil by GC/FID (1)	21	2011/09/29	2011/09/29	BBY8SOP-00011	EPA SW8260C
Sulfide (AVS) (soil) - Calc for umole/g (1)	25	2011/09/26	2011/09/29	BRN SOP-00229 R2.0	EPA821-R91-100
Sulfide (AVS) (soil) (1)	25	2011/09/27	2011/09/28	BBY6SOP-00007	EPA821-R91-100
Total Organic Carbon LECO Method (2,3)	20	2011/10/17	2011/10/19	CAL SOP-00243	LECO# 203-821-170
Total Organic Carbon LECO Method (2,3)	5	2011/10/19	2011/10/19	CAL SOP-00243	LECO# 203-821-170
Texture by Hydrometer, incl Gravel (Wet) (2)	24	2011/10/12	2011/10/12	AB SOP-00030	SSMA CH55.3
Texture by Hydrometer, incl Gravel (Wet) (2)	1	2011/10/13	2011/10/13	AB SOP-00030	SSMA CH55.3
Texture by Hydrometer, incl Gravel (Wet) (2)	12	2011/10/15	2011/10/15	AB SOP-00030	SSMA CH55.3
Total Nitrogen in Soil by LECO (2)	12	2011/10/20	2011/10/21	CAL SOP-00243	LECO# 203-821-170
Extra VOCs in Soil by HS GC/MS (1)	25	N/A	2011/09/29	BRN SOP 00302 R8.0	EPA 8260C
VOCs in Soil by HS GC/MS (1)	4	2011/09/27	2011/09/28	BBY8-SOP-0009	EPA 8260C
VOCs in Soil by HS GC/MS (1)	21	2011/09/27	2011/09/29	BBY8-SOP-0009	EPA 8260C
Volatile HC-BTEX (1)	20	N/A	2011/09/29	BBY WI-00033	BC MOE Lab Method
Volatile HC-BTEX (1)	5	N/A	2011/09/30	BBY WI-00033	BC MOE Lab Method

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

Sample Matrix: TISSUE
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Chromium, Hexavalent (soil) (1)	6	2011/12/28	2011/12/28	BBY6SOP-00015	SM3500 CR B
% Lipid Content (1)	7	N/A	2011/12/23	BBY8-SOP-00028	BC LAB MANUAL
Elements by CRC ICPMS - Tissue Dry Wt (1)	7	2011/11/25	2011/12/28	BBY7SOP-00002	EPA 6020A
Elements by CRC ICPMS - Tissue Wet Wt (1)	7	2011/12/21	2011/12/24	BBY7SOP-00002	EPA 6020A
Moisture (1)	7	N/A	2011/12/28	BBY8SOP-00017	Ont MOE -E 3139

Sample Matrix: Water
Samples Received: 13

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
CRD Quarterly BNA's (1)	1	2011/12/05	2011/12/14	BBY8SOP-00024	EPA SW846 8270D
Cyanide + Thiocyanate (1)	1	N/A	2011/12/06	BBY6SOP-00004	SM4500-CN N
Cyanide WAD (weak acid dissociable) (1)	1	N/A	2011/12/09	BBY6SOP-00005	SM-4500CN I
Phenols in Water by GCMS (1)	1	2011/12/05	2011/12/13	BBY8SOP-00025	EPA 8270D
Carbon (DOC) (1)	7	N/A	2011/10/14	BBY6SOP-00003	SM-5310C
Carbon (DOC) (1)	5	N/A	2011/10/17	BBY6SOP-00003	SM-5310C
Carbon (DOC) (1)	1	N/A	2011/12/06	BBY6SOP-00003	SM-5310C
Hardness Total (calculated as CaCO3) (1)	12	N/A	2011/10/18	BBY WI-00033	Calculated Parameter
Hardness Total (calculated as CaCO3) (1)	1	N/A	2011/12/07	BBY WI-00033	Calculated Parameter
Extrac. Pet HC when LEPH/HEPH required (1)	1	2011/12/05	2011/12/06	BBY8SOP-00029	BCCSR Method 4
Na, K, Ca, Mg, S by CRC ICPMS (total) (1)	1	2011/12/02	2011/12/07	BBY7SOP-00002	EPA 6020A
Elements by CRC ICPMS (total) (1)	2	2011/10/16	2011/10/17	BBY7SOP-00002	EPA 6020A
Elements by CRC ICPMS (total) (1)	10	2011/10/16	2011/10/18	BBY7SOP-00002	EPA 6020A
Elements by CRC ICPMS (total) (1)	1	2011/12/05	2011/12/06	BBY7SOP-00002	EPA 6020A
Ammonia (Unionized) (1)	12	N/A	2012/01/26	BBY6SOP-00009	SM4500NH3 G
Ammonia-N (Preserved) (1)	12	N/A	2011/10/17	BBY6SOP-00009	SM-4500NH3G
Ammonia-N (Preserved) (1)	1	N/A	2011/12/08	BBY6SOP-00009	SM-4500NH3G
Nitrate + Nitrite (N) (1)	1	N/A	2011/12/06	BBY6SOP-00010	USEPA 353.2
Nitrite (N) by CFA (1)	1	N/A	2011/12/06	BBY6SOP-00010	EPA 353.2
Nitrogen - Nitrate (as N) (1)	1	N/A	2011/12/06	BBY6SOP-00010	Based on EPA 353.2
PAH in Water by GC/MS (SIM) (1)	1	2011/12/05	2011/12/06	BBY8SOP-00021	EPA 8270D
Total LMW, HMW, Total PAH Calc (1)	1	N/A	2011/12/07	BBY WI-00033	BC MOE Lab Method
pH Water (1)	1	N/A	2011/12/03	BBY6SOP-00026	SM-4500H+B
pH Water (1)	12	N/A	2012/01/26	BBY6SOP-00026	SM-4500H+B
Phenols (4-AAP) (1)	1	N/A	2011/12/09	BBY6SOP-00008	SM 5530
CSR VH C6-C10 in Water by HS GC/MS (1)	1	N/A	2011/12/07	BBY8SOP-00011	EPA 8260B
Salinity by Conductivity Method (1)	1	2011/12/03	2011/12/03	BBY6SOP-00026	SMAA 2520B
Sulphide (1)	12	N/A	2011/10/12	BBY6SOP-00006	SM-4500 S2D
Sulphide (1)	1	N/A	2011/12/05	BBY6SOP-00006	SM-4500 S2D
Total Dissolved Solids (Filt. Residue) (1)	1	2011/12/06	2011/12/06	BBY6SOP-00033	SM 2540C
EPH less PAH in Water by GC/FID (1)	1	N/A	2011/12/07	BBY WI-00033	BC MOE Lab Method
Carbon (Total Organic) (1)	1	N/A	2011/12/06	BBY6SOP-00003	SM-5310C
Total Suspended Solids-LowLevel (1)	1	2011/12/06	2011/12/06	BBY6SOP-00034	SM-2540 D
VOCs in Water by HS GC/MS (1)	1	2011/12/06	2011/12/07	BBY8-SOP-0009	EPA 8260C
Volatile HC-BTEX (1)	1	N/A	2011/12/07	BBY WI-00033	BC MOE Lab Method

* Results relate only to the items tested.

(1) This test was performed by Maxxam Vancouver
(2) This test was performed by Maxxam Calgary Environmental
(3) Updated the RPD Limits from 50% to 35% as per standards. Updated on 2012/11/26.

Maxxam Analytics International Corporation o/a Maxxam Analytics 1104 - 4464 Markham Street, Victoria, BC V8Z 7X8 Tel: (250) 385-6112, Toll Free 1-866 385 6112, Fax: (250) 382-6364 www.maxxam.ca

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Kelly Janda, B.Sc, Burnaby Project Manager
Email: KJanda@maxxam.ca
Phone# (604) 638-5019

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 3

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

RESULTS OF CHEMICAL ANALYSES OF SEDIMENT

Maxxam ID		BQ0637		BQ0638		BQ0639		BQ0640		BQ0641		BQ0642		
Sampling Date		2011/09/15 11:35		2011/09/15 12:00		2011/09/16 10:25		2011/09/14 13:40		2011/09/14 15:21		2011/09/21 13:00		
	UNITS	**M1NW**	**RDL**	**M1S**	**RDL**	**M1SE**	**RDL**	**M1SW**	**RDL**	**M1W**	**RDL**	**M2E**	**RDL**	**QC Batch**
CONVENTIONALS														
Cyanide + Thiocyanate	ug/g	0.175(1)	0.020	0.167	0.020	0.254	0.020	0.176	0.020	0.269	0.020	0.140	0.020	5227217
Metals														
Hex. Chromium (Cr 6+)	mg/kg	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	5221284
Calculated Parameters														
Chromium III	mg/kg	24.6	1.0	25.2	1.0	24.2	1.0	22.8	1.0	24.9	1.0	27.6	1.0	5209525
Sulphide	umole/g	0.0581	0.0062	1.79	0.066	12.2	0.34	9.73	0.36	0.350	0.0069	0.562	0.0092	5209527
MISCELLANEOUS														
Sulphide	ug/g	1.86	0.20	57.5	2.1	390	11	312	11	11.2	0.22	18.0	0.29	5214074
Misc. Organics														
Extractable (Water) Phenols	mg/kg	<0.20(2)	0.20	<0.20(2)	0.20	0.99(2)	0.20	0.125	0.020	<0.20(2)	0.20	<0.20(2)	0.20	5226618
Physical Properties														
Soluble (2:1) pH	pH Units	7.99	0.010	8.03	0.010	7.92	0.010	8.00	0.010	7.86	0.010	8.03	0.010	5222581
% sand by hydrometer	%	68	2.0	64	2.0	43	2.0	66	2.0	67	2.0	65	2.0	5250942
% silt by hydrometer	%	20	2.0	21	2.0	8.6	2.0	20	2.0	20	2.0	22	2.0	5250942
Clay Content	%	9.1	2.0	9.9	2.0	10	2.0	10	2.0	9.8	2.0	10	2.0	5250942
Gravel	%	3.1	2.0	5.3	2.0	38	2.0	4.1	2.0	3.8	2.0	2.5	2.0	5250942

RDL = Reportable Detection Limit
(1) - Matrix spike exceeds acceptance limits due to matrix interference. Re-analysis yields similar results.
(2) - RDL raised due to sample matrix interference.

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

RESULTS OF CHEMICAL ANALYSES OF SEDIMENT

Maxxam ID		BQ0643		BQ0644		BQ0645		BQ0646		BQ0647		BQ0648		
Sampling Date		2011/09/21 13:00		2011/09/21 13:00		2011/09/16 09:15		2011/09/15 13:16		2011/09/15 13:16		2011/09/15 13:16		
	UNITS	**M2E-DUP**	**RDL**	**M2E-TRIP**	**RDL**	**M2SE**	**RDL**	**M2NE**	**RDL**	**M2NE**	**RDL**	**M2NE**	**RDL**	**QC Batch**
CONVENTIONALS														
Cyanide + Thiocyanate	ug/g	0.176	0.020	0.150	0.020	0.204	0.020	0.186	0.020	0.220	0.020	0.199	0.020	5227217
Metals														
Hex. Chromium (Cr 6+)	mg/kg	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0(1)	1.0	5221284
Calculated Parameters														
Chromium III	mg/kg	23.0	1.0	26.7	1.0	21.7	1.0	24.6	1.0	24.7	1.0	22.3	1.0	5209525
Sulphide	umole/g	8.79	0.36	3.80	0.14	12.6	0.37	0.842	0.015	0.712	0.013	0.674	0.018	5209527
MISCELLANEOUS														
Sulphide	ug/g	282	12	122	4.6	403	12	27.0	0.49	22.8	0.43	21.6	0.58	5214074
Misc. Organics														
Extractable (Water) Phenols	mg/kg	<0.20(2)	0.20	0.21(2)	0.20	0.45(2)	0.20	<0.20(2)	0.20	<0.20(2)	0.20	<0.20(2)	0.20	5226618
Physical Properties														
Soluble (2:1) pH	pH Units	8.03	0.010	8.08	0.010	8.00	0.010	8.12	0.010	8.02	0.010	7.96	0.010	5222581
% sand by hydrometer	%	50	2.0	64	2.0	60	2.0	58	2.0	66	2.0	62	2.0	5250942
% silt by hydrometer	%	19	2.0	23	2.0	18	2.0	24	2.0	24	2.0	24	2.0	5250942
Clay Content	%	7.9	2.0	11	2.0	9.9	2.0	11	2.0	9.0	2.0	12	2.0	5250942
Gravel	%	22	2.0	2.3	2.0	11	2.0	6.8	2.0	<2.0	2.0	2.0	2.0	5250942

RDL = Reportable Detection Limit
(1) - Matrix spike exceeds acceptance limits due to matrix interference. Re-analysis yields similar results.
(2) - RDL raised due to sample matrix interference.

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

RESULTS OF CHEMICAL ANALYSES OF SEDIMENT

Maxxam ID		BQ0649		BQ0650		BQ0651			BQ0652			BQ0653		
Sampling Date		2011/09/14 14:38		2011/09/21 09:15		2011/09/14 10:06			2011/09/14 09:17			2011/09/14 09:17		
	UNITS	**M0**	**RDL**	**M1E**	**RDL**	**M4E**	**RDL**	**QC Batch**	**M4SE**	**RDL**	**QC Batch**	**M4SE-DUP**	**RDL**	**QC Batch**
CONVENTIONALS														
Cyanide + Thiocyanate	ug/g	0.137	0.020	0.183	0.020	0.168	0.020	5227217	0.150	0.020	5227217	0.130	0.020	5227217
Metals														
Hex. Chromium (Cr 6+)	mg/kg	<1.0	1.0	1.3	1.0	1.1	1.0	5221305	<1.0	1.0	5221305	<1.0	1.0	5221305
Calculated Parameters														
Chromium III	mg/kg	110	1.0	23.9	1.0	23.4	1.0	5209525	22.2	1.0	5209525	22.4	1.0	5209525
Sulphide	umole/g	0.922	0.016	7.89	0.50	1.78	0.043	5209527	2.00	0.043	5209527	5.44	0.31	5209527
MISCELLANEOUS														
Sulphide	ug/g	29.6	0.51	253	16	57.1	1.4	5214141	64.3	1.4	5214141	174	10	5214141
Misc. Organics														
Extractable (Water) Phenols	mg/kg	0.87(1)	0.20	1.10(1)	0.20	0.127	0.020	5226618	<0.20(1)	0.20	5226618	<0.20(1)	0.20	5226618
Physical Properties														
Soluble (2:1) pH	pH Units	7.95	0.010	8.04	0.010	8.12	0.010	5222718	8.12	0.010	5222718	8.00	0.010	5222718
% sand by hydrometer	%	46	2.0	62	2.0	59	2.0	5250942	59	2.0	5259312	58	2.0	5250942
% silt by hydrometer	%	5.7	2.0	17	2.0	27	2.0	5250942	21	2.0	5259312	18	2.0	5250942
Clay Content	%	8.9	2.0	11	2.0	11	2.0	5250942	12	2.0	5259312	8.5	2.0	5250942
Gravel	%	40	2.0	9.9	2.0	3.0	2.0	5250942	8.1	2.0	5259312	16	2.0	5250942

RDL = Reportable Detection Limit
(1) - RDL raised due to sample matrix interference.

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

RESULTS OF CHEMICAL ANALYSES OF SEDIMENT

Maxxam ID		BQ0654		BQ0655		BQ0656			BQ0657		BQ0658		
Sampling Date		2011/09/14 09:17		2011/09/22 09:00		2011/09/20 10:30			2011/09/20 12:30		2011/09/20 13:30		
	UNITS	**M4SE-TRIP**	**RDL**	**M8E**	**RDL**	**PB1**	**RDL**	**QC Batch**	**PB2**	**RDL**	**PB3**	**RDL**	**QC Batch**
CONVENTIONALS													
Cyanide + Thiocyanate	ug/g	0.171	0.020	0.193	0.020	0.140	0.020	5227217	0.120	0.020	0.173	0.020	5227217
Metals													
Hex. Chromium (Cr 6+)	mg/kg	<1.0	1.0	<1.0	1.0	<1.0	1.0	5221305	<1.0	1.0	<1.0 (1)	1.0	5221305
Calculated Parameters													
Chromium III	mg/kg	21.7	1.0	24.5	1.0	23.4	1.0	5209525	23.5	1.0	24.5	1.0	5209525
Sulphide	umole/g	3.48	0.13	0.0422	0.0091	0.0337	0.0062	5209527	0.0150	0.0074	0.119	0.0086	5209527
MISCELLANEOUS													
Sulphide	ug/g	112	4.2	1.35 (2)	0.29	1.08	0.20	5214141	0.48 (2)	0.24	3.82	0.28	5214141
Misc. Organics													
Extractable (Water) Phenols	mg/kg	<0.20 (3)	0.20	0.745	0.020	0.547	0.020	5226618	0.509	0.020	0.571	0.020	5226618
Physical Properties													
Soluble (2:1) pH	pH Units	8.24	0.010	8.14	0.010	8.09	0.010	5222718	8.14	0.010	8.03	0.010	5222718
% sand by hydrometer	%	57	2.0	59	2.0	71	2.0	5250942	81	2.0	64	2.0	5250944
% silt by hydrometer	%	15	2.0	25	2.0	21	2.0	5250942	12	2.0	26	2.0	5250944
Clay Content	%	8.0	2.0	11	2.0	8.3	2.0	5250942	7.0	2.0	9.6	2.0	5250944
Gravel	%	20	2.0	5.0	2.0	<2.0	2.0	5250942	<2.0	2.0	<2.0	2.0	5250944

RDL = Reportable Detection Limit
(1) - Matrix spike exceeds acceptance limits due to matrix interference. Re-analysis yields similar results.
(2) - RDL raised due to sample dilution.
(3) - RDL raised due to sample matrix interference.

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

RESULTS OF CHEMICAL ANALYSES OF SEDIMENT

Maxxam ID		BQ0659		BQ0660		BQ0661		BQ8684	BQ8685	BQ8686	BQ8687		
Sampling Date		2011/09/19 00:00		2011/09/19 09:30		2011/09/16 13:05		2011/09/22	2011/09/22	2011/09/22	2011/09/22		
	UNITS	**C1E**	**RDL**	**C2E**	**RDL**	**C4E**	**QC Batch**	**M1NW**	**M1SE**	**M2E**	**M1E**	**RDL**	**QC Batch**
CONVENTIONALS													
Cyanide + Thiocyanate	ug/g	0.150	0.020	0.132	0.020	0.100(1)	5227217					0.020	
Metals													
Hex. Chromium (Cr 6+)	mg/kg	<1.0	1.0	<1.0	1.0	<1.0(1)	5221305					1.0	
Calculated Parameters													
Chromium III	mg/kg	18.8	1.0	19.8	1.0	16.3	5209525					1.0	
Sulphide	umole/g	6.48	0.29	13.2	0.31	3.77	5209527					0.13	
MISCELLANEOUS													
Sulphide	ug/g	208	9.4	425	10	121	5214141					4.1	
Misc. Organics													
Extractable (Water) Phenols	mg/kg	0.72(2)	0.20	0.26(2)	0.20	<0.20(2)	5226618					0.20	
Physical Properties													
Soluble (2:1) pH	pH Units	8.37	0.010	8.29	0.010	8.43	5222718					0.010	
% sand by hydrometer	%	80	2.0	86	2.0	73	5250944	61	57	63	63	2.0	5266593
% silt by hydrometer	%	4.6	2.0	2.3	2.0	4.5	5250944	28	13	24	21	2.0	5266593
Clay Content	%	4.7	2.0	7.2	2.0	4.7	5250944	8.5	10	9.9	10	2.0	5266593
Gravel	%	10	2.0	5.0	2.0	18	5250944	2.7	21	2.8	6.1	2.0	5266593

RDL = Reportable Detection Limit
(1) - Matrix spike exceeds acceptance limits due to matrix interference. Re-analysis yields similar results.
(2) - RDL raised due to sample matrix interference.

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

RESULTS OF CHEMICAL ANALYSES OF SEDIMENT

Maxxam ID		BQ8688	BQ8689	BQ8690	BQ8691	BQ8692	BQ8693	BQ8694	BQ8695		
Sampling Date		2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22		
	UNITS	**M4E**	**M8E**	**PB1**	**PB2**	**PB3**	**C1E**	**C2E**	**C4E**	**RDL**	**QC Batch**
Physical Properties											
% sand by hydrometer	%	58	56	73	76	63	71	79	76	2.0	5266593
% silt by hydrometer	%	27	29	20	18	27	8.4	8.4	8.3	2.0	5266593
Clay Content	%	12	12	7.4	5.9	10	6.0	5.8	4.4	2.0	5266593
Gravel	%	2.8	2.9	<2.0	<2.0	<2.0	14	6.9	11	2.0	5266593

PHYSICAL TESTING (SEDIMENT)

Maxxam ID		BQ0637	BQ0638	BQ0639	BQ0640	BQ0641	BQ0642		BQ0643	BQ0644		
Sampling Date		2011/09/15 11:35	2011/09/15 12:00	2011/09/16 10:25	2011/09/14 13:40	2011/09/14 15:21	2011/09/21 13:00		2011/09/21 13:00	2011/09/21 13:00		
	UNITS	**M1NW**	**M1S**	**M1SE**	**M1SW**	**M1W**	**M2E**	**QC Batch**	**M2E-DUP**	**M2E-TRIP**	**RDL**	**QC Batch**
Physical Properties												
Moisture	%	31	34	35	32	33	35	5218672	34	33	0.30	5215664

Maxxam ID		BQ0645	BQ0646	BQ0647	BQ0648		BQ0649	BQ0650	BQ0651	BQ0652		
Sampling Date		2011/09/16 09:15	2011/09/15 13:16	2011/09/15 13:16	2011/09/15 13:16		2011/09/14 14:38	2011/09/21 09:15	2011/09/14 10:06	2011/09/14 09:17		
	UNITS	**M2SE**	**M2NE**	**M2NE**	**M2NE**	**QC Batch**	**M0**	**M1E**	**M4E**	**M4SE**	**RDL**	**QC Batch**
Physical Properties												
Moisture	%	38	36	35	35	5218672	33	38	34	32	0.30	5218677

Maxxam ID		BQ0653	BQ0654		BQ0655	BQ0656	BQ0657	BQ0658	BQ0659	BQ0660	BQ0661		
Sampling Date		2011/09/14 09:17	2011/09/14 09:17		2011/09/22 09:00	2011/09/20 10:30	2011/09/20 12:30	2011/09/20 13:30	2011/09/19 00:00	2011/09/19 09:30	2011/09/16 13:05		
	UNITS	**M4SE-DUP**	**M4SE-TRIP**	**QC Batch**	**M8E**	**PB1**	**PB2**	**PB3**	**C1E**	**C2E**	**C4E**	**RDL**	**QC Batch**
Physical Properties													
Moisture	%	28	34	5215664	34	29	26	33	28	25	25	0.30	5218677

RDL = Reportable Detection Limit

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ0637		BQ0638		BQ0639	BQ0640	BQ0641	BQ0642	BQ0643	BQ0644		
Sampling Date		2011/09/15 11:35		2011/09/15 12:00		2011/09/16 10:25	2011/09/14 13:40	2011/09/14 15:21	2011/09/21 13:00	2011/09/21 13:00	2011/09/21 13:00		
	UNITS	**M1NW**	**RDL**	**M1S**	**RDL**	**M1SE**	**M1SW**	**M1W**	**M2E**	**M2E-DUP**	**M2E-TRIP**	**RDL**	**QC Batch**
Alcohols													
alpha-Terpineol	mg/kg	<0.10	0.10	<0.10	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5223473
Base Neutrals													
1,2-diphenylhydrazine	mg/kg	<0.10	0.10	<0.10	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5223473
2,4-dinitrotoluene	mg/kg	<0.050	0.050	<0.050	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050 (1)	0.050	5223473
2,6-dinitrotoluene	mg/kg	<0.050	0.050	<0.050	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5223473
2-chloronaphthalene	mg/kg	<0.080	0.080	<0.080	0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.080	5223473
3,3'-Dichlorobenzidine	mg/kg	<0.50	0.50	<0.50	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5223473
4-bromophenyl phenyl ether	mg/kg	<0.060	0.060	<0.060	0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5223473
4-chlorophenyl phenyl ether	mg/kg	<0.070	0.070	<0.070	0.070	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5223473
Benzidine	mg/kg	<10	10	<10	10	<10	<10	<10	<10	<10	<10	10	5223473
Bis(2-chloroethoxy)methane	mg/kg	<0.080	0.080	<0.080	0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.080	5223473
Bis(2-chloroethyl)ether	mg/kg	<0.060	0.060	<0.060	0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5223473
Bis(2-chloroisopropyl)ether	mg/kg	<0.20	0.20	<0.20	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5223473
Hexachlorobutadiene	mg/kg	<0.050	0.050	<0.050	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5223473
Hexachlorocyclopentadiene	mg/kg	<1.0 (2)	1.0	<1.0 (2)	1.0	<1.0 (2)	<1.0 (2)	<1.0 (2)	<1.0 (2)	<1.0 (2)	<1.0 (2)	1.0	5223473
Hexachloroethane	mg/kg	<0.060	0.060	<0.060	0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5223473
Isophorone	mg/kg	<0.060	0.060	<0.060	0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5223473
Nitrobenzene	mg/kg	<0.070	0.070	<0.070	0.070	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5223473
N-nitrosodimethylamine	mg/kg	<0.50	0.50	<0.50	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5223473
N-nitroso-di-n-propylamine	mg/kg	<0.060	0.060	<0.060	0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5223473
N-nitrosodiphenylamine	mg/kg	<0.080	0.080	<0.080	0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.080	5223473
Chlorobenzenes													
1,2,4-trichlorobenzene	mg/kg	<0.060	0.060	<0.060	0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5223473
1,2-dichlorobenzene	mg/kg	<0.10	0.10	<0.10	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5223473
1,3-dichlorobenzene	mg/kg	<0.10	0.10	<0.10	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5223473
1,4-dichlorobenzene	mg/kg	<0.10	0.10	<0.10	0.10	0.21	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5223473
Hexachlorobenzene	mg/kg	<0.060	0.060	<0.060	0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5223473

RDL = Reportable Detection Limit
(1) - Matrix Spike outside acceptance criteria- Non-homogenous sample
(2) - RDL raised due to Continuing Calibration Verification below criteria - Pot. low bias

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ0637		BQ0638		BQ0639	BQ0640	BQ0641	BQ0642	BQ0643	BQ0644		
Sampling Date		2011/09/15 11:35		2011/09/15 12:00		2011/09/16 10:25	2011/09/14 13:40	2011/09/14 15:21	2011/09/21 13:00	2011/09/21 13:00	2011/09/21 13:00		
	UNITS	**M1NW**	**RDL**	**M1S**	**RDL**	**M1SE**	**M1SW**	**M1W**	**M2E**	**M2E-DUP**	**M2E-TRIP**	**RDL**	**QC Batch**
Polycyclic Aromatics													
2-Methylnaphthalene	mg/kg	0.033	0.030	0.082	0.030	0.054	0.037	0.041	0.24	0.033	<0.030	0.030	5223473
Acenaphthene	mg/kg	<0.090	0.090	0.17	0.090	<0.090	<0.090	<0.090	0.28	<0.090	<0.090 (1)	0.090	5223473
Acenaphthylene	mg/kg	<0.090	0.090	<0.090	0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	0.090	5223473
Anthracene	mg/kg	<0.080	0.080	0.87	0.080	<0.080	<0.080	<0.080	0.48	<0.080	<0.080 (2)	0.080	5223473
Benzo(a)anthracene	mg/kg	<0.070	0.070	2.0	0.070	<0.070	<0.070	0.17	0.75	<0.070	<0.070 (2)	0.070	5223473
Benzo(a)pyrene	mg/kg	<0.070	0.070	1.3	0.070	<0.070	<0.070	0.10	0.64	<0.070	<0.070 (2)	0.070	5223473
Benzo(b&j)fluoranthene	mg/kg	<0.070	0.070	1.2	0.070	<0.070	<0.070	0.12	0.58	<0.070	<0.070 (2)	0.070	5223473
Benzo(g,h,i)perylene	mg/kg	<0.080	0.080	0.68	0.080	<0.080	<0.080	<0.080	0.41	<0.080	<0.080	0.080	5223473
Benzo(k)fluoranthene	mg/kg	<0.070	0.070	1.1	0.070	<0.070	<0.070	0.095	0.42	<0.070	<0.070 (2)	0.070	5223473
Chrysene	mg/kg	<0.090	0.090	1.8	0.090	<0.090	<0.090	0.16	0.88	<0.090	<0.090 (2)	0.090	5223473
Dibenz(a,h)anthracene	mg/kg	<0.080	0.080	0.23	0.080	<0.080	<0.080	<0.080	0.095	<0.080	<0.080	0.080	5223473
Fluoranthene	mg/kg	<0.080	0.080	4.5 (3)	0.40	<0.080	<0.080	<0.080	1.4	<0.080	<0.080 (2)	0.080	5223473
Fluorene	mg/kg	<0.090	0.090	0.22	0.090	<0.090	<0.090	<0.090	0.29	<0.090	<0.090	0.090	5223473
Indeno(1,2,3-cd)pyrene	mg/kg	<0.070	0.070	0.95	0.070	<0.070	<0.070	<0.070	0.43	<0.070	<0.070 (2)	0.070	5223473
Naphthalene	mg/kg	<0.070	0.070	0.11	0.070	<0.070	<0.070	<0.070	0.46	<0.070	<0.070	0.070	5223473
Phenanthrene	mg/kg	<0.080	0.080	2.5	0.080	<0.080	<0.080	<0.080	1.9	<0.080	<0.080 (2)	0.080	5223473
Pyrene	mg/kg	<0.080	0.080	3.3 (3)	0.40	<0.080	<0.080	0.11	1.6	<0.080	<0.080 (4)	0.080	5223473
Phenols													
2,4 + 2,5-Dichlorophenol	mg/kg	<0.070	0.070	<0.070	0.070	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5223473
2,4,6-trichlorophenol	mg/kg	<0.070	0.070	<0.070	0.070	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5223473
2,4-dimethylphenol	mg/kg	<0.050	0.050	<0.050	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5223473
2,4-dinitrophenol	mg/kg	<0.50	0.50	<0.50	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5223473
2-chlorophenol	mg/kg	<0.080	0.080	<0.080	0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.080	5223473
2-methylphenol	mg/kg	<0.050	0.050	<0.050	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5223473
2-nitrophenol	mg/kg	<0.050	0.050	<0.050	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5223473
4,6-dinitro-2-methylphenol	mg/kg	<0.50	0.50	<0.50	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5223473
4-chloro-3-methylphenol	mg/kg	<0.070	0.070	<0.070	0.070	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5223473
4-nitrophenol	mg/kg	<0.050	0.050	<0.050	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5223473
Pentachlorophenol	mg/kg	<0.020	0.020	<0.020	0.020	0.023	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5223473
Phenol	mg/kg	1.0	0.060	0.64	0.060	2.5	<0.060	1.1	1.0	0.80	0.99	0.060	5223473

RDL = Reportable Detection Limit
(1) - Matrix Spike outside acceptance criteria- Non-homogenous sample
(2) - Duplicate RPD above control limit - Non-homogenous sample - Increased variability of results
(3) - RDL raised due to sample dilution.
(4) - Duplicate RPD above control limit - Non-homogenous sample - Increased variability of results
Matrix Spike outside acceptance criteria

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ0637		BQ0638		BQ0639	BQ0640	BQ0641	BQ0642	BQ0643	BQ0644		
Sampling Date		2011/09/15 11:35		2011/09/15 12:00		2011/09/16 10:25	2011/09/14 13:40	2011/09/14 15:21	2011/09/21 13:00	2011/09/21 13:00	2011/09/21 13:00		
	UNITS	**M1NW**	**RDL**	**M1S**	**RDL**	**M1SE**	**M1SW**	**M1W**	**M2E**	**M2E-DUP**	**M2E-TRIP**	**RDL**	**QC Batch**
Phthalate Esters													
Bis(2-ethylhexyl)phthalate	mg/kg	<2.0	2.0	2.0	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5223473
Butyl benzyl phthalate	mg/kg	<0.10	0.10	<0.10	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5223473
Diethyl phthalate	mg/kg	<0.090	0.090	<0.090	0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	0.090	5223473
Dimethyl phthalate	mg/kg	<0.070	0.070	<0.070	0.070	<0.070	1.0	<0.070	<0.070	<0.070	<0.070	0.070	5223473
Di-n-butyl phthalate	mg/kg	<0.070	0.070	<0.070	0.070	<0.070	<0.070	<0.070	<0.070	0.15	<0.070	0.070	5223473
Di-n-octyl phthalate	mg/kg	<0.10	0.10	<0.10	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5223473
Polycyclic Aromatics													
Low Molecular Weight PAH`s	mg/kg	<0.090	0.090	4.0	0.090	<0.090	<0.090	<0.090	3.7	<0.090	<0.090	0.090	5208436
High Molecular Weight PAH`s	mg/kg	<0.090	0.090	13	0.40	<0.090	<0.090	0.55	5.4	<0.090	<0.090	0.090	5208436
Total PAH	mg/kg	<0.090	0.090	17	0.40	<0.090	<0.090	0.59	9.1	<0.090	<0.090	0.090	5208436
Surrogate Recovery (%)													
2,4,6-TRIBROMOPHENOL (sur.)	%	112		124(1)		117	128(1)	122	120	120	121		5223473
2-FLUOROBIPHENYL (sur.)	%	94		79		92	87	90	89	91	86		5223473
TERPHENYL-D14 (sur.)	%	105		94		87	92	92	91	100	98		5223473
D5-PHENOL (sur.)	%	92		79		91	88	91	93	93	86		5223473
D5-NITROBENZENE (sur.)	%	90		77		92	89	89	89	90	85		5223473

RDL = Reportable Detection Limit
(1) - Surrogate recovery above control limit - 1 surrogate failure allowed - Pot. high bias

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ0645	BQ0646	BQ0647	BQ0648		BQ0649		BQ0650		BQ0651		
Sampling Date		2011/09/16 09:15	2011/09/15 13:16	2011/09/15 13:16	2011/09/15 13:16		2011/09/14 14:38		2011/09/21 09:15		2011/09/14 10:06		
	UNITS	**M2SE**	**M2NE**	**M2NE**	**M2NE**	**RDL**	**M0**	**RDL**	**M1E**	**RDL**	**M4E**	**RDL**	**QC Batch**
Alcohols													
alpha-Terpineol	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	<0.10	0.10	<0.10	0.10	<0.10	0.10	5227859
Base Neutrals													
1,2-diphenylhydrazine	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	<0.10	0.10	<0.10	0.10	<0.10	0.10	5227859
2,4-dinitrotoluene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	<0.050	0.050	<0.050 (1)	0.050	<0.050	0.050	5227859
2,6-dinitrotoluene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	<0.050	0.050	<0.050 (2)	0.050	<0.050	0.050	5227859
2-chloronaphthalene	mg/kg	<0.080	<0.080	<0.080	<0.080	0.080	<0.080	0.080	<0.080	0.080	<0.080	0.080	5227859
3,3'-Dichlorobenzidine	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5227859
4-bromophenyl phenyl ether	mg/kg	<0.060	<0.060	<0.060	<0.060	0.060	<0.060	0.060	<0.060	0.060	<0.060	0.060	5227859
4-chlorophenyl phenyl ether	mg/kg	<0.070	<0.070	<0.070	<0.070	0.070	<0.070	0.070	<0.070	0.070	<0.070	0.070	5227859
Benzidine	mg/kg	<10	<10	<10	<10	10	<10	10	<10	10	<10	10	5227859
Bis(2-chloroethoxy)methane	mg/kg	<0.080	<0.080	<0.080	<0.080	0.080	<0.080	0.080	<0.080	0.080	<0.080	0.080	5227859
Bis(2-chloroethyl)ether	mg/kg	<0.060	<0.060	<0.060	<0.060	0.060	<0.060	0.060	<0.060	0.060	<0.060	0.060	5227859
Bis(2-chloroisopropyl)ether	mg/kg	<0.20	<0.20	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	5227859
Hexachlorobutadiene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	5227859
Hexachlorocyclopentadiene	mg/kg	<1.0 (3)	<1.0 (3)	<1.0 (3)	<1.0 (3)	1.0	<1.0 (3)	1.0	<1.0 (3)	1.0	<1.0 (3)	1.0	5227859
Hexachloroethane	mg/kg	<0.060	<0.060	<0.060	<0.060	0.060	<0.060	0.060	<0.060	0.060	<0.060	0.060	5227859
Isophorone	mg/kg	<0.060	<0.060	<0.060	<0.060	0.060	<0.060	0.060	<0.060	0.060	<0.060	0.060	5227859
Nitrobenzene	mg/kg	<0.070	<0.070	<0.070	<0.070	0.070	<0.070	0.070	<0.070	0.070	<0.070	0.070	5227859
N-nitrosodimethylamine	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5227859
N-nitroso-di-n-propylamine	mg/kg	<0.060	<0.060	<0.060	<0.060	0.060	<0.060	0.060	<0.060	0.060	<0.060	0.060	5227859
N-nitrosodiphenylamine	mg/kg	<0.080	<0.080	<0.080	<0.080	0.080	<0.080	0.080	<0.080	0.080	<0.080	0.080	5227859
Chlorobenzenes													
1,2,4-trichlorobenzene	mg/kg	<0.060	<0.060	<0.060	<0.060	0.060	<0.060	0.060	<0.060	0.060	<0.060	0.060	5227859
1,2-dichlorobenzene	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	<0.10	0.10	<0.10	0.10	<0.10	0.10	5227859
1,3-dichlorobenzene	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	<0.10	0.10	<0.10	0.10	<0.10	0.10	5227859
1,4-dichlorobenzene	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	0.95	0.10	<0.10	0.10	<0.10	0.10	5227859
Hexachlorobenzene	mg/kg	<0.060	<0.060	<0.060	<0.060	0.060	<0.060	0.060	<0.060	0.060	<0.060	0.060	5227859

RDL = Reportable Detection Limit
(1) - Matrix Spike outside acceptance criteria- (10% of analytes failure allowed)
(2) - Matrix Spike outside acceptance criteria (10% of analytes failure allowed)
(3) - RDL raised due to Continuing Calibration Verification below criteria - Pot. low bias

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ0645	BQ0646	BQ0647	BQ0648		BQ0649		BQ0650		BQ0651		
Sampling Date		2011/09/16 09:15	2011/09/15 13:16	2011/09/15 13:16	2011/09/15 13:16		2011/09/14 14:38		2011/09/21 09:15		2011/09/14 10:06		
	UNITS	**M2SE**	**M2NE**	**M2NE**	**M2NE**	**RDL**	**M0**	**RDL**	**M1E**	**RDL**	**M4E**	**RDL**	**QC Batch**
Polycyclic Aromatics													
2-Methylnaphthalene	mg/kg	0.053	0.057	0.053	0.049	0.030	0.068	0.030	2.0(1)	0.030	0.054	0.030	5227859
Acenaphthene	mg/kg	<0.090	<0.090	<0.090	<0.090	0.090	0.27	0.090	0.47(1)	0.090	<0.090	0.090	5227859
Acenaphthylene	mg/kg	<0.090	<0.090	<0.090	<0.090	0.090	<0.090	0.090	1.2(1)	0.090	<0.090	0.090	5227859
Anthracene	mg/kg	<0.080	0.20	<0.080	<0.080	0.080	0.85	0.080	0.61(1)	0.080	<0.080	0.080	5227859
Benzo(a)anthracene	mg/kg	0.14	0.43	0.18	0.20	0.070	1.7	0.070	3.7(1)	0.070	<0.070	0.070	5227859
Benzo(a)pyrene	mg/kg	0.12	0.35	0.19	0.13	0.070	1.2	0.070	5.3(2)	1.4	<0.070	0.070	5227859
Benzo(b&j)fluoranthene	mg/kg	0.13	0.42	0.22	0.17	0.070	1.2	0.070	7.4(2)	1.4	<0.070	0.070	5227859
Benzo(g,h,i)perylene	mg/kg	<0.080	0.19	0.17	0.082	0.080	0.61	0.080	3.6(1)	0.080	<0.080	0.080	5227859
Benzo(k)fluoranthene	mg/kg	0.076	0.22	0.10	0.12	0.070	0.99	0.070	5.9(2)	1.4	<0.070	0.070	5227859
Chrysene	mg/kg	0.13	0.42	0.23	0.18	0.090	1.7	0.090	9.0(2)	1.8	<0.090	0.090	5227859
Dibenz(a,h)anthracene	mg/kg	<0.080	<0.080	<0.080	<0.080	0.080	0.23	0.080	1.3(1)	0.080	<0.080	0.080	5227859
Fluoranthene	mg/kg	0.30	0.80	0.38	0.39	0.080	3.7(3)	0.40	26(2)	1.6	<0.080	0.080	5227859
Fluorene	mg/kg	<0.090	<0.090	<0.090	<0.090	0.090	0.25	0.090	2.8(1)	0.090	<0.090	0.090	5227859
Indeno(1,2,3-cd)pyrene	mg/kg	0.081	0.22	0.17	0.11	0.070	0.83	0.070	4.3(2)	1.4	<0.070	0.070	5227859
Naphthalene	mg/kg	<0.070	<0.070	<0.070	<0.070	0.070	<0.070	0.070	2.5(1)	0.070	<0.070	0.070	5227859
Phenanthrene	mg/kg	0.19	0.58	0.30	0.24	0.080	2.7	0.080	27(2)	1.6	<0.080	0.080	5227859
Pyrene	mg/kg	0.23	0.69	0.41	0.28	0.080	2.9	0.080	16(4)	1.6	<0.080	0.080	5227859
Phenols													
2,4 + 2,5-Dichlorophenol	mg/kg	<0.070	<0.070	<0.070	<0.070	0.070	<0.070	0.070	<0.070	0.070	<0.070	0.070	5227859
2,4,6-trichlorophenol	mg/kg	<0.070	<0.070	<0.070	<0.070	0.070	<0.070	0.070	<0.070	0.070	<0.070	0.070	5227859
2,4-dimethylphenol	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	5227859
2,4-dinitrophenol	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5227859
2-chlorophenol	mg/kg	<0.080	<0.080	<0.080	<0.080	0.080	<0.080	0.080	<0.080	0.080	<0.080	0.080	5227859
2-methylphenol	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	5227859
2-nitrophenol	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	5227859
4,6-dinitro-2-methylphenol	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5227859
4-chloro-3-methylphenol	mg/kg	<0.070	<0.070	<0.070	<0.070	0.070	<0.070	0.070	<0.070	0.070	<0.070	0.070	5227859
4-nitrophenol	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	5227859
Pentachlorophenol	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	<0.020	0.020	<0.020	0.020	<0.020	0.020	5227859
Phenol	mg/kg	1.7	1.0	1.2	0.79	0.060	3.7	0.060	2.2(5)	0.060	0.49	0.060	5227859

RDL = Reportable Detection Limit
(1) - Duplicate RPD above control limit - Non-homogenous sample - Increased variability of results
(2) - RDL raised due to sample dilution.Duplicate RPD above control limit - Non-homogenous sample - Increased variability of results
(3) - RDL raised due to sample dilution.
(4) - RDL raised due to sample dilution.Matrix spike recovery outside control limit - High target compounds - No impact, spike Invalid. Duplicate RPD above control limit - Non-homogenous sample - Increased variability of results
(5) - Matrix spike recovery outside control limit - High target compounds - No impact, spike Invalid

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ0645	BQ0646	BQ0647	BQ0648		BQ0649		BQ0650		BQ0651		
Sampling Date		2011/09/16 09:15	2011/09/15 13:16	2011/09/15 13:16	2011/09/15 13:16		2011/09/14 14:38		2011/09/21 09:15		2011/09/14 10:06		
	UNITS	**M2SE**	**M2NE**	**M2NE**	**M2NE**	**RDL**	**M0**	**RDL**	**M1E**	**RDL**	**M4E**	**RDL**	**QC Batch**
Phthalate Esters													
Bis(2-ethylhexyl)phthalate	mg/kg	<2.0	<2.0	<2.0	<2.0	2.0	<2.0	2.0	64(1)	40	<2.0	2.0	5227859
Butyl benzyl phthalate	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	<0.10	0.10	<0.10	0.10	<0.10	0.10	5227859
Diethyl phthalate	mg/kg	<0.090	<0.090	<0.090	<0.090	0.090	<0.090	0.090	<0.090	0.090	<0.090	0.090	5227859
Dimethyl phthalate	mg/kg	<0.070	<0.070	<0.070	<0.070	0.070	<0.070	0.070	<0.070	0.070	<0.070	0.070	5227859
Di-n-butyl phthalate	mg/kg	<0.070	0.076	<0.070	<0.070	0.070	0.092	0.070	0.44(2)	0.070	<0.070	0.070	5227859
Di-n-octyl phthalate	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	<0.10	0.10	<0.10	0.10	<0.10	0.10	5227859
Polycyclic Aromatics													
Low Molecular Weight PAH`s	mg/kg	0.25	0.84	0.35	0.28	0.090	4.2	0.090	37	1.6	<0.090	0.090	5208436
High Molecular Weight PAH`s	mg/kg	0.92	2.7	1.4	1.2	0.090	11	0.40	61	1.8	<0.090	0.090	5208436
Total PAH	mg/kg	1.2	3.5	1.7	1.5	0.090	16	0.40	98	1.8	<0.090	0.090	5208436
Surrogate Recovery (%)													
2,4,6-TRIBROMOPHENOL (sur.)	%	126(3)	119	114	70		135(3)		134(3)		70		5227859
2-FLUOROBIPHENYL (sur.)	%	78	96	93	93		94		93		95		5227859
TERPHENYL-D14 (sur.)	%	82	102	100	94		93		92		112		5227859
D5-PHENOL (sur.)	%	86	90	88	74		94		83		78		5227859
D5-NITROBENZENE (sur.)	%	75	93	90	93		92		80		94		5227859

RDL = Reportable Detection Limit
(1) - RDL raised due to sample dilution.Duplicate RPD above control limit - Non-homogenous sample - Increased variability of results
(2) - Duplicate RPD above control limit - Non-homogenous sample - Increased variability of results
(3) - Surrogate recovery above control limit - 1 surrogate failure allowed - Pot. high bias

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ0652			BQ0653	BQ0654	BQ0655		
Sampling Date		2011/09/14 09:17			2011/09/14 09:17	2011/09/14 09:17	2011/09/22 09:00		
	UNITS	**M4SE**	**RDL**	**QC Batch**	**M4SE-DUP**	**M4SE-TRIP**	**M8E**	**RDL**	**QC Batch**
Alcohols									
alpha-Terpineol	mg/kg	<0.10	0.10	5227859	<0.10	<0.10	<0.10	0.10	5243251
Base Neutrals									
1,2-diphenylhydrazine	mg/kg	<0.10	0.10	5227859	<0.10	<0.10	<0.10	0.10	5243251
2,4-dinitrotoluene	mg/kg	<0.050	0.050	5227859	<0.050	<0.050	<0.050	0.050	5243251
2,6-dinitrotoluene	mg/kg	<0.050	0.050	5227859	<0.050	<0.050	<0.050	0.050	5243251
2-chloronaphthalene	mg/kg	<0.080	0.080	5227859	<0.080	<0.080	<0.080	0.080	5243251
3,3'-Dichlorobenzidine	mg/kg	<0.50	0.50	5227859	<0.50	<0.50	<0.50	0.50	5243251
4-bromophenyl phenyl ether	mg/kg	<0.060	0.060	5227859	<0.060	<0.060	<0.060	0.060	5243251
4-chlorophenyl phenyl ether	mg/kg	<0.070	0.070	5227859	<0.070	<0.070	<0.070	0.070	5243251
Benzidine	mg/kg	<10	10	5227859	<10	<10	<10	10	5243251
Bis(2-chloroethoxy)methane	mg/kg	<0.080	0.080	5227859	<0.080	<0.080	<0.080	0.080	5243251
Bis(2-chloroethyl)ether	mg/kg	<0.060	0.060	5227859	<0.060	<0.060	<0.060	0.060	5243251
Bis(2-chloroisopropyl)ether	mg/kg	<0.20	0.20	5227859	<0.20	<0.20	<0.20	0.20	5243251
Hexachlorobutadiene	mg/kg	<0.050	0.050	5227859	<0.050	<0.050	<0.050	0.050	5243251
Hexachlorocyclopentadiene	mg/kg	<1.0(1)	1.0	5227859	<0.50(1)	<0.50(1)	<0.50(1)	0.50	5243251
Hexachloroethane	mg/kg	<0.060	0.060	5227859	<0.060	<0.060	<0.060	0.060	5243251
Isophorone	mg/kg	<0.060	0.060	5227859	<0.060	<0.060	<0.060	0.060	5243251
Nitrobenzene	mg/kg	<0.070	0.070	5227859	<0.070	<0.070	<0.070	0.070	5243251
N-nitrosodimethylamine	mg/kg	<0.50	0.50	5227859	<0.50	<0.50	<0.50	0.50	5243251
N-nitroso-di-n-propylamine	mg/kg	<0.060	0.060	5227859	<0.060	<0.060	<0.060	0.060	5243251
N-nitrosodiphenylamine	mg/kg	<0.080	0.080	5227859	<0.080	<0.080	<0.080	0.080	5243251
Chlorobenzenes									
1,2,4-trichlorobenzene	mg/kg	<0.060	0.060	5227859	<0.060	<0.060	<0.060	0.060	5243251
1,2-dichlorobenzene	mg/kg	<0.10	0.10	5227859	<0.10	<0.10	<0.10	0.10	5243251
1,3-dichlorobenzene	mg/kg	<0.10	0.10	5227859	<0.10	<0.10	<0.10	0.10	5243251
1,4-dichlorobenzene	mg/kg	<0.10	0.10	5227859	<0.10	<0.10	<0.10	0.10	5243251
Hexachlorobenzene	mg/kg	<0.060	0.060	5227859	<0.060	<0.060	<0.060	0.060	5243251

RDL = Reportable Detection Limit
(1) - RDL raised due to Continuing Calibration Verification below criteria - Pot. low bias

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ0652			BQ0653	BQ0654	BQ0655		
Sampling Date		2011/09/14 09:17			2011/09/14 09:17	2011/09/14 09:17	2011/09/22 09:00		
	UNITS	**M4SE**	**RDL**	**QC Batch**	**M4SE-DUP**	**M4SE-TRIP**	**M8E**	**RDL**	**QC Batch**
Polycyclic Aromatics									
2-Methylnaphthalene	mg/kg	0.041	0.030	5227859	0.035	<0.030	0.10	0.030	5243251
Acenaphthene	mg/kg	<0.090	0.090	5227859	<0.090	<0.090	<0.090	0.090	5243251
Acenaphthylene	mg/kg	<0.090	0.090	5227859	<0.090	<0.090	<0.090	0.090	5243251
Anthracene	mg/kg	<0.080	0.080	5227859	<0.080	<0.080	<0.080	0.080	5243251
Benzo(a)anthracene	mg/kg	0.19	0.070	5227859	<0.070	<0.070	<0.070	0.070	5243251
Benzo(a)pyrene	mg/kg	0.16	0.070	5227859	<0.070	<0.070	<0.070	0.070	5243251
Benzo(b&j)fluoranthene	mg/kg	0.17	0.070	5227859	<0.070	<0.070	<0.070	0.070	5243251
Benzo(g,h,i)perylene	mg/kg	0.097	0.080	5227859	<0.080	<0.080	<0.080	0.080	5243251
Benzo(k)fluoranthene	mg/kg	0.14	0.070	5227859	<0.070	<0.070	<0.070	0.070	5243251
Chrysene	mg/kg	0.19	0.090	5227859	<0.090	<0.090	<0.090	0.090	5243251
Dibenz(a,h)anthracene	mg/kg	<0.080	0.080	5227859	<0.080	<0.080	<0.080	0.080	5243251
Fluoranthene	mg/kg	0.39	0.080	5227859	<0.080	<0.080	<0.080	0.080	5243251
Fluorene	mg/kg	<0.090	0.090	5227859	<0.090	<0.090	<0.090	0.090	5243251
Indeno(1,2,3-cd)pyrene	mg/kg	0.12	0.070	5227859	<0.070	<0.070	<0.070	0.070	5243251
Naphthalene	mg/kg	<0.070	0.070	5227859	<0.070	<0.070	0.092	0.070	5243251
Phenanthrene	mg/kg	0.29	0.080	5227859	0.088	<0.080	<0.080	0.080	5243251
Pyrene	mg/kg	0.33	0.080	5227859	<0.080	<0.080	<0.080	0.080	5243251
Phenols									
2,4 + 2,5-Dichlorophenol	mg/kg	<0.070	0.070	5227859	<0.070	<0.070	<0.070	0.070	5243251
2,4,6-trichlorophenol	mg/kg	<0.070	0.070	5227859	<0.070	<0.070	<0.070	0.070	5243251
2,4-dimethylphenol	mg/kg	<0.050	0.050	5227859	<0.050	<0.050	<0.050	0.050	5243251
2,4-dinitrophenol	mg/kg	<0.50	0.50	5227859	<0.50	<0.50	<0.50	0.50	5243251
2-chlorophenol	mg/kg	<0.080	0.080	5227859	<0.080	<0.080	<0.080	0.080	5243251
2-methylphenol	mg/kg	<0.050	0.050	5227859	<0.050	<0.050	<0.050	0.050	5243251
2-nitrophenol	mg/kg	<0.050	0.050	5227859	<0.050	<0.050	<0.050	0.050	5243251
4,6-dinitro-2-methylphenol	mg/kg	<0.50	0.50	5227859	<0.50	<0.50	<0.50	0.50	5243251
4-chloro-3-methylphenol	mg/kg	<0.070	0.070	5227859	<0.070	<0.070	<0.070	0.070	5243251
4-nitrophenol	mg/kg	<0.050	0.050	5227859	<0.050	<0.050	<0.050	0.050	5243251
Pentachlorophenol	mg/kg	<0.020	0.020	5227859	<0.020	<0.020	<0.020	0.020	5243251
Phenol	mg/kg	0.51	0.060	5227859	0.64	0.64	0.56	0.060	5243251

RDL = Reportable Detection Limit

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ0652			BQ0653	BQ0654	BQ0655		
Sampling Date		2011/09/14 09:17			2011/09/14 09:17	2011/09/14 09:17	2011/09/22 09:00		
	UNITS	**M4SE**	**RDL**	**QC Batch**	**M4SE-DUP**	**M4SE-TRIP**	**M8E**	**RDL**	**QC Batch**
Phthalate Esters									
Bis(2-ethylhexyl)phthalate	mg/kg	<2.0	2.0	5227859	<2.0	<2.0	<2.0	2.0	5243251
Butyl benzyl phthalate	mg/kg	<0.10	0.10	5227859	<0.10	<0.10	<0.10	0.10	5243251
Diethyl phthalate	mg/kg	<0.090	0.090	5227859	<0.090	<0.090	<0.090	0.090	5243251
Dimethyl phthalate	mg/kg	<0.070	0.070	5227859	<0.070	<0.070	<0.070	0.070	5243251
Di-n-butyl phthalate	mg/kg	<0.070	0.070	5227859	<0.070	<0.070	<0.070	0.070	5243251
Di-n-octyl phthalate	mg/kg	<0.10	0.10	5227859	<0.10	<0.10	<0.10	0.10	5243251
Polycyclic Aromatics									
Low Molecular Weight PAH`s	mg/kg	0.33	0.090	5208436	0.12	<0.090	0.19	0.090	5208436
High Molecular Weight PAH`s	mg/kg	1.3	0.090	5208436	<0.090	<0.090	<0.090	0.090	5208436
Total PAH	mg/kg	1.6	0.090	5208436	0.12	<0.090	0.19	0.090	5208436
Surrogate Recovery (%)									
2,4,6-TRIBROMOPHENOL (sur.)	%	114		5227859	80	94	81		5243251
2-FLUOROBIPHENYL (sur.)	%	93		5227859	77	77	74		5243251
TERPHENYL-D14 (sur.)	%	112		5227859	83	82	81		5243251
D5-PHENOL (sur.)	%	92		5227859	77	76	68		5243251
D5-NITROBENZENE (sur.)	%	94		5227859	74	79	73		5243251

RDL = Reportable Detection Limit

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ0656	BQ0657	BQ0658	BQ0659	BQ0660	BQ0661		
Sampling Date		2011/09/20 10:30	2011/09/20 12:30	2011/09/20 13:30	2011/09/19 00:00	2011/09/19 09:30	2011/09/16 13:05		
	UNITS	**PB1**	**PB2**	**PB3**	**C1E**	**C2E**	**C4E**	**RDL**	**QC Batch**
Alcohols									
alpha-Terpineol	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5243251
Base Neutrals									
1,2-diphenylhydrazine	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5243251
2,4-dinitrotoluene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5243251
2,6-dinitrotoluene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5243251
2-chloronaphthalene	mg/kg	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.080	5243251
3,3'-Dichlorobenzidine	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5243251
4-bromophenyl phenyl ether	mg/kg	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5243251
4-chlorophenyl phenyl ether	mg/kg	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5243251
Benzidine	mg/kg	<10	<10	<10	<10	<10	<10	10	5243251
Bis(2-chloroethoxy)methane	mg/kg	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.080	5243251
Bis(2-chloroethyl)ether	mg/kg	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5243251
Bis(2-chloroisopropyl)ether	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5243251
Hexachlorobutadiene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5243251
Hexachlorocyclopentadiene	mg/kg	<0.50(1)	<0.50(1)	<0.50(1)	<0.50(1)	<0.50(1)	<0.50(1)	0.50	5243251
Hexachloroethane	mg/kg	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5243251
Isophorone	mg/kg	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5243251
Nitrobenzene	mg/kg	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5243251
N-nitrosodimethylamine	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5243251
N-nitroso-di-n-propylamine	mg/kg	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5243251
N-nitrosodiphenylamine	mg/kg	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.080	5243251
Chlorobenzenes									
1,2,4-trichlorobenzene	mg/kg	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5243251
1,2-dichlorobenzene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5243251
1,3-dichlorobenzene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5243251
1,4-dichlorobenzene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5243251
Hexachlorobenzene	mg/kg	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5243251

RDL = Reportable Detection Limit
(1) - RDL raised due to Continuing Calibration Verification below criteria - Pot. low bias

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ0656	BQ0657	BQ0658	BQ0659	BQ0660	BQ0661		
Sampling Date		2011/09/20 10:30	2011/09/20 12:30	2011/09/20 13:30	2011/09/19 00:00	2011/09/19 09:30	2011/09/16 13:05		
	UNITS	**PB1**	**PB2**	**PB3**	**C1E**	**C2E**	**C4E**	**RDL**	**QC Batch**
Polycyclic Aromatics									
2-Methylnaphthalene	mg/kg	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	5243251
Acenaphthene	mg/kg	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	0.090	5243251
Acenaphthylene	mg/kg	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	0.090	5243251
Anthracene	mg/kg	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.080	5243251
Benzo(a)anthracene	mg/kg	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5243251
Benzo(a)pyrene	mg/kg	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5243251
Benzo(b&j)fluoranthene	mg/kg	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5243251
Benzo(g,h,i)perylene	mg/kg	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.080	5243251
Benzo(k)fluoranthene	mg/kg	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5243251
Chrysene	mg/kg	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	0.090	5243251
Dibenz(a,h)anthracene	mg/kg	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.080	5243251
Fluoranthene	mg/kg	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.080	5243251
Fluorene	mg/kg	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	0.090	5243251
Indeno(1,2,3-cd)pyrene	mg/kg	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5243251
Naphthalene	mg/kg	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5243251
Phenanthrene	mg/kg	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.080	5243251
Pyrene	mg/kg	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.080	5243251
Phenols									
2,4 + 2,5-Dichlorophenol	mg/kg	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5243251
2,4,6-trichlorophenol	mg/kg	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5243251
2,4-dimethylphenol	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5243251
2,4-dinitrophenol	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5243251
2-chlorophenol	mg/kg	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.080	5243251
2-methylphenol	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5243251
2-nitrophenol	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5243251
4,6-dinitro-2-methylphenol	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5243251
4-chloro-3-methylphenol	mg/kg	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5243251
4-nitrophenol	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5243251
Pentachlorophenol	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5243251
Phenol	mg/kg	0.28	0.12	0.29	1.3	0.74	0.66	0.060	5243251

RDL = Reportable Detection Limit

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ0656	BQ0657	BQ0658	BQ0659	BQ0660	BQ0661		
Sampling Date		2011/09/20 10:30	2011/09/20 12:30	2011/09/20 13:30	2011/09/19 00:00	2011/09/19 09:30	2011/09/16 13:05		
	UNITS	**PB1**	**PB2**	**PB3**	**C1E**	**C2E**	**C4E**	**RDL**	**QC Batch**
Phthalate Esters									
Bis(2-ethylhexyl)phthalate	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5243251
Butyl benzyl phthalate	mg/kg	<0.10	<0.10	<0.10	<0.10	0.85	<0.10	0.10	5243251
Diethyl phthalate	mg/kg	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	0.090	5243251
Dimethyl phthalate	mg/kg	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.070	5243251
Di-n-butyl phthalate	mg/kg	<0.070	<0.070	<0.070	<0.070	0.22	<0.070	0.070	5243251
Di-n-octyl phthalate	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5243251
Polycyclic Aromatics									
Low Molecular Weight PAH`s	mg/kg	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	0.090	5208436
High Molecular Weight PAH`s	mg/kg	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	0.090	5208436
Total PAH	mg/kg	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	0.090	5208436
Surrogate Recovery (%)									
2,4,6-TRIBROMOPHENOL (sur.)	%	66	57	81	78	100	98		5243251
2-FLUOROBIPHENYL (sur.)	%	78	74	73	74	77	74		5243251
TERPHENYL-D14 (sur.)	%	81	82	82	80	85	84		5243251
D5-PHENOL (sur.)	%	74	62	69	75	81	72		5243251
D5-NITROBENZENE (sur.)	%	76	65	66	71	71	70		5243251

MERCURY BY COLD VAPOR (SEDIMENT)

Maxxam ID		BQ0637	BQ0638	BQ0639	BQ0640	BQ0641	BQ0642	BQ0643	BQ0644	BQ0645		
Sampling Date		2011/09/15 11:35	2011/09/15 12:00	2011/09/16 10:25	2011/09/14 13:40	2011/09/14 15:21	2011/09/21 13:00	2011/09/21 13:00	2011/09/21 13:00	2011/09/16 09:15		
	UNITS	**M1NW**	**M1S**	**M1SE**	**M1SW**	**M1W**	**M2E**	**M2E-DUP**	**M2E-TRIP**	**M2SE**	**RDL**	**QC Batch**
Elements												
Total Mercury (Hg)	mg/kg	0.359(1)	0.0792	0.0679	0.0484	0.0593	0.0885	0.0495	0.0670	0.0726	0.0050	5226242

RDL = Reportable Detection Limit
(1) - Duplicate exceeds acceptance criteria due to sample matrix. Reanalysis yields similar results

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CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

MERCURY BY COLD VAPOR (SEDIMENT)

Maxxam ID		BQ0646	BQ0647	BQ0648		BQ0649	BQ0650	BQ0651	BQ0652	BQ0653		
Sampling Date		2011/09/15 13:16	2011/09/15 13:16	2011/09/15 13:16		2011/09/14 14:38	2011/09/21 09:15	2011/09/14 10:06	2011/09/14 09:17	2011/09/14 09:17		
	UNITS	**M2NE**	**M2NE**	**M2NE**	**QC Batch**	**M0**	**M1E**	**M4E**	**M4SE**	**M4SE-DUP**	**RDL**	**QC Batch**
Elements												
Total Mercury (Hg)	mg/kg	0.0454	0.0555	0.0585	5226242	0.113(1)	0.0893	0.0494	0.0528	0.0482	0.0050	5226311

Maxxam ID		BQ0654	BQ0655	BQ0656	BQ0657	BQ0658	BQ0659	BQ0660	BQ0661		
Sampling Date		2011/09/14 09:17	2011/09/22 09:00	2011/09/20 10:30	2011/09/20 12:30	2011/09/20 13:30	2011/09/19 00:00	2011/09/19 09:30	2011/09/16 13:05		
	UNITS	**M4SE-TRIP**	**M8E**	**PB1**	**PB2**	**PB3**	**C1E**	**C2E**	**C4E**	**RDL**	**QC Batch**
Elements											
Total Mercury (Hg)	mg/kg	0.0432	0.0536	0.0306	0.0934	0.0513	0.0714	0.0656	0.0363	0.0050	5226311

RDL = Reportable Detection Limit
(1) - Duplicate exceeds acceptance criteria due to sample matrix. Reanalysis yields similar results

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)

Maxxam ID		BQ0637	BQ0638	BQ0639	BQ0640	BQ0641	BQ0642	BQ0643	BQ0644	BQ0645		
Sampling Date		2011/09/15 11:35	2011/09/15 12:00	2011/09/16 10:25	2011/09/14 13:40	2011/09/14 15:21	2011/09/21 13:00	2011/09/21 13:00	2011/09/21 13:00	2011/09/16 09:15		
	UNITS	**M1NW**	**M1S**	**M1SE**	**M1SW**	**M1W**	**M2E**	**M2E-DUP**	**M2E-TRIP**	**M2SE**	**RDL**	**QC Batch**
SEM Metals by ICPMS												
SEM Cadmium (Cd)	umole/g	0.00206	0.00797	0.0102	0.00933	0.00483	0.00206	0.0146	0.00615	0.00643	0.00020	5223505
SEM Copper (Cu)	umole/g	0.166	0.683	0.574	0.239	0.234	0.133	0.195	0.224	0.293	0.0040	5223505
SEM Lead (Pb)	umole/g	0.0359	0.146	0.178	0.0621	0.0376	0.0264	0.230	0.0588	0.0442	0.00020	5223505
SEM Mercury (Hg)	umole/g	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00030	5223505
SEM Nickel (Ni)	umole/g	0.297	0.383	0.224	0.228	0.215	0.159	0.220	0.212	0.247	0.0040	5223505
SEM Zinc (Zn)	umole/g	0.869	2.31	1.75	0.772	0.681	0.494	0.632	0.676	0.768	0.0080	5223505

RDL = Reportable Detection Limit

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CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)

Maxxam ID		BQ0637	BQ0638	BQ0639	BQ0640	BQ0641	BQ0642	BQ0643	BQ0644	BQ0645		
Sampling Date		2011/09/15 11:35	2011/09/15 12:00	2011/09/16 10:25	2011/09/14 13:40	2011/09/14 15:21	2011/09/21 13:00	2011/09/21 13:00	2011/09/21 13:00	2011/09/16 09:15		
	UNITS	**M1NW**	**M1S**	**M1SE**	**M1SW**	**M1W**	**M2E**	**M2E-DUP**	**M2E-TRIP**	**M2SE**	**RDL**	**QC Batch**
Total Metals by ICPMS												
Total Aluminum (Al)	mg/kg	13100	12500	11500	12000	12200	14100	12200	14400	10900	100	5222556
Total Antimony (Sb)	mg/kg	0.25	0.59	0.48	21.4	0.55	0.29	0.46	0.47	1.07	0.10	5222556
Total Arsenic (As)	mg/kg	4.69	6.75	8.62	5.31	6.95	7.14	6.56	7.44	7.89	0.50	5222556
Total Barium (Ba)	mg/kg	39.1	59.8	116	35.3	44.7	48.4	35.1	37.3	44.4	0.10	5222556
Total Beryllium (Be)	mg/kg	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	5222556
Total Bismuth (Bi)	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	3.40	<0.10	<0.10	<0.10	0.10	5222556
Total Cadmium (Cd)	mg/kg	0.736	2.24	1.76	1.85	2.66	0.874	0.835	0.549	1.65	0.050	5222556
Total Calcium (Ca)	mg/kg	4590	5730	5710	4200	4820	5250	4550	5600	4420	100	5222556
Total Chromium (Cr)	mg/kg	24.6	25.2	24.2	22.8	24.9	27.6	23.0	26.7	21.7	1.0	5222556
Total Cobalt (Co)	mg/kg	6.97	7.12	6.54	9.03	6.59	7.95	6.27	7.59	6.16	0.30	5222556
Total Copper (Cu)	mg/kg	16.0	73.5	94.2	29.4	79.8	37.2	23.6	25.9	34.3	0.50	5222556
Total Iron (Fe)	mg/kg	25700	24300	21400	22900	23800	27800	22800	28500	22000	100	5222556
Total Lead (Pb)	mg/kg	8.09	23.5	37.4	162	13.0	11.3	9.84	21.6	59.0	0.10	5222556
Total Lithium (Li)	mg/kg	20.5	18.9	16.3	19.5	18.8	22.6	17.9	21.4	16.9	5.0	5222556
Total Magnesium (Mg)	mg/kg	7200	6770	6140	6390	6660	8020	6690	7750	6220	100	5222556
Total Manganese (Mn)	mg/kg	195	188	169	181	182	224	183	221	170	0.20	5222556
Total Molybdenum (Mo)	mg/kg	0.81	2.57	4.29	2.43	2.39	1.71	1.74	1.97	4.76	0.10	5222556
Total Nickel (Ni)	mg/kg	19.3	42.0	19.2	19.8	18.4	21.7	17.5	21.8	17.7	0.80	5222556
Total Phosphorus (P)	mg/kg	546	868	880	605	787	729	590	688	638	10	5222556
Total Potassium (K)	mg/kg	2030	1870	1680	1830	1800	2140	1770	2060	1610	100	5222556
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.61	0.50	5222556
Total Silver (Ag)	mg/kg	0.109	0.513	0.255	0.082	1.20	0.092	0.056	0.074	0.286	0.050	5222556
Total Sodium (Na)	mg/kg	7210	5630	6680	5670	5500	7070	7090	7390	5430	100	5222556
Total Strontium (Sr)	mg/kg	40.0	81.2	73.0	33.6	41.3	40.4	35.5	43.6	41.0	0.10	5222556
Total Thallium (Tl)	mg/kg	0.111	0.122	0.143	0.121	0.133	0.142	0.114	0.139	0.142	0.050	5222556
Total Tin (Sn)	mg/kg	6.47	21.1	12.2	15.4	24.8	7.04	6.57	3.69	12.7	0.10	5222556
Total Titanium (Ti)	mg/kg	752	680	621	687	740	780	686	876	606	1.0	5222556
Total Vanadium (V)	mg/kg	45.6	45.1	40.8	42.8	43.7	51.2	43.5	51.3	42.7	2.0	5222556
Total Zinc (Zn)	mg/kg	60.9	69.6	101	67.1	77.2	81.7	62.3	77.5	120	1.0	5222556

RDL = Reportable Detection Limit

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)

Maxxam ID		BQ0646	BQ0647	BQ0648		BQ0649	BQ0650	BQ0651	BQ0652	BQ0653		
Sampling Date		2011/09/15 13:16	2011/09/15 13:16	2011/09/15 13:16		2011/09/14 14:38	2011/09/21 09:15	2011/09/14 10:06	2011/09/14 09:17	2011/09/14 09:17		
	UNITS	**M2NE**	**M2NE**	**M2NE**	**QC Batch**	**M0**	**M1E**	**M4E**	**M4SE**	**M4SE-DUP**	**RDL**	**QC Batch**
SEM Metals by ICPMS												
SEM Cadmium (Cd)	umole/g	0.00580	0.00341	0.00186	5223505	0.0204	0.0242	0.00347	0.00214	0.00850	0.00020	5221365
SEM Copper (Cu)	umole/g	0.543	0.186	0.114	5223505	1.14	0.203	0.267	0.131	0.215	0.0040	5221365
SEM Lead (Pb)	umole/g	0.0657	0.0375	0.0252	5223505	0.0782	0.0280	0.0388	0.105	0.126	0.00020	5221365
SEM Mercury (Hg)	umole/g	<0.00030	<0.00030	<0.00030	5223505	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00030	5221365
SEM Nickel (Ni)	umole/g	0.385	0.213	0.165	5223505	0.194	0.135	0.204	0.168	0.228	0.0040	5221365
SEM Zinc (Zn)	umole/g	1.34	0.658	0.517	5223505	0.951	1.17	0.636	0.517	0.726	0.0080	5221365

RDL = Reportable Detection Limit

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)

Maxxam ID		BQ0646	BQ0647	BQ0648		BQ0649	BQ0650	BQ0651	BQ0652	BQ0653		
Sampling Date		2011/09/15 13:16	2011/09/15 13:16	2011/09/15 13:16		2011/09/14 14:38	2011/09/21 09:15	2011/09/14 10:06	2011/09/14 09:17	2011/09/14 09:17		
	UNITS	**M2NE**	**M2NE**	**M2NE**	**QC Batch**	**M0**	**M1E**	**M4E**	**M4SE**	**M4SE-DUP**	**RDL**	**QC Batch**
Total Metals by ICPMS												
Total Aluminum (Al)	mg/kg	13100	12100	12200	5222556	13100	11700	12300	12100	11800	100	5222675
Total Antimony (Sb)	mg/kg	0.31	4.16	0.19	5222556	2.02	6.39	0.49	0.43	0.85	0.10	5222675
Total Arsenic (As)	mg/kg	6.41	6.29	5.96	5222556	8.73	11.1	6.67	6.81	5.50	0.50	5222675
Total Barium (Ba)	mg/kg	48.2	34.2	36.8	5222556	107	42.9	43.5	43.5	82.6	0.10	5222675
Total Beryllium (Be)	mg/kg	<0.40	<0.40	<0.40	5222556	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	5222675
Total Bismuth (Bi)	mg/kg	0.70	0.16	<0.10	5222556	0.63	0.11	<0.10	<0.10	<0.10	0.10	5222675
Total Cadmium (Cd)	mg/kg	2.64	3.57	0.457	5222556	7.13(1)	1.88	0.537	3.73	1.13	0.050	5222675
Total Calcium (Ca)	mg/kg	5610	4730	4570	5222556	7580	5370	6640	6150	6210	100	5222675
Total Chromium (Cr)	mg/kg	24.6	24.7	22.3	5222556	110(1)	25.2	24.4	22.2	22.4	1.0	5222675
Total Cobalt (Co)	mg/kg	6.77	6.54	6.23	5222556	7.60	6.12	6.24	6.34	6.38	0.30	5222675
Total Copper (Cu)	mg/kg	20.0	17.8	16.0	5222556	179(1)	52.0	17.7	35.8	21.0	0.50	5222675
Total Iron (Fe)	mg/kg	24700	23600	22700	5222556	24200	22000	25500	23300	23000	100	5222675
Total Lead (Pb)	mg/kg	13.2	226	9.85	5222556	118(1)	90.2	10.3	97.4	57.1	0.10	5222675
Total Lithium (Li)	mg/kg	20.2	19.2	18.6	5222556	14.9	17.4	19.7	19.2	17.1	5.0	5222675
Total Magnesium (Mg)	mg/kg	7010	6620	6810	5222556	6410	6860	6760	6910	6720	100	5222675
Total Manganese (Mn)	mg/kg	191	184	179	5222556	221	170	184	184	188	0.20	5222675
Total Molybdenum (Mo)	mg/kg	1.89	1.21	1.25	5222556	3.47	4.89	1.29	1.76	1.68	0.10	5222675
Total Nickel (Ni)	mg/kg	19.5	18.1	17.4	5222556	61.0(1)	17.8	18.0	17.8	17.7	0.80	5222675
Total Phosphorus (P)	mg/kg	625	607	611	5222556	1200	927	674	590	612	10	5222675
Total Potassium (K)	mg/kg	2020	1910	1870	5222556	1510	1970	1890	1850	1820	100	5222675
Total Selenium (Se)	mg/kg	0.65	<0.50	<0.50	5222556	<0.50	<0.50	<0.50	0.53	<0.50	0.50	5222675
Total Silver (Ag)	mg/kg	0.068	0.063	0.073	5222556	0.400(2)	0.974	0.072	0.067	0.058	0.050	5222675
Total Sodium (Na)	mg/kg	7190	6920	7240	5222556	4620	9460	7240	6580	7400	100	5222675
Total Strontium (Sr)	mg/kg	41.4	37.2	35.8	5222556	64.4	49.0	52.9	47.1	55.2	0.10	5222675
Total Thallium (Tl)	mg/kg	0.116	0.106	0.109	5222556	0.123	0.144	0.094	0.112	0.107	0.050	5222675
Total Tin (Sn)	mg/kg	25.7	37.3	2.97	5222556	69.1(1)	13.9	3.87	39.0	9.77	0.10	5222675
Total Titanium (Ti)	mg/kg	791	718	676	5222556	728	625	707	638	698	1.0	5222675
Total Vanadium (V)	mg/kg	46.6	43.4	42.4	5222556	49.5	43.8	44.5	43.4	43.9	2.0	5222675
Total Zinc (Zn)	mg/kg	69.2	58.3	59.4	5222556	112(1)	80.5	75.7	59.2	71.5	1.0	5222675

RDL = Reportable Detection Limit
(1) - Duplicate exceeds acceptance criteria due to sample non homogeneity. Reanalysis yields similar results.
(2) - Matrix Spike exceeds acceptance limits for Ag. Reanalysis yields similar results.

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)

Maxxam ID		BQ0654	BQ0655	BQ0656	BQ0657	BQ0658	BQ0659	BQ0660	BQ0661		
Sampling Date		2011/09/14 09:17	2011/09/22 09:00	2011/09/20 10:30	2011/09/20 12:30	2011/09/20 13:30	2011/09/19 00:00	2011/09/19 09:30	2011/09/16 13:05		
	UNITS	**M4SE-TRIP**	**M8E**	**PB1**	**PB2**	**PB3**	**C1E**	**C2E**	**C4E**	**RDL**	**QC Batch**
SEM Metals by ICPMS											
SEM Cadmium (Cd)	umole/g	0.00438	0.00130	0.00137	0.00167	0.00066	0.00289	0.00401	0.00191	0.00020	5221365
SEM Copper (Cu)	umole/g	0.201	0.124	0.121	0.145	0.0950	0.288	0.145	0.110	0.0040	5221365
SEM Lead (Pb)	umole/g	0.0582	0.0253	0.0275	0.0293	0.0218	0.0140	0.0189	0.0178	0.00020	5221365
SEM Mercury (Hg)	umole/g	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00030	5221365
SEM Nickel (Ni)	umole/g	0.297	0.164	0.268	0.353	0.171	0.129	0.201	0.168	0.0040	5221365
SEM Zinc (Zn)	umole/g	2.40	0.470	0.696	0.824	0.489	0.625	0.594	0.490	0.0080	5221365

RDL = Reportable Detection Limit

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)

Maxxam ID		BQ0654	BQ0655	BQ0656	BQ0657	BQ0658	BQ0659	BQ0660	BQ0661		
Sampling Date		2011/09/14 09:17	2011/09/22 09:00	2011/09/20 10:30	2011/09/20 12:30	2011/09/20 13:30	2011/09/19 00:00	2011/09/19 09:30	2011/09/16 13:05		
	UNITS	**M4SE-TRIP**	**M8E**	**PB1**	**PB2**	**PB3**	**C1E**	**C2E**	**C4E**	**RDL**	**QC Batch**
Total Metals by ICPMS											
Total Aluminum (Al)	mg/kg	11700	13400	11000	10700	13200	8250	8050	8000	100	5222675
Total Antimony (Sb)	mg/kg	0.25	0.34	0.13	0.12	0.16	0.18	0.16	0.15	0.10	5222675
Total Arsenic (As)	mg/kg	4.33	4.56	3.99	4.21	4.14	6.13	4.99	3.38	0.50	5222675
Total Barium (Ba)	mg/kg	53.5	69.7	24.5	24.1	30.4	38.9	18.7	19.6	0.10	5222675
Total Beryllium (Be)	mg/kg	<0.40	0.41	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	5222675
Total Bismuth (Bi)	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5222675
Total Cadmium (Cd)	mg/kg	1.83	0.941	0.088	0.100	0.094	0.524	0.487	0.183	0.050	5222675
Total Calcium (Ca)	mg/kg	5250	6220	5170	5830	5080	8450	11900	26300	100	5222675
Total Chromium (Cr)	mg/kg	21.7	24.5	23.4	23.5	24.5	18.8	19.8	16.3	1.0	5222675
Total Cobalt (Co)	mg/kg	6.42	7.52	6.97	6.87	7.11	5.87	6.17	6.51	0.30	5222675
Total Copper (Cu)	mg/kg	28.4	16.8	10.6	10.3	13.2	89.0	15.2	14.1	0.50	5222675
Total Iron (Fe)	mg/kg	23400	25700	24000	24300	26400	17200	17600	17900	100	5222675
Total Lead (Pb)	mg/kg	14.2	12.5	5.59	5.31	6.74	6.76	8.87	4.39	0.10	5222675
Total Lithium (Li)	mg/kg	18.1	20.5	18.1	17.3	20.4	11.7	11.4	11.2	5.0	5222675
Total Magnesium (Mg)	mg/kg	6480	7060	6660	6820	7460	5390	5380	5540	100	5222675
Total Manganese (Mn)	mg/kg	183	205	196	194	207	172	164	189	0.20	5222675
Total Molybdenum (Mo)	mg/kg	1.43	0.57	0.27	0.26	0.32	2.43	1.97	0.39	0.10	5222675
Total Nickel (Ni)	mg/kg	17.5	19.4	18.4	18.6	19.3	16.1	16.0	15.7	0.80	5222675
Total Phosphorus (P)	mg/kg	634	668	575	534	632	578	557	485	10	5222675
Total Potassium (K)	mg/kg	1760	2000	1640	1710	2020	1280	1300	1300	100	5222675
Total Selenium (Se)	mg/kg	<0.50	0.73	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5222675
Total Silver (Ag)	mg/kg	0.059	1.31	<0.050	<0.050	<0.050	2.65	0.094	<0.050	0.050	5222675
Total Sodium (Na)	mg/kg	5600	7520	4850	5200	6800	3420	3060	3370	100	5222675
Total Strontium (Sr)	mg/kg	59.5	60.7	32.3	33.5	35.3	60.2	59.0	144	0.10	5222675
Total Thallium (Tl)	mg/kg	0.116	0.090	0.103	0.118	0.083	0.162	0.186	0.165	0.050	5222675
Total Tin (Sn)	mg/kg	17.4	9.54	0.60	0.35	0.49	0.69	0.66	0.84	0.10	5222675
Total Titanium (Ti)	mg/kg	674	793	697	659	747	419	489	511	1.0	5222675
Total Vanadium (V)	mg/kg	42.4	45.9	43.3	42.4	46.8	37.4	39.3	37.6	2.0	5222675
Total Zinc (Zn)	mg/kg	65.8	65.8	48.6	48.7	56.1	48.1	43.6	35.4	1.0	5222675

RDL = Reportable Detection Limit

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

VOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ0637	BQ0638	BQ0639	BQ0640	BQ0641	BQ0642	BQ0643		
Sampling Date		2011/09/15 11:35	2011/09/15 12:00	2011/09/16 10:25	2011/09/14 13:40	2011/09/14 15:21	2011/09/21 13:00	2011/09/21 13:00		
	UNITS	**M1NW**	**M1S**	**M1SE**	**M1SW**	**M1W**	**M2E**	**M2E-DUP**	**RDL**	**QC Batch**
Parameter										
Extractable (MeOH) 4-Methyl-2-pentanone (MIBK)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5220983
Volatiles										
Extractable (MeOH) 2-Butanone (MEK)	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	5220983
Extractable (MeOH) Acetone	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	5220983
Surrogate Recovery (%)										
Extractable (MeOH) 4-BROMOFLUOROBENZENE (sur.)	%	102	99	105	105	103	93	104		5220983
Extractable (MeOH) D4-1,2-DICHLOROETHANE (sur.)	%	108	97	111	105	106	83	107		5220983
Extractable (MeOH) D8-TOLUENE (sur.)	%	99	101	102	100	101	100	101		5220983

Maxxam ID		BQ0644	BQ0645	BQ0646	BQ0647	BQ0648		BQ0649	BQ0650		
Sampling Date		2011/09/21 13:00	2011/09/16 09:15	2011/09/15 13:16	2011/09/15 13:16	2011/09/15 13:16		2011/09/14 14:38	2011/09/21 09:15		
	UNITS	**M2E-TRIP**	**M2SE**	**M2NE**	**M2NE**	**M2NE**	**QC Batch**	**M0**	**M1E**	**RDL**	**QC Batch**
Parameter											
Extractable (MeOH) 4-Methyl-2-pentanone (MIBK)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	5220983	<0.50	<0.50	0.50	5220931
Volatiles											
Extractable (MeOH) 2-Butanone (MEK)	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	5220983	<5.0	<5.0	5.0	5220931
Extractable (MeOH) Acetone	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	5220983	<5.0	<5.0	5.0	5220931
Surrogate Recovery (%)											
Extractable (MeOH) 4-BROMOFLUOROBENZENE (sur.)	%	105	95	97	105	106	5220983	101	105		5220931
Extractable (MeOH) D4-1,2-DICHLOROETHANE (sur.)	%	109	86	94	110	112	5220983	105	111		5220931
Extractable (MeOH) D8-TOLUENE (sur.)	%	101	103	100	101	100	5220983	100	101		5220931

RDL = Reportable Detection Limit

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

VOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ0651	BQ0652	BQ0653	BQ0654	BQ0655	BQ0656	BQ0657		
Sampling Date		2011/09/14 10:06	2011/09/14 09:17	2011/09/14 09:17	2011/09/14 09:17	2011/09/22 09:00	2011/09/20 10:30	2011/09/20 12:30		
	UNITS	**M4E**	**M4SE**	**M4SE-DUP**	**M4SE-TRIP**	**M8E**	**PB1**	**PB2**	**RDL**	**QC Batch**
Parameter										
Extractable (MeOH) 4-Methyl-2-pentanone (MIBK)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5220931
Volatiles										
Extractable (MeOH) 2-Butanone (MEK)	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	5220931
Extractable (MeOH) Acetone	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	5220931
Surrogate Recovery (%)										
Extractable (MeOH) 4-BROMOFLUOROBENZENE (sur.)	%	91	105	105	106	105	100	102		5220931
Extractable (MeOH) D4-1,2-DICHLOROETHANE (sur.)	%	80	107	106	110	108	104	104		5220931
Extractable (MeOH) D8-TOLUENE (sur.)	%	100	100	101	102	100	100	100		5220931

Maxxam ID		BQ0658	BQ0659	BQ0660	BQ0661		
Sampling Date		2011/09/20 13:30	2011/09/19 00:00	2011/09/19 09:30	2011/09/16 13:05		
	UNITS	**PB3**	**C1E**	**C2E**	**C4E**	**RDL**	**QC Batch**
Parameter							
Extractable (MeOH) 4-Methyl-2-pentanone (MIBK)	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	5220931
Volatiles							
Extractable (MeOH) 2-Butanone (MEK)	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	5220931
Extractable (MeOH) Acetone	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	5220931
Surrogate Recovery (%)							
Extractable (MeOH) 4-BROMOFLUOROBENZENE (sur.)	%	103	102	99	99		5220931
Extractable (MeOH) D4-1,2-DICHLOROETHANE (sur.)	%	108	106	106	106		5220931
Extractable (MeOH) D8-TOLUENE (sur.)	%	101	100	98	99		5220931

MISCELLANEOUS (SEDIMENT)

Maxxam ID		BQ0637	BQ0638	BQ0639	BQ0640	BQ0641	BQ0642	BQ0643	BQ0644	BQ0645	BQ0646		
Sampling Date		2011/09/15 11:35	2011/09/15 12:00	2011/09/16 10:25	2011/09/14 13:40	2011/09/14 15:21	2011/09/21 13:00	2011/09/21 13:00	2011/09/21 13:00	2011/09/16 09:15	2011/09/15 13:16		
	UNITS	**M1NW**	**M1S**	**M1SE**	**M1SW**	**M1W**	**M2E**	**M2E-DUP**	**M2E-TRIP**	**M2SE**	**M2NE**	**RDL**	**QC Batch**
Misc. Inorganics													
Total Organic Carbon (C)	%	0.74	1.9	2.1	1.1	1.4	1.3	1.3	0.95	2.6	1.5	0.020	5270772

RDL = Reportable Detection Limit

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Maxxam Job #: B191064
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CAPITAL REGIONAL DISTRICT
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Sampler Initials: SL

MISCELLANEOUS (SEDIMENT)

Maxxam ID		BQ0647	BQ0648		BQ0649		BQ0650	BQ0651	BQ0652	BQ0653	BQ0654		
Sampling Date		2011/09/15 13:16	2011/09/15 13:16		2011/09/14 14:38		2011/09/21 09:15	2011/09/14 10:06	2011/09/14 09:17	2011/09/14 09:17	2011/09/14 09:17		
	UNITS	**M2NE**	**M2NE**	**RDL**	**M0**	**RDL**	**M1E**	**M4E**	**M4SE**	**M4SE-DUP**	**M4SE-TRIP**	**RDL**	**QC Batch**
Misc. Inorganics													
Total Organic Carbon (C)	%	0.90	1.1	0.020	3.0(1)	0.040	2.7	1.0	2.4	1.6	2.2	0.020	5270772

Maxxam ID		BQ0655	BQ0656		BQ0657	BQ0658	BQ0659	BQ0660	BQ0661	BQ8684	BQ8685		
Sampling Date		2011/09/22 09:00	2011/09/20 10:30		2011/09/20 12:30	2011/09/20 13:30	2011/09/19 00:00	2011/09/19 09:30	2011/09/16 13:05	2011/09/22	2011/09/22		
	UNITS	**M8E**	**PB1**	**QC Batch**	**PB2**	**PB3**	**C1E**	**C2E**	**C4E**	**M1NW**	**M1SE**	**RDL**	**QC Batch**
Misc. Inorganics													
Total Nitrogen	%									<0.20	<0.20	0.20	5283706
Total Organic Carbon (C)	%	1.0	0.56	5270772	0.48	0.65	1.0	0.70	0.56			0.020	5278392

Maxxam ID		BQ8686	BQ8687	BQ8688	BQ8689	BQ8690	BQ8691	BQ8692	BQ8693	BQ8694	BQ8695		
Sampling Date		2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22		
	UNITS	**M2E**	**M1E**	**M4E**	**M8E**	**PB1**	**PB2**	**PB3**	**C1E**	**C2E**	**C4E**	**RDL**	**QC Batch**
Misc. Inorganics													
Total Nitrogen	%	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5283706

RDL = Reportable Detection Limit
(1) - Detection limits raised due to dilution to bring analyte within the calibrated range.

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RESULTS OF CHEMICAL ANALYSES OF TISSUE

Maxxam ID		CF2950	CF2951		CF2952		CF2953		CF2954		CF2955		CF2957		
Sampling Date		2011/09/22	2011/09/22		2011/09/22		2011/09/22		2011/09/22		2011/09/22		2011/09/22		
	UNITS	**T=0**	**T=0 DUPLICATE**	**RDL**	**T=0 TRIPLICATE**	**RDL**	**M2E T=28**	**RDL**	**M1E T=28**	**RDL**	**M8E T=28**	**RDL**	**PB1 T=28**	**RDL**	**QC Batch**
Metals															
Hex. Chromium (Cr 6+)	mg/kg	<18(1)		18	<8.0(1)	8.0	<7.0(1)	7.0	<12(1)	12	<7.0(1)	7.0	<8.0(1)	8.0	5480683
Parameter															
Lipid Content	%	23.1	14.5	0.10	15.7	0.10	13.0	0.10	22.3	0.10	17.3	0.10	40.0	0.10	5479581

ELEMENTS BY ATOMIC SPECTROSCOPY - DRY WT (TISSUE)

Maxxam ID		CF2950	CF2951	CF2952	CF2953	CF2954	CF2955	CF2957		
Sampling Date		2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22		
	UNITS	**T=0**	**T=0 DUPLICATE**	**T=0 TRIPLICATE**	**M2E T=28**	**M1E T=28**	**M8E T=28**	**PB1 T=28**	**RDL**	**QC Batch**
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	6.1	345	20.3	10.2	23.4	7.3	13.0	1.0	5394000
Total Antimony (Sb)	mg/kg	0.0337	0.0331	0.0483	0.0433	0.0551	0.0221	0.0191	0.0050	5394000
Total Arsenic (As)	mg/kg	19.5	14.5	17.4	13.9	14.6	12.4	15.1	0.050	5394000
Total Beryllium (Be)	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5394000
Total Cadmium (Cd)	mg/kg	0.296	0.226	0.286	0.278	0.328	0.310	0.326	0.010	5394000
Total Chromium (Cr)	mg/kg	<0.50	1.46	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5394000
Total Copper (Cu)	mg/kg	20.5	36.0	28.0	12.2	14.4	10.6	9.51	0.050	5394000
Total Iron (Fe)	mg/kg	562	948	531	424	496	363	467	10	5394000
Total Lead (Pb)	mg/kg	1.26	2.19	1.71	0.836	1.21	0.752	0.816	0.010	5394000
Total Magnesium (Mg)	mg/kg	6390	5390	4910	5290	6030	4890	5460	10	5394000
Total Manganese (Mn)	mg/kg	6.95	12.9	10.5	2.32	8.31	3.74	4.54	0.20	5394000
Total Mercury (Hg)	mg/kg	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	0.15	5394000
Total Nickel (Ni)	mg/kg	1.32	1.37	1.23	1.25	2.54	1.04	0.91	0.50	5394000
Total Selenium (Se)	mg/kg	1.62	1.23	1.29	1.57	1.63	1.22	1.38	0.050	5394000
Total Silver (Ag)	mg/kg	0.196	0.145	0.165	0.109	0.103	0.107	0.155	0.020	5394000
Total Thallium (Tl)	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	5394000
Total Zinc (Zn)	mg/kg	185	193	196	54.9	218	102	151	0.20	5394000

RDL = Reportable Detection Limit
(1) - Detection limits raised due to limited sample.

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ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		CF2950	CF2951	CF2952	CF2953	CF2954	CF2955	CF2957		
Sampling Date		2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22		
	UNITS	**T=0**	**T=0 DUPLICATE**	**T=0 TRIPLICATE**	**M2E T=28**	**M1E T=28**	**M8E T=28**	**PB1 T=28**	**RDL**	**QC Batch**
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	0.53	33.5	2.09	1.27	2.67	0.97	1.62	0.20	5470932
Total Antimony (Sb)	mg/kg	0.0029	0.0032	0.0050	0.0054	0.0063	0.0029	0.0024	0.0010	5470932
Total Arsenic (As)	mg/kg	1.69	1.40	1.79	1.72	1.66	1.65	1.88	0.010	5470932
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5470932
Total Cadmium (Cd)	mg/kg	0.0258	0.0219	0.0295	0.0345	0.0374	0.0412	0.0408	0.0020	5470932
Total Chromium (Cr)	mg/kg	<0.10	0.14	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5470932
Total Copper (Cu)	mg/kg	1.78	3.49	2.88	1.51	1.64	1.41	1.19	0.010	5470932
Total Iron (Fe)	mg/kg	48.9	91.9	54.7	52.6	56.5	48.2	58.4	2.0	5470932
Total Lead (Pb)	mg/kg	0.110	0.212	0.176	0.104	0.138	0.100	0.102	0.0020	5470932
Total Magnesium (Mg)	mg/kg	556	523	506	656	688	651	683	2.0	5470932
Total Manganese (Mn)	mg/kg	0.605	1.25	1.08	0.287	0.948	0.498	0.568	0.040	5470932
Total Mercury (Hg)	mg/kg	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	5470932
Total Nickel (Ni)	mg/kg	0.11	0.13	0.13	0.15	0.29	0.14	0.11	0.10	5470932
Total Selenium (Se)	mg/kg	0.141	0.120	0.133	0.194	0.186	0.162	0.173	0.010	5470932
Total Silver (Ag)	mg/kg	0.0171	0.0141	0.0170	0.0135	0.0118	0.0142	0.0193	0.0040	5470932
Total Thallium (Tl)	mg/kg	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	5470932
Total Zinc (Zn)	mg/kg	16.1	18.7	20.2	6.81	24.9	13.6	18.8	0.040	5470932

PHYSICAL TESTING (TISSUE)

Maxxam ID		CF2950	CF2951	CF2952	CF2953	CF2954	CF2955	CF2957		
Sampling Date		2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22	2011/09/22		
	UNITS	**T=0**	**T=0 DUPLICATE**	**T=0 TRIPLICATE**	**M2E T=28**	**M1E T=28**	**M8E T=28**	**PB1 T=28**	**RDL**	**QC Batch**
Physical Properties										
Moisture	%	91	90	90	88	89	87	88	0.30	5477562

RDL = Reportable Detection Limit

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Maxxam Job #: B191064
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CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BT7200	BT7201	BT7219			BT7277			BT7281		
Sampling Date		2011/09/22	2011/09/22	2011/09/22			2011/09/22			2011/09/22		
	UNITS	**M1E**	**M2E**	**M4E**	**RDL**	**QC Batch**	**M8E**	**RDL**	**QC Batch**	**M1NW**	**RDL**	**QC Batch**
Calculated Parameters												
Total Hardness (CaCO3)	mg/L	6380	6000	6050	0.50	5253110	5790	0.50	5253110	5830	0.50	5253110
Misc. Inorganics												
Dissolved Organic Carbon (C)	mg/L	16.2	18.5	16.9	0.50	5265795	29.0(1)	5.0	5270538	18.2	0.50	5265795
MISCELLANEOUS												
Sulphide	mg/L	0.121(2)	0.129(2)	0.086(2)	0.050	5255622	0.081(2)	0.050	5255622	0.090(2)	0.050	5255622
Nutrients												
Ammonia (N)	mg/L	16	16	9.3	0.10	5272621	9.4	0.10	5272621	12	0.10	5272621
Ammonia (Unionized)	mg/L	0.036	0.028	0.065	0.0050	5546783	0.024	0.0050	5546783	0.067	0.0050	5546783
Physical Properties												
pH	pH Units	7.10	7.20	7.50		5546791	7.20		5546791	7.50		5546791

RDL = Reportable Detection Limit
(1) - RDL raised due to sample matrix interference.
(2) - RDL raised due to sample dilution.

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RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BT7288		BT7290		BT7299			BT7300		
Sampling Date		2011/09/22		2011/09/22		2011/09/22			2011/09/22		
	UNITS	**M1SE**	**RDL**	**C1E**	**RDL**	**C2E**	**RDL**	**QC Batch**	**C4E**	**RDL**	**QC Batch**
Calculated Parameters											
Total Hardness (CaCO3)	mg/L	3600	0.50	4750	0.50	4720	0.50	5253110	5720	0.50	5253110
Misc. Inorganics											
Dissolved Organic Carbon (C)	mg/L	44.8	0.50	52.1(1)	5.0	28.0	0.50	5270538	24.9	0.50	5265795
MISCELLANEOUS											
Sulphide	mg/L	13.8	0.25	2.50	0.050	6.93	0.25	5255622	0.197(2)	0.050	5255622
Nutrients											
Ammonia (N)	mg/L	39	0.50	39	0.50	16	0.10	5272621	26	0.50	5272621
Ammonia (Unionized)	mg/L	<0.0050	0.0050	0.17	0.0050	0.11	0.0050	5546783	0.17	0.0050	5546783
Physical Properties											
pH	pH Units	7.30		7.40		7.50		5546791	7.50		5546791

RDL = Reportable Detection Limit
(1) - RDL raised due to sample matrix interference.
(2) - RDL raised due to sample dilution.

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RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BT7302			BT7311		BT7317			CG8555		
Sampling Date		2011/09/22			2011/09/22		2011/09/22			2011/12/02 10:30		
	UNITS	**PB1**	**RDL**	**QC Batch**	**PB2**	**RDL**	**PB3**	**RDL**	**QC Batch**	**VANCOUVER AQUARIUM SEAWATER**	**RDL**	**QC Batch**
ANIONS												
Nitrite (N)	mg/L									0.0058	0.0050	5423494
Calculated Parameters												
Total Hardness (CaCO3)	mg/L	4790	0.50	5253110	5820	0.50	5220	0.50	5253110			
Nitrate (N)	mg/L									0.193	0.020	5414836
Misc. Inorganics												
Weak Acid Dissoc. Cyanide (CN)	mg/L									<0.00050	0.00050	5436045
Cyanide + Thiocyanate	mg/L									<0.00050	0.00050	5423434
Dissolved Organic Carbon (C)	mg/L	30.6(1)	5.0	5270538	18.7	0.50	17.1	0.50	5265795	1.61	0.50	5425092
Salinity	N/A									28.8	0.010	5417187
Total Organic Carbon (C)	mg/L									<5.0(1)	5.0	5425103
MISCELLANEOUS												
Sulphide	mg/L	0.083(2)	0.050	5255622	0.066(2)	0.050	0.070(2)	0.050	5255622	0.076(3)	0.050	5420191
Nutrients												
Ammonia (N)	mg/L	2.2	0.050	5272621	3.6	0.050	1.0	0.010	5272621	0.080	0.0050	5433111
Ammonia (Unionized)	mg/L	0.0095	0.0050	5546783	0.017	0.0050	0.13	0.0050	5546783			
Nitrate plus Nitrite (N)	mg/L									0.199	0.020	5423493
Misc. Organics												
Phenols	mg/L									0.18(1)	0.10	5436050
Physical Properties												
pH	pH Units	7.40		5546791	7.40		7.30		5546791	8.00		5417184
Physical Properties												
Total Suspended Solids	mg/L									10.3	1.0	5422021
Total Dissolved Solids	mg/L									28400	10	5422051
SEMI-VOLATILE ORGANICS												
alpha-Terpineol	ug/L									<1.0	1.0	5420127

N/A = Not Applicable
RDL = Reportable Detection Limit
(1) - RDL raised due to sample matrix interference.
(2) - RDL raised due to sample dilution.
(3) - RDL raised due to sample dilution.
Sample received at less than recommended preservation pH 9.

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Sampler Initials: SL

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BT7302			BT7311		BT7317			CG8555		
Sampling Date		2011/09/22			2011/09/22		2011/09/22			2011/12/02 10:30		
	UNITS	**PB1**	**RDL**	**QC Batch**	**PB2**	**RDL**	**PB3**	**RDL**	**QC Batch**	**VANCOUVER AQUARIUM SEAWATER**	**RDL**	**QC Batch**
Surrogate Recovery (%)												
2,4,6-TRIBROMOPHENOL (sur.)	%									84		5420127
2-FLUOROBIPHENYL (sur.)	%									76		5420127
D5-NITROBENZENE (sur.)	%									75		5420127
D5-PHENOL (sur.)	%									44		5420127
TERPHENYL-D14 (sur.)	%									76		5420127

RDL = Reportable Detection Limit

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CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

SEMIVOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		CG8555		
Sampling Date		2011/12/02 10:30		
	UNITS	**VANCOUVER AQUARIUM SEAWATER**	**RDL**	**QC Batch**
SEMI-VOLATILE ORGANICS				
Phenol	ug/L	<0.50	0.50	5420873
2-chlorophenol	ug/L	<0.10	0.10	5420873
3 & 4-chlorophenol	ug/L	<0.10	0.10	5420873
2-methylphenol	ug/L	<0.50	0.50	5420873
3 & 4-methylphenol	ug/L	<0.50	0.50	5420873
2-nitrophenol	ug/L	<0.50	0.50	5420873
2,4-dimethylphenol	ug/L	<0.50	0.50	5420873
2,4 + 2,5-Dichlorophenol	ug/L	<0.10	0.10	5420873
2,3-Dichlorophenol	ug/L	<0.10	0.10	5420873
2,6-dichlorophenol	ug/L	<0.10	0.10	5420873
3,5-Dichlorophenol	ug/L	<0.10	0.10	5420873
3,4-Dichlorophenol	ug/L	<0.10	0.10	5420873
2,4,5-trichlorophenol	ug/L	<0.10	0.10	5420873
2,4,6-trichlorophenol	ug/L	<0.10	0.10	5420873
2,3,5-trichlorophenol	ug/L	<0.10	0.10	5420873
2,3,6-Trichlorophenol	ug/L	<0.10	0.10	5420873
2,3,4-trichlorophenol	ug/L	<0.10	0.10	5420873
3,4,5-Trichlorophenol	ug/L	<0.10	0.10	5420873
2,4-dinitrophenol	ug/L	<0.50	0.50	5420873
4,6-dinitro-2-methylphenol	ug/L	<0.50	0.50	5420873
2,3,4,6-tetrachlorophenol	ug/L	<0.10	0.10	5420873
2,3,4,5-tetrachlorophenol	ug/L	<0.10	0.10	5420873
2,3,5,6-tetrachlorophenol	ug/L	<0.10	0.10	5420873
4-nitrophenol	ug/L	<0.50	0.50	5420873
Pentachlorophenol	ug/L	<0.10	0.10	5420873
Surrogate Recovery (%)				
2,4,6-TRIBROMOPHENOL (sur.)	%	79		5420873
D5-PHENOL (sur.)	%	50		5420873

RDL = Reportable Detection Limit

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		BT7200	BT7201	BT7219			BT7277		
Sampling Date		2011/09/22	2011/09/22	2011/09/22			2011/09/22		
	UNITS	**M1E**	**M2E**	**M4E**	**RDL**	**QC Batch**	**M8E**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Calcium (Ca)	ug/L	406000	401000	426000	1000	5269499	355000	630	5268043
Total Magnesium (Mg)	ug/L	1300000	1220000	1210000	1000	5269499	1190000	630	5268043

Maxxam ID		BT7281			BT7288		BT7290	BT7299		
Sampling Date		2011/09/22			2011/09/22		2011/09/22	2011/09/22		
	UNITS	**M1NW**	**RDL**	**QC Batch**	**M1SE**	**RDL**	**C1E**	**C2E**	**RDL**	**QC Batch**
Total Metals by ICPMS										
Total Calcium (Ca)	ug/L	404000	1000	5269499	220000	630	312000	301000	1300	5268043
Total Magnesium (Mg)	ug/L	1170000	1000	5269499	742000	630	963000	963000	1300	5268043

Maxxam ID		BT7300			BT7302			BT7311	BT7317		
Sampling Date		2011/09/22			2011/09/22			2011/09/22	2011/09/22		
	UNITS	**C4E**	**RDL**	**QC Batch**	**PB1**	**RDL**	**QC Batch**	**PB2**	**PB3**	**RDL**	**QC Batch**
Total Metals by ICPMS											
Total Calcium (Ca)	ug/L	337000	1000	5269499	307000	1300	5268043	497000	351000	500	5269499
Total Magnesium (Mg)	ug/L	1190000	1000	5269499	978000	1300	5268043	1110000	1060000	500	5269499

RDL = Reportable Detection Limit

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

LEPH & HEPH FOR CSR IN WATER (WATER)

Maxxam ID		CG8555		
Sampling Date		2011/12/02 10:30		
	UNITS	**VANCOUVER AQUARIUM SEAWATER**	**RDL**	**QC Batch**
Polycyclic Aromatics				
Low Molecular Weight PAH`s	ug/L	<0.50	0.50	5413995
High Molecular Weight PAH`s	ug/L	<0.050	0.050	5413995
Total PAH	ug/L	<0.50	0.50	5413995
Naphthalene	ug/L	<0.050	0.050	5421050
2-Methylnaphthalene	ug/L	<0.050	0.050	5421050
Quinoline	ug/L	<0.50	0.50	5421050
Acenaphthylene	ug/L	<0.050	0.050	5421050
Acenaphthene	ug/L	<0.050	0.050	5421050
Fluorene	ug/L	<0.050	0.050	5421050
Phenanthrene	ug/L	<0.050	0.050	5421050
Anthracene	ug/L	<0.010	0.010	5421050
Acridine	ug/L	<0.050	0.050	5421050
Fluoranthene	ug/L	<0.020	0.020	5421050
Pyrene	ug/L	<0.020	0.020	5421050
Benzo(a)anthracene	ug/L	<0.010	0.010	5421050
Chrysene	ug/L	<0.050	0.050	5421050
Benzo(b&j)fluoranthene	ug/L	<0.050	0.050	5421050
Benzo(k)fluoranthene	ug/L	<0.050	0.050	5421050
Benzo(a)pyrene	ug/L	<0.0090	0.0090	5421050
Perylene	ug/L	<0.050	0.050	5421050
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	5421050
Dibenz(a,h)anthracene	ug/L	<0.050	0.050	5421050
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	5421050
Surrogate Recovery (%)				
D10-ANTHRACENE (sur.)	%	91		5421050
D8-ACENAPHTHYLENE (sur.)	%	100		5421050
D8-NAPHTHALENE (sur.)	%	104		5421050
D9-Acridine	%	39(1)		5421050
TERPHENYL-D14 (sur.)	%	78		5421050
Calculated Parameters				
LEPH (C10-C19 less PAH)	mg/L	<0.20	0.20	5413996
HEPH (C19-C32 less PAH)	mg/L	<0.20	0.20	5413996
Ext. Pet. Hydrocarbon				
EPH (C10-C19)	mg/L	<0.20	0.20	5421039
EPH (C19-C32)	mg/L	<0.20	0.20	5421039

RDL = Reportable Detection Limit
(1) - Surrogate recovery below control limit - 1 surrogate failure allowed - Pot. low bias

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

LEPH & HEPH FOR CSR IN WATER (WATER)

Maxxam ID		CG8555		
Sampling Date		2011/12/02 10:30		
	UNITS	**VANCOUVER AQUARIUM SEAWATER**	**RDL**	**QC Batch**
Surrogate Recovery (%)				
O-TERPHENYL (sur.)	%	113		5421039

RDL = Reportable Detection Limit

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		CG8555		
Sampling Date		2011/12/02 10:30		
	UNITS	**VANCOUVER AQUARIUM SEAWATER**	**RDL**	**QC Batch**
Calculated Parameters				
Total Hardness (CaCO3)	mg/L	4840	0.50	5413791
Total Metals by ICPMS				
Total Aluminum (Al)	ug/L	58	38	5421949
Total Antimony (Sb)	ug/L	<6.3	6.3	5421949
Total Arsenic (As)	ug/L	<1.3	1.3	5421949
Total Barium (Ba)	ug/L	<13	13	5421949
Total Beryllium (Be)	ug/L	<1.3	1.3	5421949
Total Bismuth (Bi)	ug/L	<13	13	5421949
Total Boron (B)	ug/L	3140	630	5421949
Total Cadmium (Cd)	ug/L	<0.13	0.13	5421949
Total Chromium (Cr)	ug/L	<13	13	5421949
Total Cobalt (Co)	ug/L	<6.3	6.3	5421949
Total Copper (Cu)	ug/L	10.8	2.5	5421949
Total Iron (Fe)	ug/L	<63	63	5421949
Total Lead (Pb)	ug/L	<2.5	2.5	5421949
Total Lithium (Li)	ug/L	128	63	5421949
Total Manganese (Mn)	ug/L	<13	13	5421949
Total Mercury (Hg)	ug/L	<0.63	0.63	5421949
Total Molybdenum (Mo)	ug/L	<13	13	5421949
Total Nickel (Ni)	ug/L	<13	13	5421949
Total Selenium (Se)	ug/L	<1.3	1.3	5421949
Total Silicon (Si)	ug/L	1710	1300	5421949
Total Silver (Ag)	ug/L	<0.25	0.25	5421949
Total Strontium (Sr)	ug/L	6110	13	5421949
Total Thallium (Tl)	ug/L	<0.63	0.63	5421949
Total Tin (Sn)	ug/L	<63	63	5421949
Total Titanium (Ti)	ug/L	<63	63	5421949
Total Uranium (U)	ug/L	2.2	1.3	5421949
Total Vanadium (V)	ug/L	<63	63	5421949
Total Zinc (Zn)	ug/L	<63	63	5421949
Total Zirconium (Zr)	ug/L	<6.3	6.3	5421949
Total Calcium (Ca)	mg/L	315	0.63	5413792
Total Magnesium (Mg)	mg/L	983	0.63	5413792
Total Potassium (K)	mg/L	304	0.63	5413792
Total Sodium (Na)	mg/L	8320	0.63	5413792
Total Sulphur (S)	mg/L	809	38	5413792

RDL = Reportable Detection Limit

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

CSR VOC + VPH IN SOIL (SEDIMENT)

Maxxam ID		BQ0637	BQ0638	BQ0639	BQ0640	BQ0641	BQ0642	BQ0643	BQ0644	BQ0645		
Sampling Date		2011/09/15 11:35	2011/09/15 12:00	2011/09/16 10:25	2011/09/14 13:40	2011/09/14 15:21	2011/09/21 13:00	2011/09/21 13:00	2011/09/21 13:00	2011/09/16 09:15		
	UNITS	**M1NW**	**M1S**	**M1SE**	**M1SW**	**M1W**	**M2E**	**M2E-DUP**	**M2E-TRIP**	**M2SE**	**RDL**	**QC Batch**
Volatiles												
VPH (VH6 to 10 - BTEX)	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	5208438
Volatile Hydrocarbons												
VH C6-C10	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	5219959
Volatiles												
Chloromethane	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5219467
Vinyl chloride	mg/kg	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5219467
Bromomethane	mg/kg	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	0.30	5219467
Chloroethane	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5219467
Trichlorofluoromethane	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5219467
1,1-dichloroethene	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219467
Dichloromethane	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5219467
trans-1,2-dichloroethene	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219467
1,1-dichloroethane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219467
cis-1,2-dichloroethene	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219467
Chloroform	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219467
1,1,1-trichloroethane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219467
1,2-dichloroethane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219467
Carbon tetrachloride	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219467
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5219467
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5219467
1,2-dichloropropane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219467
Trichloroethene	mg/kg	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	0.0090	5219467
Bromodichloromethane	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219467
cis-1,3-dichloropropene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219467
trans-1,3-dichloropropene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219467
1,1,2-trichloroethane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219467
Toluene	mg/kg	<0.020	<0.020	0.028	<0.020	0.024	<0.020	<0.020	<0.020	0.13	0.020	5219467
Chlorodibromomethane	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219467
1,2-dibromoethane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219467
Tetrachloroethene	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219467
Chlorobenzene	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219467
1,1,1,2-tetrachloroethane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219467
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	5219467
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	5219467
Bromoform	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219467

RDL = Reportable Detection Limit

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

CSR VOC + VPH IN SOIL (SEDIMENT)

Maxxam ID		BQ0637	BQ0638	BQ0639	BQ0640	BQ0641	BQ0642	BQ0643	BQ0644	BQ0645		
Sampling Date		2011/09/15 11:35	2011/09/15 12:00	2011/09/16 10:25	2011/09/14 13:40	2011/09/14 15:21	2011/09/21 13:00	2011/09/21 13:00	2011/09/21 13:00	2011/09/16 09:15		
	UNITS	**M1NW**	**M1S**	**M1SE**	**M1SW**	**M1W**	**M2E**	**M2E-DUP**	**M2E-TRIP**	**M2SE**	**RDL**	**QC Batch**
Styrene	mg/kg	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	5219467
o-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	5219467
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	5219467
1,1,2,2-tetrachloroethane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219467
Dibromomethane	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5219467
Surrogate Recovery (%)												
4-BROMOFLUOROBENZENE (sur.)	%	88	107	77	98	74	88	89	75	86		5219467
D10-ETHYLBENZENE (sur.)	%	103	105	95	93	82	107	90	91	81		5219467
D4-1,2-DICHLOROETHANE (sur.)	%	107	81	112	70	104	109	86	84	130		5219467
D8-TOLUENE (sur.)	%	95	100	95	110	95	95	97	95	93		5219467

RDL = Reportable Detection Limit

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

CSR VOC + VPH IN SOIL (SEDIMENT)

Maxxam ID		BQ0646	BQ0647	BQ0648		BQ0649	BQ0650	BQ0651	BQ0652	BQ0653		
Sampling Date		2011/09/15 13:16	2011/09/15 13:16	2011/09/15 13:16		2011/09/14 14:38	2011/09/21 09:15	2011/09/14 10:06	2011/09/14 09:17	2011/09/14 09:17		
	UNITS	**M2NE**	**M2NE**	**M2NE**	**QC Batch**	**M0**	**M1E**	**M4E**	**M4SE**	**M4SE-DUP**	**RDL**	**QC Batch**
Volatiles												
VPH (VH6 to 10 - BTEX)	mg/kg	<10	<10	<10	5208438	<10	<10	<10	<10	<10	10	5208438
Volatile Hydrocarbons												
VH C6-C10	mg/kg	<10	<10	<10	5219959	<10	<10	<10	<10	<10	10	5219967
Volatiles												
Chloromethane	mg/kg	<0.10	<0.10	<0.10	5219467	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5219542
Vinyl chloride	mg/kg	<0.060	<0.060	<0.060	5219467	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5219542
Bromomethane	mg/kg	<0.30	<0.30	<0.30	5219467	<0.30	<0.30	<0.30	<0.30	<0.30	0.30	5219542
Chloroethane	mg/kg	<0.10	<0.10	<0.10	5219467	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5219542
Trichlorofluoromethane	mg/kg	<0.20	<0.20	<0.20	5219467	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5219542
1,1-dichloroethene	mg/kg	<0.025	<0.025	<0.025	5219467	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Dichloromethane	mg/kg	<0.10	<0.10	<0.10	5219467	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5219542
trans-1,2-dichloroethene	mg/kg	<0.025	<0.025	<0.025	5219467	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
1,1-dichloroethane	mg/kg	<0.025	<0.025	<0.025	5219467	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
cis-1,2-dichloroethene	mg/kg	<0.025	<0.025	<0.025	5219467	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Chloroform	mg/kg	<0.050	<0.050	<0.050	5219467	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219542
1,1,1-trichloroethane	mg/kg	<0.025	<0.025	<0.025	5219467	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
1,2-dichloroethane	mg/kg	<0.025	<0.025	<0.025	5219467	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Carbon tetrachloride	mg/kg	<0.025	<0.025	<0.025	5219467	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	5219467	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5219542
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	<0.10	5219467	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5219542
1,2-dichloropropane	mg/kg	<0.025	<0.025	<0.025	5219467	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Trichloroethene	mg/kg	<0.0090	<0.0090	<0.0090	5219467	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	0.0090	5219542
Bromodichloromethane	mg/kg	<0.050	<0.050	<0.050	5219467	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219542
cis-1,3-dichloropropene	mg/kg	<0.050	<0.050	<0.050	5219467	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219542
trans-1,3-dichloropropene	mg/kg	<0.050	<0.050	<0.050	5219467	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219542
1,1,2-trichloroethane	mg/kg	<0.025	<0.025	<0.025	5219467	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Toluene	mg/kg	<0.020	<0.020	<0.020	5219467	<0.020	0.032	<0.020	<0.020	<0.020	0.020	5219542
Chlorodibromomethane	mg/kg	<0.050	<0.050	<0.050	5219467	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219542
1,2-dibromoethane	mg/kg	<0.025	<0.025	<0.025	5219467	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Tetrachloroethene	mg/kg	<0.025	<0.025	<0.025	5219467	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Chlorobenzene	mg/kg	<0.025	<0.025	<0.025	5219467	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
1,1,1,2-tetrachloroethane	mg/kg	<0.025	<0.025	<0.025	5219467	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	5219467	0.052	<0.010	<0.010	0.010	<0.010	0.010	5219542
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	5219467	0.076	<0.040	<0.040	<0.040	<0.040	0.040	5219542
Bromoform	mg/kg	<0.050	<0.050	<0.050	5219467	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219542

RDL = Reportable Detection Limit

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

CSR VOC + VPH IN SOIL (SEDIMENT)

Maxxam ID		BQ0646	BQ0647	BQ0648		BQ0649	BQ0650	BQ0651	BQ0652	BQ0653		
Sampling Date		2011/09/15 13:16	2011/09/15 13:16	2011/09/15 13:16		2011/09/14 14:38	2011/09/21 09:15	2011/09/14 10:06	2011/09/14 09:17	2011/09/14 09:17		
	UNITS	**M2NE**	**M2NE**	**M2NE**	**QC Batch**	**M0**	**M1E**	**M4E**	**M4SE**	**M4SE-DUP**	**RDL**	**QC Batch**
Styrene	mg/kg	<0.030	<0.030	<0.030	5219467	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	5219542
o-Xylene	mg/kg	<0.040	<0.040	<0.040	5219467	0.064	<0.040	<0.040	<0.040	<0.040	0.040	5219542
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	5219467	0.14	<0.040	<0.040	<0.040	<0.040	0.040	5219542
1,1,2,2-tetrachloroethane	mg/kg	<0.025	<0.025	<0.025	5219467	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Dibromomethane	mg/kg	<0.20	<0.20	<0.20	5219467	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5219542
Surrogate Recovery (%)												
4-BROMOFLUOROBENZENE (sur.)	%	91	77	79	5219467	91	91	91	91	87		5219542
D10-ETHYLBENZENE (sur.)	%	109	89	94	5219467	115	96	117	86	87		5219542
D4-1,2-DICHLOROETHANE (sur.)	%	115	87	115	5219467	93	87	112	86	100		5219542
D8-TOLUENE (sur.)	%	99	95	103	5219467	99	95	98	100	94		5219542

RDL = Reportable Detection Limit

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

CSR VOC + VPH IN SOIL (SEDIMENT)

Maxxam ID		BQ0654	BQ0655	BQ0656	BQ0657	BQ0658	BQ0659	BQ0660	BQ0661		
Sampling Date		2011/09/14 09:17	2011/09/22 09:00	2011/09/20 10:30	2011/09/20 12:30	2011/09/20 13:30	2011/09/19 00:00	2011/09/19 09:30	2011/09/16 13:05		
	UNITS	**M4SE-TRIP**	**M8E**	**PB1**	**PB2**	**PB3**	**C1E**	**C2E**	**C4E**	**RDL**	**QC Batch**
Volatiles											
VPH (VH6 to 10 - BTEX)	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10	10	5208438
Volatile Hydrocarbons											
VH C6-C10	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10	10	5219967
Volatiles											
Chloromethane	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5219542
Vinyl chloride	mg/kg	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	0.060	5219542
Bromomethane	mg/kg	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	0.30	5219542
Chloroethane	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5219542
Trichlorofluoromethane	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5219542
1,1-dichloroethene	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Dichloromethane	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5219542
trans-1,2-dichloroethene	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
1,1-dichloroethane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
cis-1,2-dichloroethene	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Chloroform	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219542
1,1,1-trichloroethane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
1,2-dichloroethane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Carbon tetrachloride	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5219542
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5219542
1,2-dichloropropane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Trichloroethene	mg/kg	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	0.0090	5219542
Bromodichloromethane	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219542
cis-1,3-dichloropropene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219542
trans-1,3-dichloropropene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219542
1,1,2-trichloroethane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.073	0.036	0.020	0.020	5219542
Chlorodibromomethane	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219542
1,2-dibromoethane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Tetrachloroethene	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Chlorobenzene	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
1,1,1,2-tetrachloroethane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.024	<0.010	<0.010	0.010	5219542
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.075	<0.040	<0.040	0.040	5219542
Bromoform	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5219542

RDL = Reportable Detection Limit

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

CSR VOC + VPH IN SOIL (SEDIMENT)

Maxxam ID		BQ0654	BQ0655	BQ0656	BQ0657	BQ0658	BQ0659	BQ0660	BQ0661		
Sampling Date		2011/09/14 09:17	2011/09/22 09:00	2011/09/20 10:30	2011/09/20 12:30	2011/09/20 13:30	2011/09/19 00:00	2011/09/19 09:30	2011/09/16 13:05		
	UNITS	**M4SE-TRIP**	**M8E**	**PB1**	**PB2**	**PB3**	**C1E**	**C2E**	**C4E**	**RDL**	**QC Batch**
Styrene	mg/kg	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	5219542
o-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.045	<0.040	<0.040	0.040	5219542
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.12	<0.040	<0.040	0.040	5219542
1,1,2,2-tetrachloroethane	mg/kg	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.025	5219542
Dibromomethane	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5219542
Surrogate Recovery (%)											
4-BROMOFLUOROBENZENE (sur.)	%	78	90	84	79	80	78	91	89		5219542
D10-ETHYLBENZENE (sur.)	%	96	89	94	78	92	92	87	89		5219542
D4-1,2-DICHLOROETHANE (sur.)	%	106	86	78	115	112	105	88	87		5219542
D8-TOLUENE (sur.)	%	95	98	98	71	95	95	99	98		5219542

RDL = Reportable Detection Limit

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

CSR VOC + VPH IN WATER (WATER)

Maxxam ID		CG8555		
Sampling Date		2011/12/02 10:30		
	UNITS	**VANCOUVER AQUARIUM SEAWATER**	**RDL**	**QC Batch**
Volatiles				
VPH (VHW6 to 10 - BTEX)	ug/L	<300	300	5413793
Volatile Hydrocarbons				
VH C6-C10	ug/L	<300	300	5425944
Volatiles				
Chloromethane	ug/L	<2.5(1)	2.5	5425814
Vinyl chloride	ug/L	<0.50	0.50	5425814
Chloroethane	ug/L	<1.0	1.0	5425814
Trichlorofluoromethane	ug/L	<4.0	4.0	5425814
1,1,2Trichloro-1,2,2Trifluoroethane	ug/L	<2.0	2.0	5425814
Dichlorodifluoromethane	ug/L	<2.0	2.0	5425814
1,1-dichloroethene	ug/L	<0.50	0.50	5425814
Dichloromethane	ug/L	<2.0	2.0	5425814
trans-1,2-dichloroethene	ug/L	<1.0	1.0	5425814
1,1-dichloroethane	ug/L	<0.50	0.50	5425814
cis-1,2-dichloroethene	ug/L	<1.0	1.0	5425814
Chloroform	ug/L	<1.0	1.0	5425814
1,1,1-trichloroethane	ug/L	<0.50	0.50	5425814
1,2-dichloroethane	ug/L	<0.50	0.50	5425814
Carbon tetrachloride	ug/L	<0.50	0.50	5425814
Benzene	ug/L	<0.50	0.50	5425814
Methyl-tert-butylether (MTBE)	ug/L	<4.0	4.0	5425814
1,2-dichloropropane	ug/L	<0.50	0.50	5425814
cis-1,3-dichloropropene	ug/L	<1.0	1.0	5425814
trans-1,3-dichloropropene	ug/L	<1.0	1.0	5425814
Bromomethane	ug/L	<1.0	1.0	5425814
1,1,2-trichloroethane	ug/L	<0.50	0.50	5425814
Trichloroethene	ug/L	<0.50	0.50	5425814
Chlorodibromomethane	ug/L	<1.0	1.0	5425814
1,2-dibromoethane	ug/L	<0.20	0.20	5425814
1,3-Butadiene	ug/L	<5.0	5.0	5425814
Tetrachloroethene	ug/L	<0.50	0.50	5425814
Bromodichloromethane	ug/L	<1.0	1.0	5425814
Toluene	ug/L	<0.50	0.50	5425814
Ethylbenzene	ug/L	<0.50	0.50	5425814

RDL = Reportable Detection Limit
(1) - RDL raised due to sample matrix interference.

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

CSR VOC + VPH IN WATER (WATER)

Maxxam ID		CG8555		
Sampling Date		2011/12/02 10:30		
	UNITS	**VANCOUVER AQUARIUM SEAWATER**	**RDL**	**QC Batch**
m & p-Xylene	ug/L	<1.0	1.0	5425814
Bromoform	ug/L	<1.0	1.0	5425814
Styrene	ug/L	<0.50	0.50	5425814
o-Xylene	ug/L	<0.50	0.50	5425814
Xylenes (Total)	ug/L	<1.0	1.0	5425814
1,1,1,2-tetrachloroethane	ug/L	<0.50	0.50	5425814
1,1,2,2-tetrachloroethane	ug/L	<0.50	0.50	5425814
1,2-dichlorobenzene	ug/L	<0.50	0.50	5425814
1,3-dichlorobenzene	ug/L	<0.50	0.50	5425814
1,4-dichlorobenzene	ug/L	<0.50	0.50	5425814
Chlorobenzene	ug/L	<0.50	0.50	5425814
Dibromomethane	ug/L	<0.90	0.90	5425814
Bromobenzene	ug/L	<2.0	2.0	5425814
1,2,3-trichlorobenzene	ug/L	<2.0	2.0	5425814
1,2,4-trichlorobenzene	ug/L	<2.0	2.0	5425814
Hexachlorobutadiene	ug/L	<0.50	0.50	5425814
Surrogate Recovery (%)				
4-BROMOFLUOROBENZENE (sur.)	%	85		5425814
D4-1,2-DICHLOROETHANE (sur.)	%	98		5425814
D8-TOLUENE (sur.)	%	94		5425814

RDL = Reportable Detection Limit

Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

General Comments

Sample BQ0637-01: ** SEM/AVS = 23.60 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0638-01: ** SEM/AVS = 1.97 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0639-01: ** SEM/AVS = 0.22 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0640-01: ** SEM/AVS = 0.13 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0641-01: ** SEM/AVS = 3.35 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0642-01: ** SEM/AVS = 1.45 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0643-01: ** SEM/AVS = 0.15 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0644-01: ** SEM/AVS = 0.31 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0645-01: ** SEM/AVS = 0.11 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0646-01: ** SEM/AVS = 2.78 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0647-01: ** SEM/AVS = 1.54 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0648-01: ** SEM/AVS = 1.22 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0649-01: ** SEM/AVS = 2.59 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0650-01: ** SEM/AVS = 0.20 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0651-01: ** SEM/AVS = 0.65 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0652-01: ** SEM/AVS = 0.46 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0653-01: ** SEM/AVS = 0.24 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0654-01: ** SEM/AVS = 0.85 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0655-01: ** SEM/AVS = 18.58 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0656-01: ** SEM/AVS = 33.06 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0657-01: ** SEM/AVS = 90.34 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0658-01: ** SEM/AVS = 6.52 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0659-01: ** SEM/AVS = 0.16 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0660-01: ** SEM/AVS = 0.07 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ0661-01: ** SEM/AVS = 0.21 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

VOLATILE ORGANICS BY GC-MS (SEDIMENT) Comments

Method Blank Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0637-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0638-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0639-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0640-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0641-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0642-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0643-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g

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Tetrabromomethane < 50 ug/g

Sample BQ0644-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0645-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0646-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0647-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0648-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Method Blank Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0649-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0650-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0651-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0652-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

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Sample BQ0653-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0654-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0655-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0656-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0657-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0658-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0659-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0660-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

Sample BQ0661-01 Extra VOCs in Soil by HS GC/MS: 2-Chloroethyl vinyl ether< 5 ug/g
Acrylonitrile < 5 ug/g
Tetrabromomethane < 50 ug/g

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER) Comments

Sample BT7200-01 Elements by CRC ICPMS (total): RDL raised due to sample matrix interference.

Sample BT7201-01 Elements by CRC ICPMS (total): RDL raised due to sample matrix interference.

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Sample BT7219-01 Elements by CRC ICPMS (total): RDL raised due to sample matrix interference.

Sample BT7277-01 Elements by CRC ICPMS (total): RDL raised due to sample matrix interference.

Sample BT7281-01 Elements by CRC ICPMS (total): RDL raised due to sample matrix interference.

Sample BT7288-01 Elements by CRC ICPMS (total): RDL raised due to sample matrix interference.

Sample BT7290-01 Elements by CRC ICPMS (total): RDL raised due to sample matrix interference.

Sample BT7299-01 Elements by CRC ICPMS (total): RDL raised due to sample matrix interference.

Sample BT7300-01 Elements by CRC ICPMS (total): RDL raised due to sample matrix interference.

Sample BT7302-01 Elements by CRC ICPMS (total): RDL raised due to sample matrix interference.

Sample BT7311-01 Elements by CRC ICPMS (total): RDL raised due to sample matrix interference.

Sample BT7317-01 Elements by CRC ICPMS (total): RDL raised due to sample matrix interference.

CSR TOTAL METALS IN WATER (WATER) Comments

Sample CG8555-09 Elements by CRC ICPMS (total): Detection limits raised due to matrix interference

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5214074	Sulphide	2011/09/28			90	75 - 125	0.34, RDL=0.20	ug/g	0.5	30
5214141	Sulphide	2011/09/28			90	75 - 125	0.34, RDL=0.20	ug/g	23.9	30
5215664	Moisture	2011/09/28					<0.30	%	2.5	20
5218672	Moisture	2011/09/29					<0.30	%	1.6	20
5218677	Moisture	2011/09/29					<0.30	%	0.3	20
5219467	4-BROMOFLUOROBENZENE (sur.)	2011/09/28	104	70 - 130	99	70 - 130	77	%		
5219467	D10-ETHYLBENZENE (sur.)	2011/09/28	102	50 - 130	89	50 - 130	91	%		
5219467	D4-1,2-DICHLOROETHANE (sur.)	2011/09/28	95	70 - 130	91	70 - 130	101	%		
5219467	D8-TOLUENE (sur.)	2011/09/28	99	70 - 130	98	70 - 130	95	%		
5219467	Chloromethane	2011/09/28	145	40 - 150	143	40 - 150	<0.10	mg/kg	NC(1)	40
5219467	Vinyl chloride	2011/09/28	151(2)	40 - 150	108	40 - 150	<0.060	mg/kg	NC(1)	40
5219467	Bromomethane	2011/09/28	201(2)	40 - 150	92	40 - 150	<0.30	mg/kg	NC(1)	40
5219467	Chloroethane	2011/09/28	252(2)	40 - 150	111	40 - 150	<0.10	mg/kg	NC(1)	40
5219467	Trichlorofluoromethane	2011/09/28	182(2)	40 - 150	128	40 - 150	<0.20	mg/kg	NC(1)	40
5219467	1,1-dichloroethene	2011/09/28	123	60 - 140	103	60 - 140	<0.025	mg/kg	NC(1)	40
5219467	Dichloromethane	2011/09/28	109	60 - 140	96	60 - 140	<0.10	mg/kg	NC(1)	40
5219467	trans-1,2-dichloroethene	2011/09/28	106	60 - 140	94	60 - 140	<0.025	mg/kg	NC(1)	40
5219467	1,1-dichloroethane	2011/09/28	109	60 - 140	104	60 - 140	<0.025	mg/kg	NC(1)	40
5219467	cis-1,2-dichloroethene	2011/09/28	109	60 - 140	91	60 - 140	<0.025	mg/kg	NC(1)	40
5219467	Chloroform	2011/09/28	104	60 - 140	95	60 - 140	<0.050	mg/kg	NC(1)	40
5219467	1,1,1-trichloroethane	2011/09/28	103	60 - 140	102	60 - 140	<0.025	mg/kg	NC(1)	40
5219467	1,2-dichloroethane	2011/09/28	118	60 - 140	91	60 - 140	<0.025	mg/kg	NC(1)	40
5219467	Carbon tetrachloride	2011/09/28	112	60 - 140	103	60 - 140	<0.025	mg/kg	NC(1)	40
5219467	Benzene	2011/09/28	107	60 - 140	104	60 - 140	<0.0050	mg/kg	NC(1)	40
5219467	1,2-dichloropropane	2011/09/28	105	60 - 140	97	60 - 140	<0.025	mg/kg	NC(1)	40
5219467	Trichloroethene	2011/09/28	104	60 - 140	103	60 - 140	<0.0090	mg/kg	NC(1)	40
5219467	Bromodichloromethane	2011/09/28	105	60 - 140	95	60 - 140	<0.050	mg/kg	NC(1)	40
5219467	cis-1,3-dichloropropene	2011/09/28	100	60 - 140	65	60 - 140	<0.050	mg/kg	NC(1)	40
5219467	trans-1,3-dichloropropene	2011/09/28	101	60 - 140	72	60 - 140	<0.050	mg/kg	NC(1)	40
5219467	1,1,2-trichloroethane	2011/09/28	101	60 - 140	88	60 - 140	<0.025	mg/kg	NC(1)	40
5219467	Toluene	2011/09/28	105	60 - 140	98	60 - 140	<0.020	mg/kg	NC(1)	40
5219467	Chlorodibromomethane	2011/09/28	108	60 - 140	94	60 - 140	<0.050	mg/kg	NC(1)	40
5219467	1,2-dibromoethane	2011/09/28	108	60 - 140	96	60 - 140	<0.025	mg/kg	NC	40
5219467	Tetrachloroethene	2011/09/28	102	60 - 140	98	60 - 140	<0.025	mg/kg	NC(1)	40
5219467	Chlorobenzene	2011/09/28	96	60 - 140	97	60 - 140	<0.025	mg/kg	NC(1)	40
5219467	1,1,1,2-tetrachloroethane	2011/09/28	103	60 - 140	100	60 - 140	<0.025	mg/kg	NC(1)	40
5219467	Ethylbenzene	2011/09/28	112	60 - 140	112	60 - 140	<0.010	mg/kg	NC(1)	40
5219467	m & p-Xylene	2011/09/28	114	60 - 140	118	60 - 140	<0.040	mg/kg	NC(1)	40
5219467	Bromoform	2011/09/28	110	60 - 140	90	60 - 140	<0.050	mg/kg	NC(1)	40
5219467	Styrene	2011/09/28	129	60 - 140	113	60 - 140	<0.030	mg/kg	NC(1)	40

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			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5219467	o-Xylene	2011/09/28	107	60 - 140	107	60 - 140	<0.040	mg/kg	NC(1)	40
5219467	1,1,2,2-tetrachloroethane	2011/09/28	101	60 - 140	102	60 - 140	<0.025	mg/kg	NC(1)	40
5219467	Dibromomethane	2011/09/28			88	60 - 140	<0.20	mg/kg		
5219467	Methyl-tert-butylether(MTBE)	2011/09/28					<0.10	mg/kg	NC(1)	40
5219467	Xylenes (Total)	2011/09/28					<0.040	mg/kg	NC	40
5219542	4-BROMOFLUOROBENZENE (sur.)	2011/09/29	101	70 - 130	99	70 - 130	89	%		
5219542	D10-ETHYLBENZENE (sur.)	2011/09/29	96	50 - 130	87	50 - 130	98	%		
5219542	D4-1,2-DICHLOROETHANE (sur.)	2011/09/29	91	70 - 130	88	70 - 130	86	%		
5219542	D8-TOLUENE (sur.)	2011/09/29	101	70 - 130	99	70 - 130	99	%		
5219542	Chloromethane	2011/09/29	112	40 - 150	126	40 - 150	<0.10	mg/kg	NC	40
5219542	Vinyl chloride	2011/09/29	106	40 - 150	97	40 - 150	<0.060	mg/kg	NC	40
5219542	Bromomethane	2011/09/29	90	40 - 150	95	40 - 150	<0.30	mg/kg	NC	40
5219542	Chloroethane	2011/09/29	109	40 - 150	104	40 - 150	<0.10	mg/kg	NC	40
5219542	Trichlorofluoromethane	2011/09/29	126	40 - 150	118	40 - 150	<0.20	mg/kg	NC	40
5219542	1,1-dichloroethene	2011/09/29	93	60 - 140	97	60 - 140	<0.025	mg/kg	NC	40
5219542	Dichloromethane	2011/09/29	86	60 - 140	88	60 - 140	<0.10	mg/kg	NC	40
5219542	trans-1,2-dichloroethene	2011/09/29	85	60 - 140	88	60 - 140	<0.025	mg/kg	NC	40
5219542	1,1-dichloroethane	2011/09/29	93	60 - 140	96	60 - 140	<0.025	mg/kg	NC	40
5219542	cis-1,2-dichloroethene	2011/09/29	85	60 - 140	86	60 - 140	<0.025	mg/kg	NC	40
5219542	Chloroform	2011/09/29	87	60 - 140	88	60 - 140	<0.050	mg/kg	NC	40
5219542	1,1,1-trichloroethane	2011/09/29	91	60 - 140	93	60 - 140	<0.025	mg/kg	NC	40
5219542	1,2-dichloroethane	2011/09/29	81	60 - 140	83	60 - 140	<0.025	mg/kg	NC	40
5219542	Carbon tetrachloride	2011/09/29	93	60 - 140	94	60 - 140	<0.025	mg/kg	NC	40
5219542	Benzene	2011/09/29	95	60 - 140	97	60 - 140	<0.0050	mg/kg	NC	40
5219542	1,2-dichloropropane	2011/09/29	88	60 - 140	91	60 - 140	<0.025	mg/kg	NC	40
5219542	Trichloroethene	2011/09/29	94	60 - 140	94	60 - 140	<0.0090	mg/kg	NC	40
5219542	Bromodichloromethane	2011/09/29	86	60 - 140	86	60 - 140	<0.050	mg/kg	NC	40
5219542	cis-1,3-dichloropropene	2011/09/29	67	60 - 140	78	60 - 140	<0.050	mg/kg	NC	40
5219542	trans-1,3-dichloropropene	2011/09/29	74	60 - 140	86	60 - 140	<0.050	mg/kg	NC	40
5219542	1,1,2-trichloroethane	2011/09/29	81	60 - 140	84	60 - 140	<0.025	mg/kg	NC	40
5219542	Toluene	2011/09/29	90	60 - 140	92	60 - 140	<0.020	mg/kg	NC	40
5219542	Chlorodibromomethane	2011/09/29	84	60 - 140	86	60 - 140	<0.050	mg/kg	NC	40
5219542	1,2-dibromoethane	2011/09/29	76	60 - 140	89	60 - 140	<0.025	mg/kg	NC	40
5219542	Tetrachloroethene	2011/09/29	90	60 - 140	90	60 - 140	<0.025	mg/kg	NC	40
5219542	Chlorobenzene	2011/09/29	86	60 - 140	85	60 - 140	<0.025	mg/kg	NC	40
5219542	1,1,1,2-tetrachloroethane	2011/09/29	91	60 - 140	91	60 - 140	<0.025	mg/kg	NC	40
5219542	Ethylbenzene	2011/09/29	101	60 - 140	102	60 - 140	<0.010	mg/kg	NC	40
5219542	m & p-Xylene	2011/09/29	105	60 - 140	105	60 - 140	<0.040	mg/kg	NC	40
5219542	Bromoform	2011/09/29	83	60 - 140	84	60 - 140	<0.050	mg/kg	NC	40
5219542	Styrene	2011/09/29	101	60 - 140	105	60 - 140	<0.030	mg/kg	NC	40

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5219542	o-Xylene	2011/09/29	96	60 - 140	98	60 - 140	<0.040	mg/kg	NC	40
5219542	1,1,2,2-tetrachloroethane	2011/09/29	90	60 - 140	92	60 - 140	<0.025	mg/kg	NC	40
5219542	Dibromomethane	2011/09/29	81	60 - 140	81	60 - 140	<0.20	mg/kg	NC	40
5219542	Methyl-tert-butylether(MTBE)	2011/09/29					<0.10	mg/kg	NC	40
5219542	Xylenes (Total)	2011/09/29					<0.040	mg/kg	NC	40
5219959	CSR VH C6-C10	2011/09/29					<10	mg/kg	NC(1)	50
5219967	VH C6-C10	2011/09/29					<10	mg/kg	NC	50
5220931	Extractable (MeOH) 4-Methyl-2-pentanone (MIBK)	2011/09/29					0.64, RDL=0.50	mg/kg	NC	50
5220931	Extractable (MeOH) 2-Butanone (MEK)	2011/09/29					<5.0	mg/kg	NC	50
5220931	Extractable (MeOH) 4-BROMOFLUOROBENZENE (sur.)	2011/09/29					101	%		
5220931	Extractable (MeOH) Acetone	2011/09/29					<5.0	mg/kg	NC	50
5220931	Extractable (MeOH) D4-1,2-DICHLOROETHANE (sur.)	2011/09/29					105	%		
5220931	Extractable (MeOH) D8-TOLUENE (sur.)	2011/09/29					99	%		
5220983	Extractable (MeOH) 4-Methyl-2-pentanone (MIBK)	2011/09/29					<0.50	mg/kg		
5220983	Extractable (MeOH) 2-Butanone (MEK)	2011/09/29					<5.0	mg/kg		
5220983	Extractable (MeOH) 4-BROMOFLUOROBENZENE (sur.)	2011/09/29					100	%		
5220983	Extractable (MeOH) Acetone	2011/09/29					<5.0	mg/kg		
5220983	Extractable (MeOH) D4-1,2-DICHLOROETHANE (sur.)	2011/09/29					99	%		
5220983	Extractable (MeOH) D8-TOLUENE (sur.)	2011/09/29					101	%		
5221284	Hex. Chromium (Cr 6+)	2011/09/29	100	75 - 125	109	75 - 125	1.1, RDL=1.0	mg/kg	NC	30
5221305	Hex. Chromium (Cr 6+)	2011/09/29	62(2)	75 - 125	109	75 - 125	1.1, RDL=1.0	mg/kg	NC	30
5221365	SEM Cadmium (Cd)	2011/09/30					<0.00020	umole/g	5.5	30
5221365	SEM Copper (Cu)	2011/09/30					<0.0040	umole/g	8.9	30
5221365	SEM Lead (Pb)	2011/09/30					<0.00020	umole/g	1.7	30
5221365	SEM Mercury (Hg)	2011/09/30					<0.00030	umole/g	NC	30
5221365	SEM Nickel (Ni)	2011/09/30					<0.0040	umole/g	10.5	30
5221365	SEM Zinc (Zn)	2011/09/30					<0.0080	umole/g	0.8	30
5222556	Total Antimony (Sb)	2011/09/30	98	75 - 125	96	75 - 125	<0.10	mg/kg	NC	30
5222556	Total Arsenic (As)	2011/09/30	103	75 - 125	100	75 - 125	<0.50	mg/kg	5.3	30
5222556	Total Barium (Ba)	2011/09/30	NC	75 - 125	107	75 - 125	<0.10	mg/kg	0.4	35
5222556	Total Beryllium (Be)	2011/09/30	102	75 - 125	100	75 - 125	<0.40	mg/kg	NC	30
5222556	Total Cadmium (Cd)	2011/09/30	105	75 - 125	97	75 - 125	<0.050	mg/kg	0.9	30
5222556	Total Chromium (Cr)	2011/09/30	105	75 - 125	105	75 - 125	<1.0	mg/kg	0.5	30
5222556	Total Cobalt (Co)	2011/09/30	101	75 - 125	104	75 - 125	<0.30	mg/kg	0.9	30
5222556	Total Copper (Cu)	2011/09/30	110	75 - 125	104	75 - 125	<0.50	mg/kg	0.8	30
5222556	Total Lead (Pb)	2011/09/30	98	75 - 125	96	75 - 125	<0.10	mg/kg	2.2	35
5222556	Total Lithium (Li)	2011/09/30	99	75 - 125	95	75 - 125	<5.0	mg/kg	NC	30
5222556	Total Manganese (Mn)	2011/09/30	NC	75 - 125	105	75 - 125	<0.20	mg/kg	0.3	30
5222556	Total Molybdenum (Mo)	2011/09/30	106	75 - 125	95	75 - 125	<0.10	mg/kg	3.4	35
5222556	Total Nickel (Ni)	2011/09/30	105	75 - 125	106	75 - 125	<0.80	mg/kg	1.6	30

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5222556	Total Selenium (Se)	2011/09/30	103	75 - 125	104	75 - 125	<0.50	mg/kg	NC	30
5222556	Total Silver (Ag)	2011/09/30	91	75 - 125	84	75 - 125	<0.050	mg/kg	NC	35
5222556	Total Strontium (Sr)	2011/09/30	NC	75 - 125	99	75 - 125	<0.10	mg/kg	1.9	35
5222556	Total Thallium (Tl)	2011/09/30	97	75 - 125	95	75 - 125	<0.050	mg/kg	NC	30
5222556	Total Tin (Sn)	2011/09/30	NC	75 - 125	78	75 - 125	<0.10	mg/kg	7.1	35
5222556	Total Titanium (Ti)	2011/09/30	NC	75 - 125	101	75 - 125	<1.0	mg/kg	0.1	35
5222556	Total Vanadium (V)	2011/09/30	NC	75 - 125	106	75 - 125	<2.0	mg/kg	0.4	30
5222556	Total Zinc (Zn)	2011/09/30	NC	75 - 125	104	75 - 125	<1.0	mg/kg	1.4	30
5222556	Total Aluminum (Al)	2011/09/30					<100	mg/kg	0.04	35
5222556	Total Calcium (Ca)	2011/09/30					<100	mg/kg	1.2	30
5222556	Total Iron (Fe)	2011/09/30					<100	mg/kg	3.3	30
5222556	Total Magnesium (Mg)	2011/09/30					<100	mg/kg	0.02	30
5222556	Total Phosphorus (P)	2011/09/30					<10	mg/kg	1.8	30
5222556	Total Bismuth (Bi)	2011/09/30					<0.10	mg/kg	NC	30
5222556	Total Potassium (K)	2011/09/30					<100	mg/kg	1.7	35
5222556	Total Sodium (Na)	2011/09/30					<100	mg/kg	1	35
5222581	Soluble (2:1) pH	2011/09/30			102	96 - 104			1.2	20
5222675	Total Antimony (Sb)	2011/10/03	95	75 - 125	97	75 - 125	<0.10	mg/kg	21.9	30
5222675	Total Arsenic (As)	2011/10/03	96	75 - 125	100	75 - 125	<0.50	mg/kg	7.0	30
5222675	Total Barium (Ba)	2011/10/03	NC	75 - 125	102	75 - 125	<0.10	mg/kg	4.6	35
5222675	Total Beryllium (Be)	2011/10/03	95	75 - 125	96	75 - 125	<0.40	mg/kg	NC	30
5222675	Total Cadmium (Cd)	2011/10/03	102	75 - 125	99	75 - 125	<0.050	mg/kg	81.3(2)	30
5222675	Total Chromium (Cr)	2011/10/03	NC	75 - 125	98	75 - 125	<1.0	mg/kg	106(2)	30
5222675	Total Cobalt (Co)	2011/10/03	97	75 - 125	100	75 - 125	<0.30	mg/kg	2.7	30
5222675	Total Copper (Cu)	2011/10/03	NC	75 - 125	101	75 - 125	<0.50	mg/kg	87.7(2)	30
5222675	Total Lead (Pb)	2011/10/03	NC	75 - 125	98	75 - 125	<0.10	mg/kg	67.7(2)	35
5222675	Total Lithium (Li)	2011/10/03	99	75 - 125	97	75 - 125	<5.0	mg/kg	NC	30
5222675	Total Manganese (Mn)	2011/10/03	NC	75 - 125	99	75 - 125	<0.20	mg/kg	9.3	30
5222675	Total Molybdenum (Mo)	2011/10/03	122	75 - 125	97	75 - 125	<0.10	mg/kg	24.4	35
5222675	Total Nickel (Ni)	2011/10/03	NC	75 - 125	101	75 - 125	<0.80	mg/kg	92.4(2)	30
5222675	Total Selenium (Se)	2011/10/03	98	75 - 125	100	75 - 125	<0.50	mg/kg	NC	30
5222675	Total Silver (Ag)	2011/10/03	260(2)	75 - 125	87	75 - 125	<0.050	mg/kg	35.0	35
5222675	Total Strontium (Sr)	2011/10/03	NC	75 - 125	97	75 - 125	<0.10	mg/kg	22.1	35
5222675	Total Thallium (Tl)	2011/10/03	100	75 - 125	95	75 - 125	<0.050	mg/kg	NC	30
5222675	Total Tin (Sn)	2011/10/03	NC	75 - 125	86	75 - 125	<0.10	mg/kg	84.6(2)	35
5222675	Total Titanium (Ti)	2011/10/03	NC	75 - 125	99	75 - 125	<1.0	mg/kg	0.1	35
5222675	Total Vanadium (V)	2011/10/03	NC	75 - 125	101	75 - 125	<2.0	mg/kg	2.7	30
5222675	Total Zinc (Zn)	2011/10/03	NC	75 - 125	102	75 - 125	<1.0	mg/kg	31.3(2)	30
5222675	Total Aluminum (Al)	2011/10/03					<100	mg/kg	5.0	35
5222675	Total Calcium (Ca)	2011/10/03					<100	mg/kg	8.8	30

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QUALITY ASSURANCE REPORT

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5222675	Total Iron (Fe)	2011/10/03					<100	mg/kg	3.9	30
5222675	Total Magnesium (Mg)	2011/10/03					<100	mg/kg	5.6	30
5222675	Total Phosphorus (P)	2011/10/03					<10	mg/kg	14.7	30
5222675	Total Bismuth (Bi)	2011/10/03					<0.10	mg/kg	26.7	30
5222675	Total Potassium (K)	2011/10/03					<100	mg/kg	4.5	35
5222675	Total Sodium (Na)	2011/10/03					<100	mg/kg	3.1	35
5222718	Soluble (2:1) pH	2011/09/30			102	96 - 104			0.5	20
5223473	2,4,6-TRIBROMOPHENOL (sur.)	2011/10/10	121	19 - 122	76	19 - 122	48	%		
5223473	2-FLUOROBIPHENYL (sur.)	2011/10/10	88	30 - 115	91	30 - 115	94	%		
5223473	TERPHENYL-D14 (sur.)	2011/10/10	91	18 - 137	103	18 - 137	97	%		
5223473	D5-PHENOL (sur.)	2011/10/10	77	24 - 113	85	24 - 113	87	%		
5223473	2,4-dinitrotoluene	2011/11/15	107 (2)	24 - 96	86	24 - 96	<0.050	mg/kg	NC	50
5223473	D5-NITROBENZENE (sur.)	2011/10/10	90	23 - 120	89	23 - 120	91	%		
5223473	N-nitroso-di-n-propylamine	2011/11/15	79	40 - 140	87	40 - 140	<0.060	mg/kg	NC	50
5223473	1,2,4-trichlorobenzene	2011/11/15	79	44 - 142	87	44 - 142	<0.060	mg/kg	NC	50
5223473	1,4-dichlorobenzene	2011/11/15	67	20 - 124	77	20 - 124	<0.10	mg/kg	NC	50
5223473	Acenaphthene	2011/11/15	250 (2)	47 - 145	88	47 - 145	<0.090	mg/kg	NC	50
5223473	Pyrene	2011/11/15	1390 (2)	52 - 115	95	52 - 115	<0.080	mg/kg	NC	50
5223473	2-chlorophenol	2011/11/15	73	27 - 123	78	27 - 123	<0.080	mg/kg	NC	50
5223473	4-chloro-3-methylphenol	2011/10/10	83	22 - 147	79	22 - 147	<0.070	mg/kg		
5223473	4-nitrophenol	2011/11/15	8.0	1 - 132	66	1 - 132	<0.050	mg/kg	NC	50
5223473	Pentachlorophenol	2011/11/15	100	14 - 176	47	14 - 176	<0.020	mg/kg	NC	50
5223473	Phenol	2011/11/15	72	12 - 110	75	12 - 110	<0.060	mg/kg	5.7	50
5223473	alpha-Terpineol	2011/11/15					<0.10	mg/kg	NC	N/A
5223473	1,2-diphenylhydrazine	2011/11/15					<0.10	mg/kg	NC	50
5223473	2,6-dinitrotoluene	2011/11/15					<0.050	mg/kg	NC	50
5223473	2-chloronaphthalene	2011/11/15					<0.080	mg/kg	NC	50
5223473	3,3'-Dichlorobenzidine	2011/10/10					<0.50	mg/kg		
5223473	4-bromophenyl phenyl ether	2011/11/15					<0.060	mg/kg	NC	50
5223473	4-chlorophenyl phenyl ether	2011/11/15					<0.070	mg/kg	NC	50
5223473	Benzidine	2011/11/15					<10	mg/kg	NC	50
5223473	Bis(2-chloroethoxy)methane	2011/11/15					<0.080	mg/kg	NC	50
5223473	Bis(2-chloroethyl)ether	2011/11/15					<0.060	mg/kg	NC	50
5223473	Bis(2-chloroisopropyl)ether	2011/11/15					<0.20	mg/kg	NC	50
5223473	Hexachlorobutadiene	2011/11/15					<0.050	mg/kg	NC	50
5223473	Hexachlorocyclopentadiene	2011/10/10					<0.20	mg/kg		
5223473	Hexachloroethane	2011/11/15					<0.060	mg/kg	NC	50
5223473	Isophorone	2011/11/15					<0.060	mg/kg	NC	50
5223473	Nitrobenzene	2011/11/15					<0.070	mg/kg	NC	50
5223473	N-nitrosodimethylamine	2011/10/10					<0.50	mg/kg		

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5223473	N-nitrosodiphenylamine	2011/11/15					<0.080	mg/kg	NC	50
5223473	1,2-dichlorobenzene	2011/11/15					<0.10	mg/kg	NC	50
5223473	1,3-dichlorobenzene	2011/11/15					<0.10	mg/kg	NC	50
5223473	Hexachlorobenzene	2011/11/15					<0.060	mg/kg	NC	50
5223473	2-Methylnaphthalene	2011/10/10					<0.030	mg/kg		
5223473	Acenaphthylene	2011/11/15					<0.090	mg/kg	NC	50
5223473	Anthracene	2011/11/15					<0.080	mg/kg	NC	50
5223473	Benzo(a)anthracene	2011/11/15					<0.070	mg/kg	NC	50
5223473	Benzo(a)pyrene	2011/11/15					<0.070	mg/kg	NC	50
5223473	Benzo(b&j)fluoranthene	2011/11/15					<0.070	mg/kg	NC	50
5223473	Benzo(g,h,i)perylene	2011/11/15					<0.080	mg/kg	NC	50
5223473	Benzo(k)fluoranthene	2011/11/15					<0.070	mg/kg	NC	50
5223473	Chrysene	2011/11/15					<0.090	mg/kg	NC	50
5223473	Dibenz(a,h)anthracene	2011/11/15					<0.080	mg/kg	NC	50
5223473	Fluoranthene	2011/11/15					<0.080	mg/kg	NC	50
5223473	Fluorene	2011/11/15					<0.090	mg/kg	NC	50
5223473	Indeno(1,2,3-cd)pyrene	2011/11/15					<0.070	mg/kg	NC	50
5223473	Naphthalene	2011/11/15					<0.070	mg/kg	NC	50
5223473	Phenanthrene	2011/11/15					<0.080	mg/kg	NC	50
5223473	2,4 + 2,5-Dichlorophenol	2011/11/15					<0.070	mg/kg	NC	50
5223473	2,4,6-trichlorophenol	2011/11/15					<0.070	mg/kg	NC	50
5223473	2,4-dimethylphenol	2011/10/10					<0.050	mg/kg		
5223473	2,4-dinitrophenol	2011/11/15					<0.50	mg/kg	NC	50
5223473	2-methylphenol	2011/11/15					<0.050	mg/kg	NC	50
5223473	2-nitrophenol	2011/11/15					<0.050	mg/kg	NC	50
5223473	4,6-dinitro-2-methylphenol	2011/11/15					<0.50	mg/kg	NC	50
5223473	Bis(2-ethylhexyl)phthalate	2011/11/15					<2.0	mg/kg	NC	50
5223473	Butyl benzyl phthalate	2011/11/15					<0.10	mg/kg	NC	50
5223473	Diethyl phthalate	2011/11/15					<0.090	mg/kg	NC	50
5223473	Dimethyl phthalate	2011/11/15					<0.070	mg/kg	NC	50
5223473	Di-n-butyl phthalate	2011/11/15					<0.070	mg/kg	NC	50
5223473	Di-n-octyl phthalate	2011/11/15					<0.10	mg/kg	NC	50
5223505	SEM Cadmium (Cd)	2011/09/29					<0.00020	umole/g	4.4	30
5223505	SEM Copper (Cu)	2011/09/29					<0.0040	umole/g	0.2	30
5223505	SEM Lead (Pb)	2011/09/29					<0.00020	umole/g	0.02	30
5223505	SEM Mercury (Hg)	2011/09/29					<0.00030	umole/g	NC	30
5223505	SEM Nickel (Ni)	2011/09/29					0.0045, RDL=0.0040	umole/g	2.3	30
5223505	SEM Zinc (Zn)	2011/09/29					<0.0080	umole/g	2.2	30
5226242	Total Mercury (Hg)	2011/10/01	116	75 - 125	120	75 - 125	<0.010	mg/kg	141(2)	35
5226311	Total Mercury (Hg)	2011/10/01	869	75 - 125	109	75 - 125	<0.010	mg/kg	120(2)	35

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			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5226618	Extractable (Water) Phenols	2011/10/03					<0.020	mg/kg	NC	30
5227217	Cyanide + Thiocyanate	2011/09/30	32	N/A	107	N/A	<0.020	ug/g	NC	30
5227859	2,4,6-TRIBROMOPHENOL (sur.)	2011/10/09	130(2, 3)	19 - 122	67	19 - 122	57	%		
5227859	2-FLUOROBIPHENYL (sur.)	2011/10/09	90	30 - 115	96	30 - 115	96	%		
5227859	TERPHENYL-D14 (sur.)	2011/10/09	95	18 - 137	103	18 - 137	102	%		
5227859	D5-PHENOL (sur.)	2011/10/09	95	24 - 113	83	24 - 113	80	%		
5227859	2,4-dinitrotoluene	2011/10/11	100(2)	24 - 96	94	24 - 96	<0.050	mg/kg	NC	50
5227859	D5-NITROBENZENE (sur.)	2011/10/09	86	23 - 120	95	23 - 120	89	%		
5227859	N-nitroso-di-n-propylamine	2011/10/11	77	40 - 140	80	40 - 140	<0.060	mg/kg	NC	50
5227859	1,2,4-trichlorobenzene	2011/10/11	82	44 - 142	92	44 - 142	<0.060	mg/kg	NC	50
5227859	1,4-dichlorobenzene	2011/10/11	68	20 - 124	81	20 - 124	<0.10	mg/kg	NC	50
5227859	Acenaphthene	2011/10/11	71	47 - 145	90	47 - 145	<0.090	mg/kg	NC	50
5227859	Pyrene	2011/10/11	NC	52 - 115	91	52 - 115	<0.080	mg/kg	185(2)	50
5227859	2-chlorophenol	2011/10/11	74	27 - 123	77	27 - 123	<0.080	mg/kg	NC	50
5227859	4-chloro-3-methylphenol	2011/10/09	79	22 - 147	61	22 - 147	<0.070	mg/kg		
5227859	4-nitrophenol	2011/10/11	98	1 - 132	49	1 - 132	<0.050	mg/kg	NC	50
5227859	Pentachlorophenol	2011/10/11	106	14 - 176	10(2, 4)	14 - 176	<0.020	mg/kg	NC	50
5227859	Phenol	2011/10/11	NC	12 - 110	74	12 - 110	<0.060	mg/kg	12.4	50
5227859	alpha-Terpineol	2011/10/11					<0.10	mg/kg	NC	N/A
5227859	1,2-diphenylhydrazine	2011/10/11					<0.10	mg/kg	NC	50
5227859	2,6-dinitrotoluene	2011/10/11					<0.050	mg/kg	NC	50
5227859	2-chloronaphthalene	2011/10/11					<0.080	mg/kg	NC	50
5227859	3,3'-Dichlorobenzidine	2011/10/09					<0.50	mg/kg		
5227859	4-bromophenyl phenyl ether	2011/10/11					<0.060	mg/kg	NC	50
5227859	4-chlorophenyl phenyl ether	2011/10/11					<0.070	mg/kg	NC	50
5227859	Benzidine	2011/10/11					<10	mg/kg	NC	50
5227859	Bis(2-chloroethoxy)methane	2011/10/11					<0.080	mg/kg	NC	50
5227859	Bis(2-chloroethyl)ether	2011/10/11					<0.060	mg/kg	NC	50
5227859	Bis(2-chloroisopropyl)ether	2011/10/11					<0.20	mg/kg	NC	50
5227859	Hexachlorobutadiene	2011/10/11					<0.050	mg/kg	NC	50
5227859	Hexachlorocyclopentadiene	2011/10/09					<0.20	mg/kg		
5227859	Hexachloroethane	2011/10/11					<0.060	mg/kg	NC	50
5227859	Isophorone	2011/10/11					<0.060	mg/kg	NC	50
5227859	Nitrobenzene	2011/10/11					<0.070	mg/kg	NC	50
5227859	N-nitrosodimethylamine	2011/10/09					<0.50	mg/kg		
5227859	N-nitrosodiphenylamine	2011/10/11					<0.080	mg/kg	NC	50
5227859	1,2-dichlorobenzene	2011/10/11					<0.10	mg/kg	NC	50
5227859	1,3-dichlorobenzene	2011/10/11					<0.10	mg/kg	NC	50
5227859	Hexachlorobenzene	2011/10/11					<0.060	mg/kg	NC	50
5227859	2-Methylnaphthalene	2011/10/09					<0.030	mg/kg		

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5227859	Acenaphthylene	2011/10/11					<0.090	mg/kg	NC	50
5227859	Anthracene	2011/10/11					<0.080	mg/kg	NC	50
5227859	Benzo(a)anthracene	2011/10/11					<0.070	mg/kg	NC	50
5227859	Benzo(a)pyrene	2011/10/11					<0.070	mg/kg	NC	50
5227859	Benzo(b&j)fluoranthene	2011/10/11					<0.070	mg/kg	NC	50
5227859	Benzo(g,h,i)perylene	2011/10/11					<0.080	mg/kg	NC	50
5227859	Benzo(k)fluoranthene	2011/10/11					<0.070	mg/kg	NC	50
5227859	Chrysene	2011/10/11					<0.090	mg/kg	NC	50
5227859	Dibenz(a,h)anthracene	2011/10/11					<0.080	mg/kg	NC	50
5227859	Fluoranthene	2011/10/11					<0.080	mg/kg	190(2)	50
5227859	Fluorene	2011/10/11					<0.090	mg/kg	NC	50
5227859	Indeno(1,2,3-cd)pyrene	2011/10/11					<0.070	mg/kg	NC	50
5227859	Naphthalene	2011/10/11					<0.070	mg/kg	NC	50
5227859	Phenanthrene	2011/10/11					<0.080	mg/kg	NC	50
5227859	2,4 + 2,5-Dichlorophenol	2011/10/11					<0.070	mg/kg	NC	50
5227859	2,4,6-trichlorophenol	2011/10/11					<0.070	mg/kg	NC	50
5227859	2,4-dimethylphenol	2011/10/09					<0.050	mg/kg		
5227859	2,4-dinitrophenol	2011/10/11					<0.50	mg/kg	NC	50
5227859	2-methylphenol	2011/10/11					<0.050	mg/kg	NC	50
5227859	2-nitrophenol	2011/10/11					<0.050	mg/kg	NC	50
5227859	4,6-dinitro-2-methylphenol	2011/10/11					<0.50	mg/kg	NC	50
5227859	Bis(2-ethylhexyl)phthalate	2011/10/11					<2.0	mg/kg	NC	50
5227859	Butyl benzyl phthalate	2011/10/11					<0.10	mg/kg	NC	50
5227859	Diethyl phthalate	2011/10/11					<0.090	mg/kg	NC	50
5227859	Dimethyl phthalate	2011/10/11					<0.070	mg/kg	NC	50
5227859	Di-n-butyl phthalate	2011/10/11					<0.070	mg/kg	NC	50
5227859	Di-n-octyl phthalate	2011/10/11					<0.10	mg/kg	NC	50
5243251	2,4,6-TRIBROMOPHENOL (sur.)	2011/11/11	71	19 - 122	62	19 - 122	60	%		
5243251	2-FLUOROBIPHENYL (sur.)	2011/11/11	75	30 - 115	78	30 - 115	78	%		
5243251	TERPHENYL-D14 (sur.)	2011/11/11	80	18 - 137	81	18 - 137	82	%		
5243251	D5-PHENOL (sur.)	2011/11/11	70	24 - 113	66	24 - 113	67	%		
5243251	2,4-dinitrotoluene	2011/11/11	71	24 - 96	64	24 - 96	<0.050	mg/kg	NC	50
5243251	D5-NITROBENZENE (sur.)	2011/11/11	73	23 - 120	72	23 - 120	68	%		
5243251	N-nitroso-di-n-propylamine	2011/11/11	67	40 - 140	73	40 - 140	<0.060	mg/kg	NC	50
5243251	1,2,4-trichlorobenzene	2011/11/11	74	44 - 142	77	44 - 142	<0.060	mg/kg	NC	50
5243251	1,4-dichlorobenzene	2011/11/11	69	20 - 124	73	20 - 124	<0.10	mg/kg	NC	50
5243251	Acenaphthene	2011/11/11	73	47 - 145	75	47 - 145	<0.090	mg/kg	NC	50
5243251	Pyrene	2011/11/11	76	52 - 115	79	52 - 115	<0.080	mg/kg	NC	50
5243251	2-chlorophenol	2011/11/11	64	27 - 123	65	27 - 123	<0.080	mg/kg	NC	50
5243251	4-chloro-3-methylphenol	2011/11/11	57	22 - 147	54	22 - 147	<0.070	mg/kg		

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5243251	4-nitrophenol	2011/11/11	68	1 - 132	43	1 - 132	<0.050	mg/kg	NC	50
5243251	Pentachlorophenol	2011/11/11	73	14 - 176	46	14 - 176	<0.020	mg/kg	NC	50
5243251	Phenol	2011/11/11	60	12 - 110	61	12 - 110	<0.060	mg/kg	NC	50
5243251	alpha-Terpineol	2011/11/11					<0.10	mg/kg	NC	N/A
5243251	1,2-diphenylhydrazine	2011/11/11					<0.10	mg/kg	NC	50
5243251	2,6-dinitrotoluene	2011/11/11					<0.050	mg/kg	NC	50
5243251	2-chloronaphthalene	2011/11/11					<0.080	mg/kg	NC	50
5243251	3,3'-Dichlorobenzidine	2011/11/11					<0.50	mg/kg		
5243251	4-bromophenyl phenyl ether	2011/11/11					<0.060	mg/kg	NC	50
5243251	4-chlorophenyl phenyl ether	2011/11/11					<0.070	mg/kg	NC	50
5243251	Benzidine	2011/11/11					<10	mg/kg	NC	50
5243251	Bis(2-chloroethoxy)methane	2011/11/11					<0.080	mg/kg	NC	50
5243251	Bis(2-chloroethyl)ether	2011/11/11					<0.060	mg/kg	NC	50
5243251	Bis(2-chloroisopropyl)ether	2011/11/11					<0.20	mg/kg	NC	50
5243251	Hexachlorobutadiene	2011/11/11					<0.050	mg/kg	NC	50
5243251	Hexachlorocyclopentadiene	2011/11/11					<0.20	mg/kg		
5243251	Hexachloroethane	2011/11/11					<0.060	mg/kg	NC	50
5243251	Isophorone	2011/11/11					<0.060	mg/kg	NC	50
5243251	Nitrobenzene	2011/11/11					<0.070	mg/kg	NC	50
5243251	N-nitrosodimethylamine	2011/11/11					<0.50	mg/kg	NC	50
5243251	N-nitrosodiphenylamine	2011/11/11					<0.080	mg/kg	NC	50
5243251	1,2-dichlorobenzene	2011/11/11					<0.10	mg/kg	NC	50
5243251	1,3-dichlorobenzene	2011/11/11					<0.10	mg/kg	NC	50
5243251	Hexachlorobenzene	2011/11/11					<0.060	mg/kg	NC	50
5243251	2-Methylnaphthalene	2011/11/11					<0.030	mg/kg		
5243251	Acenaphthylene	2011/11/11					<0.090	mg/kg	NC	50
5243251	Anthracene	2011/11/11					<0.080	mg/kg	NC	50
5243251	Benzo(a)anthracene	2011/11/11					<0.070	mg/kg	NC	50
5243251	Benzo(a)pyrene	2011/11/11					<0.070	mg/kg	NC	50
5243251	Benzo(b&j)fluoranthene	2011/11/11					<0.070	mg/kg	NC	50
5243251	Benzo(g,h,i)perylene	2011/11/11					<0.080	mg/kg	NC	50
5243251	Benzo(k)fluoranthene	2011/11/11					<0.070	mg/kg	NC	50
5243251	Chrysene	2011/11/11					<0.090	mg/kg	NC	50
5243251	Dibenz(a,h)anthracene	2011/11/11					<0.080	mg/kg	NC	50
5243251	Fluoranthene	2011/11/11					<0.080	mg/kg	NC	50
5243251	Fluorene	2011/11/11					<0.090	mg/kg	NC	50
5243251	Indeno(1,2,3-cd)pyrene	2011/11/11					<0.070	mg/kg	NC	50
5243251	Naphthalene	2011/11/11					<0.070	mg/kg	NC	50
5243251	Phenanthrene	2011/11/11					<0.080	mg/kg	NC	50
5243251	2,4 + 2,5-Dichlorophenol	2011/11/11					<0.070	mg/kg	NC	50

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5243251	2,4,6-trichlorophenol	2011/11/11					<0.070	mg/kg	NC	50
5243251	2,4-dimethylphenol	2011/11/11					<0.050	mg/kg		
5243251	2,4-dinitrophenol	2011/11/11					<0.50	mg/kg	NC	50
5243251	2-methylphenol	2011/11/11					<0.050	mg/kg	NC	50
5243251	2-nitrophenol	2011/11/11					<0.050	mg/kg	NC	50
5243251	4,6-dinitro-2-methylphenol	2011/11/11					<0.50	mg/kg	NC	50
5243251	Bis(2-ethylhexyl)phthalate	2011/11/11					<2.0	mg/kg	NC	50
5243251	Butyl benzyl phthalate	2011/11/11					<0.10	mg/kg	NC	50
5243251	Diethyl phthalate	2011/11/11					<0.090	mg/kg	NC	50
5243251	Dimethyl phthalate	2011/11/11					<0.070	mg/kg	NC	50
5243251	Di-n-butyl phthalate	2011/11/11					<0.070	mg/kg	NC	50
5243251	Di-n-octyl phthalate	2011/11/11					<0.10	mg/kg	NC	50
5250942	% sand by hydrometer	2011/10/12							9.1	35
5250942	% silt by hydrometer	2011/10/12							15.6	35
5250942	Clay Content	2011/10/12							NC	35
5250942	Gravel	2011/10/12							26.7	35
5250944	% sand by hydrometer	2011/10/12							0.8	35
5250944	% silt by hydrometer	2011/10/12							3.5	35
5250944	Clay Content	2011/10/12							NC	35
5250944	Gravel	2011/10/12							NC	35
5255622	Sulphide	2011/10/12	93	80 - 120	99	80 - 120	0.0068, RDL=0.0050	mg/L	NC	20
5259312	% sand by hydrometer	2011/10/13							11.2	35
5259312	% silt by hydrometer	2011/10/13							15.0	35
5259312	Clay Content	2011/10/13							NC	35
5259312	Gravel	2011/10/13							29.5	35
5265795	Dissolved Organic Carbon (C)	2011/10/14	NC	80 - 120	107	80 - 120	<0.50	mg/L	NC	20
5266593	% sand by hydrometer	2011/10/15							0.4	35
5266593	% silt by hydrometer	2011/10/15							2.5	35
5266593	Clay Content	2011/10/15							NC	35
5266593	Gravel	2011/10/15							NC	35
5268043	Total Calcium (Ca)	2011/10/17					<50	ug/L		
5268043	Total Magnesium (Mg)	2011/10/17					<50	ug/L		
5269499	Total Calcium (Ca)	2011/10/18					<50	ug/L		
5269499	Total Magnesium (Mg)	2011/10/18					<50	ug/L		
5270538	Dissolved Organic Carbon (C)	2011/10/17	NC	80 - 120	106	80 - 120	<0.50	mg/L	NC	20
5270772	Total Organic Carbon (C)	2011/10/19			102	75 - 125	0.027, RDL=0.020	%	1.6	35
5272621	Ammonia (N)	2011/10/17	109	80 - 120	101	80 - 120	0.0063, RDL=0.0050	mg/L	0.07	20
5278392	Total Organic Carbon (C)	2011/10/19			101	75 - 125	0.025, RDL=0.020	%	8.5	35
5283706	Total Nitrogen	2011/10/21			100	75 - 125	<0.20	%	NC	35
5417187	Salinity	2011/12/03					<0.010	N/A	0.2	25

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CAPITAL REGIONAL DISTRICT
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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5420127	2,4,6-TRIBROMOPHENOL (sur.)	2011/12/14			81	10 - 123	77	%		
5420127	2-FLUOROBIPHENYL (sur.)	2011/12/14			65	43 - 116	81	%		
5420127	D5-NITROBENZENE (sur.)	2011/12/14			80	35 - 114	80	%		
5420127	D5-PHENOL (sur.)	2011/12/14			58	10 - 94	37	%		
5420127	TERPHENYL-D14 (sur.)	2011/12/14			82	33 - 141	82	%		
5420127	alpha-Terpineol	2011/12/14			85	40 - 125	<1.0	ug/L		
5420191	Sulphide	2011/12/05	114	80 - 120	102	80 - 120	0.0059, RDL=0.0050	mg/L	NC	20
5420873	2,4,6-TRIBROMOPHENOL (sur.)	2011/12/05			114	10 - 123	111	%		
5420873	D5-PHENOL (sur.)	2011/12/05			64	10 - 94	67	%		
5420873	Phenol	2011/12/05			62	12 - 110	<0.50	ug/L		
5420873	2-chlorophenol	2011/12/05			99	27 - 123	<0.10	ug/L		
5420873	3 & 4-chlorophenol	2011/12/05			89	27 - 123	<0.10	ug/L		
5420873	2-methylphenol	2011/12/05			93	25 - 120	<0.50	ug/L		
5420873	3 & 4-methylphenol	2011/12/05			93	25 - 120	<0.50	ug/L		
5420873	2-nitrophenol	2011/12/05			115	29 - 182	<0.50	ug/L		
5420873	2,4-dimethylphenol	2011/12/05			92	32 - 119	<0.50	ug/L		
5420873	2,4 + 2,5-Dichlorophenol	2011/12/05			99	39 - 135	<0.10	ug/L		
5420873	2,3-Dichlorophenol	2011/12/05			96	39 - 135	<0.10	ug/L		
5420873	2,6-dichlorophenol	2011/12/05			104	39 - 135	<0.10	ug/L		
5420873	3,5-Dichlorophenol	2011/12/05			100	39 - 135	<0.10	ug/L		
5420873	3,4-Dichlorophenol	2011/12/05			100	39 - 135	<0.10	ug/L		
5420873	2,4,5-trichlorophenol	2011/12/05			111	37 - 144	<0.10	ug/L		
5420873	2,4,6-trichlorophenol	2011/12/05			109	37 - 144	<0.10	ug/L		
5420873	2,3,5-trichlorophenol	2011/12/05			108	37 - 144	<0.10	ug/L		
5420873	2,3,6-Trichlorophenol	2011/12/05			112	37 - 144	<0.10	ug/L		
5420873	2,3,4-trichlorophenol	2011/12/05			108	37 - 144	<0.10	ug/L		
5420873	3,4,5-Trichlorophenol	2011/12/05			122	37 - 144	<0.10	ug/L		
5420873	2,4-dinitrophenol	2011/12/05			138	1 - 191	<0.50	ug/L		
5420873	4,6-dinitro-2-methylphenol	2011/12/05			115	1 - 181	<0.50	ug/L		
5420873	2,3,4,6-tetrachlorophenol	2011/12/05			123	14 - 176	<0.10	ug/L		
5420873	2,3,4,5-tetrachlorophenol	2011/12/05			91	14 - 176	<0.10	ug/L		
5420873	2,3,5,6-tetrachlorophenol	2011/12/05			131	14 - 176	<0.10	ug/L		
5420873	4-nitrophenol	2011/12/05			78	1 - 132	<0.50	ug/L		
5420873	Pentachlorophenol	2011/12/05			147	14 - 176	<0.10	ug/L		
5421039	O-TERPHENYL (sur.)	2011/12/06	111	50 - 130	110	50 - 130	111	%		
5421039	EPH (C10-C19)	2011/12/06	109	50 - 130	106	50 - 130	<0.20	mg/L	0.8	30
5421039	EPH (C19-C32)	2011/12/06	111	50 - 130	110	50 - 130	<0.20	mg/L	NC	30
5421050	D10-ANTHRACENE (sur.)	2011/12/06	110	60 - 130	103	60 - 130	96	%		
5421050	D8-ACENAPHTHYLENE (sur.)	2011/12/06	102	50 - 130	97	50 - 130	91	%		
5421050	D8-NAPHTHALENE (sur.)	2011/12/06	104	50 - 130	97	50 - 130	94	%		

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5421050	D9-Acridine	2011/12/06	93	50 - 130	88	50 - 130	81	%		
5421050	TERPHENYL-D14 (sur.)	2011/12/06	138(2, 3)	60 - 130	123	60 - 130	113	%		
5421050	Naphthalene	2011/12/06	98	50 - 130	95	50 - 130	<0.050	ug/L	1.1(5)	40
5421050	2-Methylnaphthalene	2011/12/06	100	50 - 130	95	50 - 130	<0.050	ug/L	14.8	40
5421050	Quinoline	2011/12/06	115	50 - 130	115	50 - 130	<0.50	ug/L	NC(6)	40
5421050	Acenaphthylene	2011/12/06	96	50 - 130	93	50 - 130	<0.050	ug/L	NC	40
5421050	Acenaphthene	2011/12/06	101	50 - 130	95	50 - 130	<0.050	ug/L	10.7	40
5421050	Fluorene	2011/12/06	111	50 - 130	103	50 - 130	<0.050	ug/L	9.7	40
5421050	Phenanthrene	2011/12/06	101	60 - 130	96	60 - 130	<0.050	ug/L	0	40
5421050	Anthracene	2011/12/06	100	60 - 130	96	60 - 130	<0.010	ug/L	1.9	40
5421050	Acridine	2011/12/06	84	50 - 130	83	50 - 130	<0.050	ug/L	NC	40
5421050	Fluoranthene	2011/12/06	118	60 - 130	109	60 - 130	<0.020	ug/L	0	40
5421050	Pyrene	2011/12/06	127	60 - 130	116	60 - 130	<0.020	ug/L	2.1	40
5421050	Benzo(a)anthracene	2011/12/06	113	60 - 130	99	60 - 130	<0.010	ug/L	NC	40
5421050	Chrysene	2011/12/06	123	60 - 130	120	60 - 130	<0.050	ug/L	NC	40
5421050	Benzo(b&j)fluoranthene	2011/12/06	110	60 - 130	109	60 - 130	<0.050	ug/L	NC	40
5421050	Benzo(k)fluoranthene	2011/12/06	102	60 - 130	117	60 - 130	<0.050	ug/L	NC	40
5421050	Benzo(a)pyrene	2011/12/06	109	60 - 130	120	60 - 130	<0.0090	ug/L	NC	40
5421050	Perylene	2011/12/06	119	60 - 130	120	60 - 130	<0.050	ug/L		
5421050	Indeno(1,2,3-cd)pyrene	2011/12/06	101	60 - 130	100	60 - 130	<0.050	ug/L	NC	40
5421050	Dibenz(a,h)anthracene	2011/12/06	108	60 - 130	101	60 - 130	<0.050	ug/L	NC	40
5421050	Benzo(g,h,i)perylene	2011/12/06	106	60 - 130	101	60 - 130	<0.050	ug/L	NC	40
5421949	Total Antimony (Sb)	2011/12/06	102	80 - 120	105	80 - 120	<0.50	ug/L		
5421949	Total Arsenic (As)	2011/12/06	96	80 - 120	98	80 - 120	<0.10	ug/L	NC	20
5421949	Total Barium (Ba)	2011/12/06	98	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
5421949	Total Beryllium (Be)	2011/12/06	96	80 - 120	94	80 - 120	<0.10	ug/L		
5421949	Total Bismuth (Bi)	2011/12/06	96	80 - 120	98	80 - 120	<1.0	ug/L		
5421949	Total Cadmium (Cd)	2011/12/06	96	80 - 120	95	80 - 120	<0.010	ug/L		
5421949	Total Chromium (Cr)	2011/12/06	96	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
5421949	Total Cobalt (Co)	2011/12/06	96	80 - 120	97	80 - 120	<0.50	ug/L		
5421949	Total Copper (Cu)	2011/12/06	94	80 - 120	99	80 - 120	<0.20	ug/L	NC	20
5421949	Total Iron (Fe)	2011/12/06	103	80 - 120	101	80 - 120	<5.0	ug/L		
5421949	Total Lead (Pb)	2011/12/06	92	80 - 120	99	80 - 120	<0.20	ug/L	NC	20
5421949	Total Lithium (Li)	2011/12/06	96	80 - 120	99	80 - 120	<5.0	ug/L		
5421949	Total Manganese (Mn)	2011/12/06	93	80 - 120	98	80 - 120	<1.0	ug/L		
5421949	Total Mercury (Hg)	2011/12/06	94	80 - 120	114	80 - 120	<0.050	ug/L		
5421949	Total Molybdenum (Mo)	2011/12/06	107	80 - 120	102	80 - 120	<1.0	ug/L		
5421949	Total Nickel (Ni)	2011/12/06	97	80 - 120	97	80 - 120	<1.0	ug/L		
5421949	Total Selenium (Se)	2011/12/06	94	80 - 120	95	80 - 120	<0.10	ug/L		
5421949	Total Silver (Ag)	2011/12/06	102	80 - 120	108	80 - 120	<0.020	ug/L		

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5421949	Total Strontium (Sr)	2011/12/06	93	80 - 120	100	80 - 120	<1.0	ug/L		
5421949	Total Thallium (Tl)	2011/12/06	90	80 - 120	97	80 - 120	<0.050	ug/L		
5421949	Total Tin (Sn)	2011/12/06	106	80 - 120	103	80 - 120	<5.0	ug/L		
5421949	Total Titanium (Ti)	2011/12/06	100	80 - 120	98	80 - 120	<5.0	ug/L		
5421949	Total Uranium (U)	2011/12/06	94	80 - 120	98	80 - 120	<0.10	ug/L		
5421949	Total Vanadium (V)	2011/12/06	93	80 - 120	97	80 - 120	<5.0	ug/L		
5421949	Total Zinc (Zn)	2011/12/06	90	80 - 120	91	80 - 120	<5.0	ug/L	NC	20
5421949	Total Aluminum (Al)	2011/12/06					<3.0	ug/L		
5421949	Total Boron (B)	2011/12/06					<50	ug/L		
5421949	Total Silicon (Si)	2011/12/06					<100	ug/L		
5421949	Total Zirconium (Zr)	2011/12/06					<0.50	ug/L		
5422021	Total Suspended Solids	2011/12/06			101	80 - 120	<1.0	mg/L		
5422051	Total Dissolved Solids	2011/12/06	NC	80 - 120	96	80 - 120	<10	mg/L	1.4	20
5423434	Cyanide + Thiocyanate	2011/12/06	92	N/A	98	N/A	<0.00050	mg/L	NC	20
5423493	Nitrate plus Nitrite (N)	2011/12/06	108	80 - 120	107	80 - 120	<0.020	mg/L	NC	25
5423494	Nitrite (N)	2011/12/06			100	80 - 120	<0.0050	mg/L	NC	20
5425092	Dissolved Organic Carbon (C)	2011/12/06	112	80 - 120	112	80 - 120	<0.50	mg/L	NC	20
5425103	Total Organic Carbon (C)	2011/12/06	NC	80 - 120	112	80 - 120	<0.50	mg/L	NC	20
5425814	4-BROMOFLUOROBENZENE (sur.)	2011/12/07	94	70 - 130	109	70 - 130	98	%		
5425814	D4-1,2-DICHLOROETHANE (sur.)	2011/12/07	101	70 - 130	100	70 - 130	99	%		
5425814	D8-TOLUENE (sur.)	2011/12/07	97	70 - 130	96	70 - 130	95	%		
5425814	Chloromethane	2011/12/07	84	60 - 140	69	60 - 140	<1.0	ug/L		
5425814	Vinyl chloride	2011/12/07	92	60 - 140	131	60 - 140	<0.50	ug/L	NC	30
5425814	Chloroethane	2011/12/07	102	60 - 140	94	60 - 140	<1.0	ug/L	NC	30
5425814	Trichlorofluoromethane	2011/12/07	122	60 - 140	119	60 - 140	<4.0	ug/L		
5425814	Dichlorodifluoromethane	2011/12/07	97	60 - 140	93	60 - 140	<2.0	ug/L		
5425814	1,1-dichloroethene	2011/12/07	96	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
5425814	Dichloromethane	2011/12/07	102	70 - 130	100	70 - 130	<2.0	ug/L		
5425814	trans-1,2-dichloroethene	2011/12/07	92	70 - 130	95	70 - 130	<1.0	ug/L	NC	30
5425814	1,1-dichloroethane	2011/12/07	98	70 - 130	96	70 - 130	<0.50	ug/L		
5425814	cis-1,2-dichloroethene	2011/12/07	97	70 - 130	95	70 - 130	<1.0	ug/L	NC	30
5425814	Chloroform	2011/12/07	97	70 - 130	94	70 - 130	<1.0	ug/L		
5425814	1,1,1-trichloroethane	2011/12/07	94	70 - 130	91	70 - 130	<0.50	ug/L		
5425814	1,2-dichloroethane	2011/12/07	99	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
5425814	Carbon tetrachloride	2011/12/07	97	70 - 130	94	70 - 130	<0.50	ug/L		
5425814	Benzene	2011/12/07	96	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5425814	Methyl-tert-butylether(MTBE)	2011/12/07	85	70 - 130	94	70 - 130	<4.0	ug/L	NC	30
5425814	1,2-dichloropropane	2011/12/07	96	70 - 130	95	70 - 130	<0.50	ug/L		
5425814	cis-1,3-dichloropropene	2011/12/07	75	70 - 130	78	70 - 130	<1.0	ug/L		
5425814	trans-1,3-dichloropropene	2011/12/07	73	70 - 130	77	70 - 130	<1.0	ug/L		

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QUALITY ASSURANCE REPORT

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5425814	Bromomethane	2011/12/07	106	60 - 140	100	60 - 140	<1.0	ug/L		
5425814	1,1,2-trichloroethane	2011/12/07	96	70 - 130	91	70 - 130	<0.50	ug/L		
5425814	Trichloroethene	2011/12/07	97	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5425814	Chlorodibromomethane	2011/12/07	98	70 - 130	94	70 - 130	<1.0	ug/L		
5425814	1,2-dibromoethane	2011/12/07	95	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
5425814	Tetrachloroethene	2011/12/07	95	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5425814	Bromodichloromethane	2011/12/07	95	70 - 130	93	70 - 130	<1.0	ug/L		
5425814	Toluene	2011/12/07	95	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5425814	Ethylbenzene	2011/12/07	87	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
5425814	m & p-Xylene	2011/12/07	92	70 - 130	93	70 - 130	<1.0	ug/L	NC	30
5425814	Bromoform	2011/12/07	97	70 - 130	90	70 - 130	<1.0	ug/L		
5425814	Styrene	2011/12/07	79	70 - 130	73	70 - 130	<0.50	ug/L	NC	30
5425814	o-Xylene	2011/12/07	87	70 - 130	87	70 - 130	<0.50	ug/L	NC	30
5425814	1,1,1,2-tetrachloroethane	2011/12/07	95	70 - 130	93	70 - 130	<0.50	ug/L		
5425814	1,1,2,2-tetrachloroethane	2011/12/07	99	70 - 130	93	70 - 130	<0.50	ug/L		
5425814	1,2-dichlorobenzene	2011/12/07	102	70 - 130	98	70 - 130	<0.50	ug/L		
5425814	1,3-dichlorobenzene	2011/12/07	101	70 - 130	99	70 - 130	<0.50	ug/L		
5425814	1,4-dichlorobenzene	2011/12/07	99	70 - 130	97	70 - 130	<0.50	ug/L		
5425814	Chlorobenzene	2011/12/07	108	70 - 130	86	70 - 130	<0.50	ug/L		
5425814	Dibromomethane	2011/12/07	97	70 - 130	94	70 - 130	<0.90	ug/L		
5425814	Bromobenzene	2011/12/07	96	70 - 130	95	70 - 130	<2.0	ug/L		
5425814	1,2,3-trichlorobenzene	2011/12/07	87	70 - 130	91	70 - 130	<2.0	ug/L		
5425814	1,2,4-trichlorobenzene	2011/12/07	89	70 - 130	87	70 - 130	<2.0	ug/L		
5425814	Hexachlorobutadiene	2011/12/07	88	70 - 130	99	70 - 130	<0.50	ug/L		
5425814	1,1,2Trichloro-1,2,2Trifluoroethane	2011/12/07					<2.0	ug/L		
5425814	1,3-Butadiene	2011/12/07					<5.0	ug/L	NC	30
5425814	Xylenes (Total)	2011/12/07					<1.0	ug/L	NC	30
5425944	VH C6-C10	2011/12/07					<300	ug/L	NC	40
5433111	Ammonia (N)	2011/12/08	108	80 - 120	97	80 - 120	<0.0050	mg/L	3.8	20
5436045	Weak Acid Dissoc. Cyanide (CN)	2011/12/09	107	80 - 120	101	80 - 120	<0.00050	mg/L	NC	20
5436050	Phenols	2011/12/09	100	80 - 120	100	80 - 120	<0.0010	mg/L	7.9	20
5470932	Total Arsenic (As)	2011/12/24					<0.010	mg/kg	1.8	35
5470932	Total Cadmium (Cd)	2011/12/24					0.0034, RDL=0.0020	mg/kg	2.9	35
5470932	Total Copper (Cu)	2011/12/24					<0.010	mg/kg	2.4	35
5470932	Total Iron (Fe)	2011/12/24					<2.0	mg/kg	0.2	35
5470932	Total Mercury (Hg)	2011/12/24					0.031, RDL=0.030(7)	mg/kg	NC	35
5470932	Total Selenium (Se)	2011/12/24					<0.010	mg/kg	6.9	35
5470932	Total Silver (Ag)	2011/12/24					<0.0040	mg/kg	NC	35
5470932	Total Zinc (Zn)	2011/12/24					<0.040	mg/kg	104(2, 8)	35
5470932	Total Aluminum (Al)	2011/12/24					<0.20	mg/kg	12.0	35

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Maxxam Job #: B191064
Report Date: 2013/01/11

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Sampler Initials: SL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5470932	Total Antimony (Sb)	2011/12/24					<0.0010	mg/kg	4.9	35
5470932	Total Beryllium (Be)	2011/12/24					<0.020	mg/kg	NC	35
5470932	Total Chromium (Cr)	2011/12/24					0.12, RDL=0.10 (7)	mg/kg	NC	35
5470932	Total Lead (Pb)	2011/12/24					0.0024, RDL=0.0020	mg/kg	10.7	35
5470932	Total Magnesium (Mg)	2011/12/24					<2.0	mg/kg	2.6	35
5470932	Total Manganese (Mn)	2011/12/24					0.047, RDL=0.040 (7)	mg/kg	87.1 (2, 8)	35
5470932	Total Nickel (Ni)	2011/12/24					<0.10 (7)	mg/kg	NC	35
5470932	Total Thallium (Tl)	2011/12/24					<0.00040	mg/kg	NC	35
5477562	Moisture	2011/12/28					<0.30	%	0.2	20
5479581	Lipid Content	2011/12/23					<0.10	%	7.4	50
5480683	Hex. Chromium (Cr 6+)	2011/12/28	2.2 (2)	75 - 125	100	75 - 125	<1.0	mg/kg	NC	30

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QUALITY ASSURANCE REPORT

			QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits
5219959	CSR VH C6-C10	2011/09/29	102	60 - 140
5219967	VH C6-C10	2011/09/29	80	60 - 140
5222556	Total Antimony (Sb)	2011/09/30	102	70 - 130
5222556	Total Arsenic (As)	2011/09/30	89	70 - 130
5222556	Total Barium (Ba)	2011/09/30	114	70 - 130
5222556	Total Cadmium (Cd)	2011/09/30	111	70 - 130
5222556	Total Chromium (Cr)	2011/09/30	101	70 - 130
5222556	Total Cobalt (Co)	2011/09/30	98	70 - 130
5222556	Total Copper (Cu)	2011/09/30	95	70 - 130
5222556	Total Lead (Pb)	2011/09/30	96	70 - 130
5222556	Total Manganese (Mn)	2011/09/30	101	70 - 130
5222556	Total Molybdenum (Mo)	2011/09/30	105	70 - 130
5222556	Total Nickel (Ni)	2011/09/30	99	70 - 130
5222556	Total Strontium (Sr)	2011/09/30	94	70 - 130
5222556	Total Thallium (Tl)	2011/09/30	89	70 - 130
5222556	Total Titanium (Ti)	2011/09/30	97	70 - 130
5222556	Total Vanadium (V)	2011/09/30	103	70 - 130
5222556	Total Zinc (Zn)	2011/09/30	89	70 - 130
5222556	Total Aluminum (Al)	2011/09/30	102	70 - 130
5222556	Total Calcium (Ca)	2011/09/30	96	70 - 130
5222556	Total Iron (Fe)	2011/09/30	98	70 - 130
5222556	Total Magnesium (Mg)	2011/09/30	98	70 - 130
5222556	Total Phosphorus (P)	2011/09/30	93	70 - 130
5222675	Total Antimony (Sb)	2011/10/03	100	70 - 130
5222675	Total Arsenic (As)	2011/10/03	97	70 - 130
5222675	Total Barium (Ba)	2011/10/03	107	70 - 130
5222675	Total Cadmium (Cd)	2011/10/03	107	70 - 130
5222675	Total Chromium (Cr)	2011/10/03	94	70 - 130
5222675	Total Cobalt (Co)	2011/10/03	92	70 - 130
5222675	Total Copper (Cu)	2011/10/03	91	70 - 130
5222675	Total Lead (Pb)	2011/10/03	99	70 - 130
5222675	Total Manganese (Mn)	2011/10/03	94	70 - 130
5222675	Total Molybdenum (Mo)	2011/10/03	88	70 - 130
5222675	Total Nickel (Ni)	2011/10/03	93	70 - 130
5222675	Total Strontium (Sr)	2011/10/03	94	70 - 130
5222675	Total Thallium (Tl)	2011/10/03	88	70 - 130
5222675	Total Titanium (Ti)	2011/10/03	94	70 - 130
5222675	Total Vanadium (V)	2011/10/03	99	70 - 130
5222675	Total Zinc (Zn)	2011/10/03	90	70 - 130
5222675	Total Aluminum (Al)	2011/10/03	92	70 - 130

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QUALITY ASSURANCE REPORT

			QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits
5222675	Total Calcium (Ca)	2011/10/03	93	70 - 130
5222675	Total Iron (Fe)	2011/10/03	93	70 - 130
5222675	Total Magnesium (Mg)	2011/10/03	88	70 - 130
5222675	Total Phosphorus (P)	2011/10/03	88	70 - 130
5226242	Total Mercury (Hg)	2011/10/01	97	70 - 130
5226311	Total Mercury (Hg)	2011/10/01	105	70 - 130
5250942	% sand by hydrometer	2011/10/12	100	80 - 120
5250942	% silt by hydrometer	2011/10/12	99	85 - 115
5250942	Clay Content	2011/10/12	101	79 - 121
5250944	% sand by hydrometer	2011/10/12	106	80 - 120
5250944	% silt by hydrometer	2011/10/12	89	85 - 115
5250944	Clay Content	2011/10/12	103	79 - 121
5259312	% sand by hydrometer	2011/10/13	97	80 - 120
5259312	% silt by hydrometer	2011/10/13	101	85 - 115
5259312	Clay Content	2011/10/13	103	79 - 121
5266593	% sand by hydrometer	2011/10/15	103	80 - 120
5266593	% silt by hydrometer	2011/10/15	97	85 - 115
5266593	Clay Content	2011/10/15	99	79 - 121
5270772	Total Organic Carbon (C)	2011/10/19	105	75 - 125
5278392	Total Organic Carbon (C)	2011/10/19	104	75 - 125
5283706	Total Nitrogen	2011/10/21	100	75 - 125
5425944	VH C6-C10	2011/12/07	105	70 - 130
5470932	Total Arsenic (As)	2011/12/24	92	75 - 125
5470932	Total Cadmium (Cd)	2011/12/24	98	75 - 125
5470932	Total Copper (Cu)	2011/12/24	103	75 - 125
5470932	Total Iron (Fe)	2011/12/24	98	75 - 125
5470932	Total Mercury (Hg)	2011/12/24	99	75 - 125
5470932	Total Selenium (Se)	2011/12/24	98	75 - 125
5470932	Total Silver (Ag)	2011/12/24	93	75 - 125
5470932	Total Zinc (Zn)	2011/12/24	102	75 - 125

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QUALITY ASSURANCE REPORT

			QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime
(2) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
(3) - Surrogate recovery above control limit - 1 surrogate failure allowed - Pot. high bias
(4) - LCS outside acceptance criteria (10% of analytes failure allowed)
(5) - RDL raised due to sample dilution.
(6) - RDL raised due to sample matrix interference.
(7) - RDL raised due to suspected contamination.
(8) - Duplicate RPD above control limit - (10% of analytes failure allowed)

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B191064

LABORATORY REQUISITION CAPITAL REGIONAL DISTRICT - ENVIRONMENTAL PROGRAMS GROUP 1 of

Client: CAPITAL REGIONAL DISTRICT
Mail: PO Box 1000, 625 Fisgard St, Victoria, BC. V8W 2S6
Ship: 2nd Floor, Victoria, BC.
Client rep: Shirley Lyons
Telephone: (250) 360-3261 Fax: (250) 360-3254
Email: slyons@crd.bc.ca
CRD Project ID: Sediment Chemistry
Purchase order:
Quote / Contract:

Laboratory: Maxxam
Lab contact: Kelly Janda
Lab project id:

Station Name	Notes	Sample Type	Date sampled day-month-year	Shipped day month-year	Samples	Sample Matrix	Sediment Chemistry (see list)	Bioaccumulation 56 Day Bivalve (Macoma)	Bioaccumulation 56 Day Polychaete (Nereis virens or Neanthes acoederiata)	Bioaccumulation 28 Day Polychaete (Nereis virens or Neanthes acoederiata)	Toxicity - 10 day Mysid Shrimp (Mysidopsis)	Toxicity - 28 day Amphipod (Leptocerus plumulosus)	Toxicity - 48 hour Mollusca (Mytlus galoprovincialus)	Toxicity - 10 day amphipod (Rhepoxynius)	Toxicity - 20 day Neanthes	Pore water - hardness	Pore water - NH3	Pore water - ammonia, unionized	Pore water - dissolved organic carbon	Pore water - salinity	Pore water - sulphide	Pore water - pH	Nitrogen - Total in sediment	Fecal Coliforms in Sediment	Particle Size (from sediment in buckets)
M1NW		SS			1	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
M1S		SS			2	Sediment	x																		
M1SE		SS			3	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
M1SW		SS			4	Sediment	x																		
M1W		SS			5	Sediment	x																		
M2E	Lab triplicate for sediment chemistry	LR			6	Sediment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
M2SE		SS			7	Sediment	x																		
M2NE		FR1			8	Sediment	x																		
M2NE		FR2			9	Sediment	x																		
M2NE		FR3			10	Sediment	x																		
Batch 2 for Sediment Chem																									
M0		SS			1	Sediment	x																		
M1E		SS			2	Sediment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
M4E		SS			3	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
M4SE	Lab triplicate for sediment chemistry	LR			4	Sediment	x																		
M8E		SS			5	Sediment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PB1		SS			6	Sediment	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PB2		SS			7	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PB3		SS			8	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
C1E		SS			9	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
C2E		SS			10	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
C4E		SS			11	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

SPECIAL INSTRUCTIONS:

Condition shipped

1st Batch 12 SAMPLES.
2nd Batch 13 Samples

M2E DUP
M2E TRIP

M4SE DUP
M4SE TRIP

QUOTE B10774

Price per Sample	Sediment	Bioaccumulation 56 Day Tests	Bioaccumulation 28 Day Tests
CONVENTIONAL VARIABLES			
acid volatile sulphide	08 √		
alkalinity			
biochemical oxygen demand			
carbonaceous biochemical oxygen demand			
chemical oxygen demand			
chloride			
conductivity			
cyanide (strong acid dissociable)			
cyanide (weak acid dissociable)			
cyanide, total	06 √		
dissolved solids, total			
enterococci			
fecal coliform			
hardness (as $CaCO_3$)			
hardness (as $CaCO_3$), dissolved			
hydrogen sulfide			
moisture	04 √	√	√
lipids		√	√
ammonia (NH3)			
ammonia, unionized			
ammonium (NH4)			
total Kjeldahl nitrogen			
nitrate			
nitrite			
nitrogen, total			
oil & grease, mineral			
oil & grease, total			
organic carbon, dissolved			
organic carbon, total	05 √		
particle size	04 √		
pH	04 √		
phosphate, dissolved			
phosphate, total			
salinity			
sulphate			
sulphide			
suspended solids, total			
temperature			
CTD parameters			
METALS TOTAL	07		
aluminum	√	√	√
antimony	√	√	√
arsenic	√	√	√
barium	√	√	√
beryllium	√	√	√
bismuth	√	√	√
cadmium	√	√	√
calcium	√	√	√
chromium	√	√	√
chromium VI	07. √	√	√
cobalt	√	√	√

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copper	√	√	√
iron	√	√	√
lead	√	√	√
lithium	√	√	√
magnesium	√	√	√
manganese	√	√	√
mercury	√	√	√
mercury, methylated			
molybdenum	√	√	√
nickel	√	√	√
phosphorus	√	√	√
potassium	√	√	√
selenium	√	√	√
silver	√	√	√
sodium	√	√	√
strontium	√	√	√
thallium	√	√	√
tin	√	√	√
tin, tributyl			
titanium	√	√	√
vanadium	√	√	√
zinc	√	√	√
METALS EXTRACTABLE	08		
cadmium	√		
copper	√		
lead	√		
mercury	√		
nickel	√		
zinc	√		
PHENOLIC COMPOUNDS			
total phenols	11 √		
CHLORINATED PHENOLICS	10		
2-chlorophenol	√	√	
2,4 & 2,5 -dichlorophenol	√	√	
2,4,6-trichlorophenol	√	√	
4-chloro-3-methylphenol	√	√	
pentachlorophenol	√	√	
NON CHLORINATED PHENOLICS	10		
2,4-dimethylphenol	√		
2,4-dinitrophenol	√		
2-methyl-4,6-dinitrophenol	√		
2-nitrophenol	√		
4-nitrophenol	√		
phenol	√		
POLYCYCLIC AROMATIC HYDROCARBONS			
2-chloronaphthalene	√		
2-methylnaphthalene	√		
acenaphthene	√		
acenaphthylene	√		
anthracene	√		
benzo(a)anthracene	√		
benzo(a)pyrene	√		
benzo(b)fluoranthene	√		
benzo(g,h,i)perylene	√		
benzo(k)fluoranthene	√		
chrysene	√		
dibenzo(a,h)anthracene	√		
fluoranthene	√		

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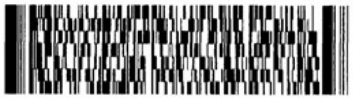
fluorene	√		
ideno(1,2,3-c,d)pyrene	√		
naphthalene	√		
phenanthrene	√		
pyrene	√		
total high molecular weight – PAHs	√		
total low molecular weight – PAHs	√		
total PAHs	√		
SEMIVOLATILE ORGANICS	10		
bis(2-ethylhexyl)phthalate	√	√	
butylbenzyl phthalate	√	√	
diethyl phthalate	√	√	
dimethyl phthalate	√	√	
di-n-butyl phthalate	√	√	
di-n-octyl phthalate	√	√	
MISCELLANEOUS SEMIVOLATILE ORGANICS	10		
1,2,4-trichlorobenzene	√	√	
1,2-diphenylhydrazine •	√	√	
2,4-dinitrotoluene	√	√	
2,6-dinitrotoluene	√	√	
3,3-dichlorobenzidine	√	√	
4-bromophenyl phenyl ether	√	√	
4-chlorophenyl phenyl ether	√	√	
benzidine	√	√	
bis(2-chloroethoxy)methane	√	√	
bis(2-chloroethyl)ether	√	√	
bis(2-chloroisopropyl)ether	√	√	
hexachlorobenzene	√	√	
hexachlorobutadiene	√	√	
hexachlorocyclopentadiene	√	√	
hexachloroethane	√	√	
isophorone	√	√	
nitrobenzene	√	√	
N-nitrosodimethylamine	√	√	
N-nitrosodi-n-propylamine	√	√	
N-nitrosodiphenylamine	√	√	
VOLATILE ORGANICS			
Monocyclic Aromatic Hydrocarbons	09		
1,2-dichlorobenzene	√	√	
1,3-dichlorobenzene	√	√	
1,4-dichlorobenzene	√	√	
benzene	√		
chlorobenzene	√		
ethylbenzene	√		
styrene	√		
toluene	√		
m & p xylenes	√		
o-xylene	√		
xylenes	√		
Aliphatic			
acrylonitrile	√		
methyl tertiary butyl ether	√		
Chlorinated Aliphatic	09		
1,1,1,2-tetrachloroethane	√		
1,1,1-trichloroethane	√		
1,1,2,2-tetrachloroethane	√		
1,1,2-trichloroethane	√		
1,1-dichloroethane	√		



B191064

1,1-dichloroethene		√		
1,2-dichloroethane		√		
1,2-dichloropropane		√		
2-chloroethylvinyl ether		√		
bromomethane		√		
chloroethane		√		
chloroethene		√		
chloromethane		√		
cis-1,2-dichloroethene		√		
cis-1,3-dichloropropene		√		
dibromoethane		√		
dibromomethane		√		
dichloromethane		√		
tetrabromomethane		√		
tetrachloroethene		√		
tetrachloromethane		√		
trans-1,2-dichloroethene		√		
trans-1,3-dichloropropene		√		
trichloroethene		√		
trichlorofluoromethane		√		
Trihalomethanes	09	√		
bromodichloromethane		√		
bromoform		√		
chlorodibromomethane		√		
tribromomethane		√		
trichloromethane		√		
Ketones		√		
4-methyl-2 pentanone	09	√		
dimethyl ketone		√		
endrin ketone		√		
methyl ethyl ketone		√		
TERPENES		√		
alpha-terpineol		√		

B191064

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08338060

B191064

LABORATORY REQUISITION CAPITAL REGIONAL DISTRICT - ENVIRONMENTAL PROGRAMS GROUP 1 of

Client: CAPITAL REGIONAL DISTRICT
Mail: PO Box 1000, 625 Fisgard St, Victoria, BC V8W 2S6
Ship: 2nd Floor, Victoria, BC.
Client rep: Shirley Lyons
Telephone: (250) 360-3261 Fax: (250) 360-3254
Email: slyons@crd.bc.ca
CRD Project ID: Sediment Chemistry
Purchase order:
Quote / Contract:

Laboratory: Maxxam
Lab contact: Kelly Janda
Lab project id:

B191064

Station Name	Notes	Sample Type	Date sampled day-month-year	Shipped day-month-year	Samples	Sample Matrix	Sediment Chemistry (see list)	Bioaccumulation 56 Day Bivalve (Macoma)	Bioaccumulation 56 Day Polychaete (Nereis virens or Neanthes aceodentata)	Bioaccumulation 28 Day Polychaete (Nereis virens or Neanthes aceodentata)	Toxicity - 10 day Mysid Shrimp (Mysidopsis)	Toxicity - 28 day Amphipod (Leptocerus plumulos	Toxicity - 48 hour Mollusca (Mytilus galoprovincial	Toxicity- 10 day amphipod (Rhepoxynius)	Toxicity - 20 day Neanthes	Pore water - hardness	Pore water - NH3	Pore water - ammonia, unionized	Pore water - dissolved organic carbon	Pore water - salinity	Pore water - sulphide	Pore water - pH	Nitrogen - Total in sediment	Fecal Coliforms in Sediment	Particle Size (from sediemnt in buckets)
M1NW	BQ0637	SS			1	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
M1S	BQ0638	SS			2	Sediment	x																		
M1SE	BQ0639	SS			3	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
M1SW	BQ0640	SS			4	Sediment	x																		
M1W	BQ0641	SS			5	Sediment	x																		
M2E	BQ0642 BQ0643 BQ0644 Lab triplicate for sediment chemistry	LR			6	Sediment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
M2SE	BQ0645	SS			7	Sediment	x																		
M2NE	BQ0646	FR1			8	Sediment	x																		
M2NE	BQ0647	FR2			9	Sediment	x																		
M2NE	BQ0648	FR3			10	Sediment	x																		
Batch 2 for Sediment Chem																									
M0	BQ0649	SS			1	Sediment	x																		
M1E	BQ0650	SS			2	Sediment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
M4E	BQ0651	SS			3	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
M4SE	BQ0652 BQ0653 BQ0654 Lab triplicate for sediment chemistry	LR			4	Sediment	x																		
M8E	BQ0655	SS			5	Sediment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PB1	BQ0656	SS			6	Sediment	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PB2	BQ0657	SS			7	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PB3	BQ0658	SS			8	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
C1E	BQ0659	SS			9	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
C2E	BQ0660	SS			10	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
C4E	BQ0661	SS			11	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

SPECIAL INSTRUCTIONS:

Condition shipped

Naheed Amer
Sept 23, 2011
Time: 13:45

Temp: 0,0,0 / 0,0,1

CS: NA

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Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone (604) 734 7276
Fax (604) 731 2386

Maxxam

SUBCONTRACTING REQUEST FORM

CAPITAL REGIONAL DISTRICT
- CRD-VIC
Maxxam PM Kelly Janda

To: Maxxam Calgary Environmental

Job# B191064

Yes ( )No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
Yes ( )No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) JR (print) J. Bi

Received @ Subcontract Lab (Date) 10/12 (Time) 0845

Received Lab's Job # _____ Inspected by (print) ASH WHITE SIF ( ) Yes ( ) No
Upon receipt, record 3 temperatures for **each** package/cooler. If required by contract or legal sample, indicate if custody sealed.

Temp1 -0.3 Temp2 -0.8 Temp3 4.3 Custody sealed Yes

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ0659-06R \ C1E	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0660-06R \ C2E	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0660-06R \ C2E	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0660-06R \ C2E	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0660-06R \ C2E	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0660-06R \ C2E	SED	Sub-Sample for TEXT4W-S	1(AJAR)	2011/09/14	2011/10/12
BQ0660-06R \ C2E	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0660-06R \ C2E	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0661-06R \ C4E	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0661-06R \ C4E	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0661-06R \ C4E	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0661-06R \ C4E	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0661-06R \ C4E	SED	Sub-Sample for TEXT4W-S	1(AJAR)	2011/09/14	2011/10/12
BQ0661-06R \ C4E	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0661-06R \ C4E	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ8684-02R \ M1NW	SED	Sub Sample for Dry Grind	1(AJAR)		2011/10/17
BQ8684-02R \ M1NW	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)		2011/10/17

Received: 24 x 125 Jar
12/10/2011
AWS P.P

labels say Job B192421, sample IDs transferred to this Job

Continued...

Maxxam

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CHAIN OF CUSTODY RECORD

Page: 1 of 1

G 028671

Maxxam Job#: 44448 ~~B185084~~ B191064

Invoice To: Require Report? Yes ☐ No ☐

Company Name:
Contact Name:
Address:
PC:
Phone / Fax#: Ph: Fax:
E-mail

Report To:

Company Name: ~~[redacted]~~
Contact Name: Janet Pickard (also Shirley Lyons
Address: Ecotox (CRD)
PC:
Phone / Fax#: Ph: Fax:
E-mail: jpickard@maxxam.ca

PO #: na
Quotation #: na
Project #: QA
Proj. Name: CRD
Location: na
Sampled By: EC

REGULATORY REQUIREMENTS SERVICE REQUESTED:

- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other
- ☐ DRINKING WATER

- ☑ Regular Turn Around Time (TAT) (5 days for most tests)
- ☐ RUSH (Please contact the lab)
- ☐ 1 Day ☐ 2 Day ☐ 3 Day

Date Required:

Special Instructions:

Return Cooler ☐ Ship Sample Bottles (please specify) ☐

Submitted extra 1L seawater to semi-volatiles.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification	Sample Type	Date/Time Sampled	BTEX/VPH	VOC/VPH	EPH	PAH	CCME-PHC (Fractions 1-4 Plus BTEX)	CCME-PHC (Fractions 2-4) chlorinated + non chlorinated phenolics	CCME BTEX (Fraction 1 Plus BTEX)	PCB	Phenols by 4AAP	Phenols by GCMS	TOG	SWOG	MOG	Dissolved Metals	Field Filtered?	Field Acidified?	Totals Metals Field Acidified?	Nitrate	Nitrite	Ammonia	Chloride	Fluoride	Sulphate	Total Suspended Solids-TSS	TDS	pH	Salinity Conductivity	Alkalinity	DOC non-pur.	TOC non-pur.	Coliform, Total & E.coli	Fecal	Asbestos	Cyanide	Semi-volatiles Alpha terpineol	OC/OP Pesticides	Methyl mercury	Sulfides	Total phenols	Tributyl tin	Nonyl phenols
1	Vancouver Aquarium Seawater	CG7793	H_2O	2011 Dec 02 10:30	✓	✓		✓		✓		✓						✓			✓	✓		✓			✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2																																												
3																																												
4																																												
5																																												
6																																												
7																																												
8																																												
9																																												
10																																												
11																																												
12																																												

B191064

Samples are from a Drinking Water Source? YES NO
Does source supply multiple households? YES NO

Laboratory Use Only

*Relinquished by:	Date (YY/MM/DD):	Time:	Received by:	Date (YY/MM/DD):	Time:	Time Sensitive	Temperature on Receipt (°C)	Custody Seal Intact on Cooler?
Emily Chen	2011 Dec 02	11:45	Veronica de Guzman	11/12/02	11:50	☐	5/5	N/A Yes ☐ No ☐

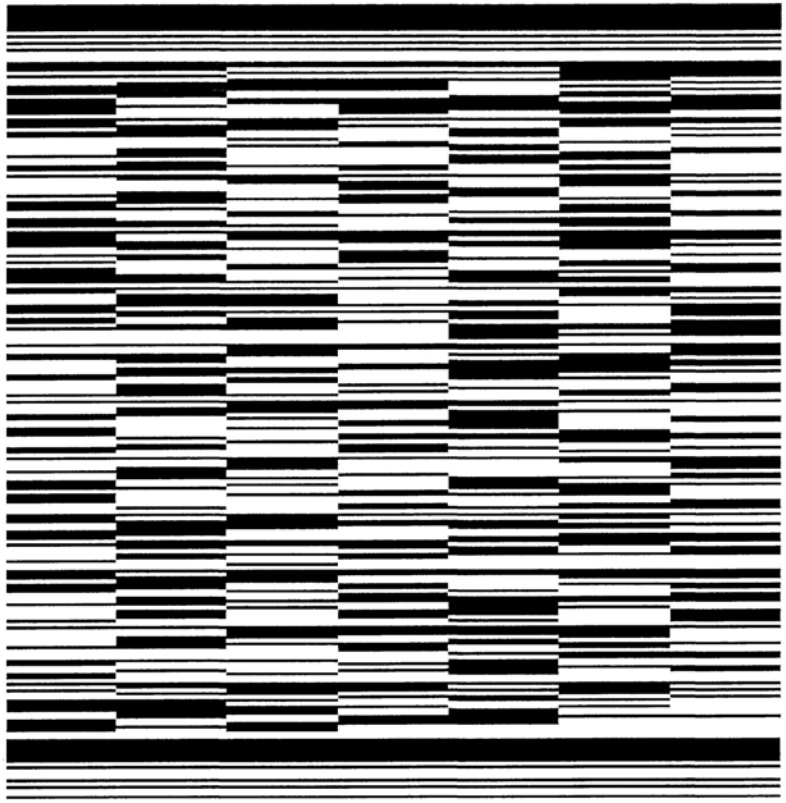
*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

COC-1020 (05/10)

Maxxam International Corporation o/a Maxxam Analytics

B191064



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Maxxam Job#: _____

CHAIN OF CUSTODY RECORD

Page: 1 of 1

G050372

Invoice To: Require Report? Yes ☐ No ☐

Company Name: 1399 CRD
Contact Name:
Address:
PC:
Phone / Fax#: Ph: Fax:
E-mail

Report To:

Company Name: #8287
Contact Name: janet pickard
Address:
PC:
Phone / Fax#: Ph: Fax:
E-mail: jpickard@maxxam.ca

PO #:	
Quotation #:	
Project # :	2-11-10865
Proj. Name:	Nereid Bioaccumulation #1399
Location:	
Sampled By:	

REGULATORY REQUIREMENTS SERVICE REQUESTED:

☐ CSR
☐ CCME
☐ BC Water Quality
☐ Other
☐ DRINKING WATER

☒ Regular Turn Around Time (TAT) (5 days for most tests)
☐ RUSH (Please contact the lab)
☐ 1 Day ☐ 2 Day ☐ 3 Day
Date Required:

Special Instructions:

Return Cooler ☐ Ship Sample Bottles (please specify) ☐

please homogenize samples prior to testing + remove aliquots - Contact Kelly Jarvis for more info

ANALYSIS REQUESTED

	Sample Identification	Lab Identification	Sample Type	Date/Time Sampled	BTEX/VPH	VOC/VPH	EPH	PAH	CCME-PHC (Fractions 1-4 Plus BTEX)	CCME-PHC (Fractions 2-4)	CCME BTEX (Fraction 1 Plus BTEX)	PCB	Phenols by 4AAP	TOG	Dissolved Metals	Totals Metals Field Acidified?	Nitrate	Chloride	Total Suspended Solids-TSS	pH	BOD	COD	Coliform, Total & E.coli	Asbestos	Methyl Mercury	Lipid content	Moisture content	HOLD
	MTBE		TEH	LEPH/HEPH								Phenols by GCMS	SWOG	Y Field Filtered?	Y Field Acidified?	N Y	Ammonia	Sulphate	TDS	Alkalinity			Fecal					
													MOG				Nitrite	Fluoride		Conductivity								
1	T=0		tissue	2011 Oct 21												X									X	X	X	
2	T=0 duplicate		tissue	2011 Oct 21												X									X	X	X	
3	T=0 triplicate		tissue	2011 Oct 21												X									X	X	X	
4	MIE (t=28)		tissue	2011 Nov 18												X									X	X	X	
5	M2E (t=28)		tissue	2011 Nov 18												X									X	X	X	
6	M8E (t=28)		tissue	2011 Nov 18												X									X	X	X	
7	PBI (t=28)		tissue	2011 Nov 18												X									X	X	X	
8																												
9																												
10																												
11																												
12																												

Samples are from a Drinking Water Source? YES ☐ NO ☐
Does source supply multiple households? YES ☐ NO ☐

Laboratory Use Only

*Relinquished by:	Date (YY/MM/DD):	Time:	Received by:	Date (YY/MM/DD):	Time:	Time Sensitive	Temperature on Receipt (°C)	Custody Seal Intact on Cooler?
						☐		Yes ☐ No ☐

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

COC-1020 (05/10)

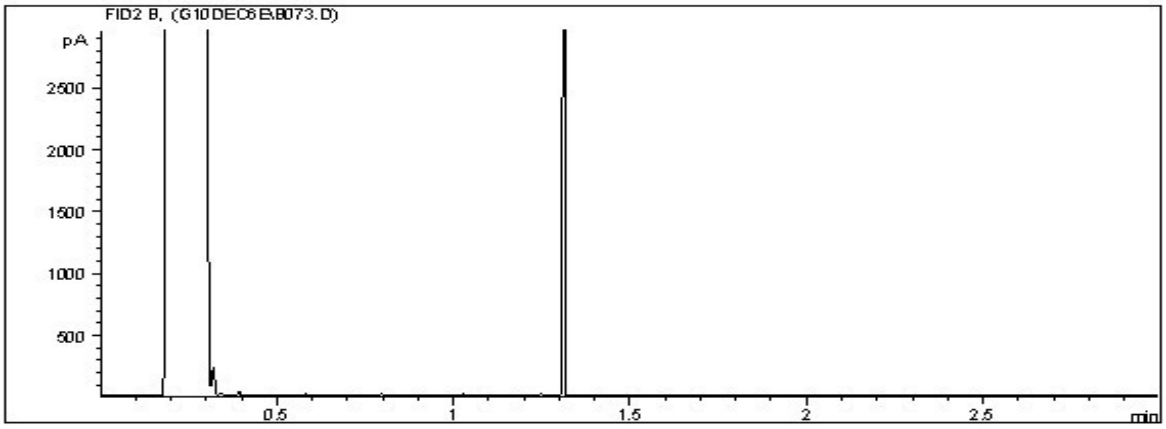
Maxxam International Corporation o/a Maxxam Analytics

Report Date: 2013/01/11
Maxxam Job #: B191064
Maxxam Sample: CG8555

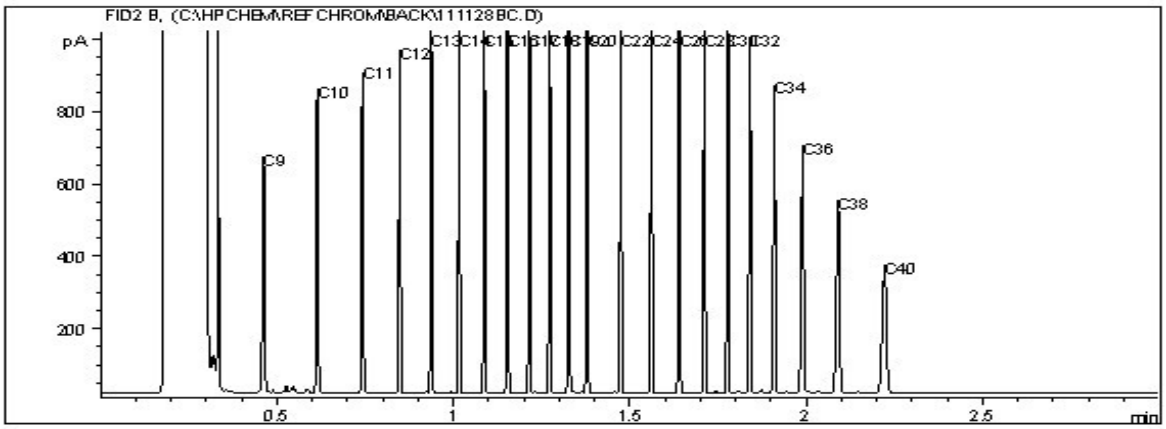
CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

Client ID: VANCOUVER AQUARIUM SEAWATER

Extrac. Pet HC when LEPH/HEPH required Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Page 1 of 1

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

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Your Project #: B191064
Your C.O.C. #: na

Attention: Amanda Hart
Maxxam Analytics
4606 Canada Way
Burnaby, BC
V5G 1K5

Report Date: 2011/12/14

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1J1754
Received: 2011/12/06, 09:50

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Total Nonylphenol in Liquids by HPLC	1	2011/12/12	2011/12/13	CAM SOP-00313	In-house Method
OC Pesticides (Selected) & PCB (1)	1	2011/12/08	2011/12/09	CAM SOP-00307	SW846 8081,8082
GC/MS Analysis of OP Pesticides.	1	2011/12/08	2011/12/12	EPA 8270	EPA 8270 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

(1) Chlordane (Total) = Alpha Chlordane + Gamma Chlordane

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

JESSICA WEIR,
Email: jweir@maxxam.ca
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B1J1754
Report Date: 2011/12/14

Maxxam Analytics
Client Project #: B191064

RESULTS OF ANALYSES OF WATER

Maxxam ID		LW5075		
	Units	**CG8555-01R\ VANCOUVER A**	**RDL**	**QC Batch**
Miscellaneous Parameters				
Nonylphenol (Total)	mg/L	<0.001	0.001	2710660

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B1J1754
Report Date: 2011/12/14

Maxxam Analytics
Client Project #: B191064

ORGANOPHOSPHORUS PESTICIDES BY GC-MS (WATER)

Maxxam ID		LW5075		
	Units	**CG8555-01R\ VANCOUVER A**	**RDL**	**QC Batch**
Pesticides & Herbicides				
Demeton-S	ug/L	<2	2	2706410
Dichlorvos	ug/L	<2	2	2706410
Dimethoate	ug/L	<2	2	2706410
Fenchlorophos (Ronnel)	ug/L	<2	2	2706410
Fonofos	ug/L	<2	2	2706410
Metolachlor	ug/L	<5	5	2706410
Mevinphos	ug/L	<2	2	2706410
Phosmet	ug/L	<2	2	2706410
Triallate	ug/L	<5	5	2706410
Trifluralin	ug/L	<5	5	2706410
Atrazine	ug/L	<1	1	2706410
Diazinon	ug/L	<2	2	2706410
Malathion	ug/L	<2	2	2706410
Parathion Ethyl	ug/L	<2	2	2706410
Parathion Methyl	ug/L	<2	2	2706410
Simazine	ug/L	<2	2	2706410
Aldicarb	ug/L	<5	5	2706410
Bendiocarb	ug/L	<2	2	2706410
Carbaryl	ug/L	<5	5	2706410
Carbofuran	ug/L	<5	5	2706410
Cyanazine (Bladex)	ug/L	<5	5	2706410
Prometryne	ug/L	<1	1	2706410
Chlorpyrifos (Dursban)	ug/L	<2	2	2706410
Terbufos	ug/L	<1	1	2706410
Phorate	ug/L	<1	1	2706410
Guthion (Azinphos-methyl)	ug/L	<1	1	2706410
Ethion	ug/L	<1	1	2706410
Fenthion	ug/L	<1	1	2706410
Surrogate Recovery (%)				
2-Fluorobiphenyl	%	74		2706410
D14-Terphenyl (FS)	%	97		2706410
D5-Nitrobenzene	%	69		2706410

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B1J1754
Report Date: 2011/12/14

Maxxam Analytics
Client Project #: B191064

ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		LW5075		
	Units	**CG8555-01R\ VANCOUVER A**	**RDL**	**QC Batch**
Pesticides & Herbicides				
Aldrin	ug/L	<0.005	0.005	2706407
alpha-BHC	ug/L	<0.005	0.005	2706407
beta-BHC	ug/L	<0.005	0.005	2706407
delta-BHC	ug/L	<0.005	0.005	2706407
a-Chlordane	ug/L	<0.005	0.005	2706407
g-Chlordane	ug/L	<0.005	0.005	2706407
Chlordane (Total)	ug/L	<0.005	0.005	2706407
o,p-DDD	ug/L	<0.005	0.005	2706407
p,p-DDD	ug/L	<0.005	0.005	2706407
o,p-DDD + p,p-DDD	ug/L	<0.005	0.005	2706407
o,p-DDE	ug/L	<0.005	0.005	2706407
p,p-DDE	ug/L	<0.005	0.005	2706407
o,p-DDE + p,p-DDE	ug/L	<0.005	0.005	2706407
o,p-DDT	ug/L	<0.005	0.005	2706407
p,p-DDT	ug/L	<0.005	0.005	2706407
o,p-DDT + p,p-DDT	ug/L	<0.005	0.005	2706407
DDT+ Metabolites	ug/L	<0.005	0.005	2706407
Dieldrin	ug/L	<0.005	0.005	2706407
Endosulfan I (alpha)	ug/L	<0.005	0.005	2706407
Endosulfan II	ug/L	<0.005	0.005	2706407
Endosulfan sulfate	ug/L	<0.005	0.005	2706407
Total Endosulfan	ug/L	<0.005	0.005	2706407
Endrin	ug/L	<0.005	0.005	2706407
Endrin aldehyde	ug/L	<0.005	0.005	2706407
Endrin ketone	ug/L	<0.005	0.005	2706407
Heptachlor	ug/L	<0.005	0.005	2706407
Heptachlor epoxide	ug/L	<0.005	0.005	2706407
Hexachlorobenzene	ug/L	<0.005	0.005	2706407
Lindane	ug/L	<0.003	0.003	2706407
Methoxychlor	ug/L	<0.01	0.01	2706407
Mirex	ug/L	<0.005	0.005	2706407
Octachlorostyrene	ug/L	<0.005	0.005	2706407
Total PCB	ug/L	<0.05	0.05	2706407
Aroclor 1016	ug/L	<0.05	0.05	2706407
Aroclor 1221	ug/L	<0.05	0.05	2706407
Aroclor 1232	ug/L	<0.05	0.05	2706407

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B1J1754
Report Date: 2011/12/14

Maxxam Analytics
Client Project #: B191064

ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		LW5075		
	Units	**CG8555-01R\ VANCOUVER A**	**RDL**	**QC Batch**
Aroclor 1242	ug/L	<0.05	0.05	2706407
Aroclor 1248	ug/L	<0.05	0.05	2706407
Aroclor 1254	ug/L	<0.05	0.05	2706407
Aroclor 1260	ug/L	<0.05	0.05	2706407
Toxaphene	ug/L	<0.2	0.2	2706407
Surrogate Recovery (%)				
2,4,5,6-Tetrachloro-m-xylene	%	58		2706407
Decachlorobiphenyl	%	75		2706407

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1J1754
Report Date: 2011/12/14

Maxxam Analytics
Client Project #: B191064

Package 1	3.3°C

Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1J1754
Report Date: 2011/12/14

Maxxam Analytics
Client Project #: B191064

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2706407	2,4,5,6-Tetrachloro-m-xylene	2011/12/09			63	30 - 130	65	%		
2706407	Decachlorobiphenyl	2011/12/09			75	30 - 130	73	%		
2706407	Aldrin	2011/12/09			72	30 - 130	<0.005	ug/L	0	40
2706407	alpha-BHC	2011/12/09			90	30 - 130	<0.005	ug/L	2.2	40
2706407	beta-BHC	2011/12/09			79	30 - 130	<0.005	ug/L	2.6	40
2706407	p,p-DDD	2011/12/09			84	30 - 130	<0.005	ug/L	2.4	40
2706407	delta-BHC	2011/12/09			88	30 - 130	<0.005	ug/L	2.3	40
2706407	a-Chlordane	2011/12/09			91	30 - 130	<0.005	ug/L	1.1	40
2706407	g-Chlordane	2011/12/09			89	30 - 130	<0.005	ug/L	1.1	40
2706407	o,p-DDD	2011/12/09			87	30 - 130	<0.005	ug/L	1.2	40
2706407	o,p-DDE	2011/12/09			86	30 - 130	<0.005	ug/L	1.2	40
2706407	p,p-DDE	2011/12/09			86	30 - 130	<0.005	ug/L	0	40
2706407	o,p-DDT	2011/12/09			101	30 - 130	<0.005	ug/L	8.5	40
2706407	p,p-DDT	2011/12/09			100	30 - 130	<0.005	ug/L	19.8	40
2706407	Dieldrin	2011/12/09			92	30 - 130	<0.005	ug/L	2.2	40
2706407	Endosulfan I (alpha)	2011/12/09			94	30 - 130	<0.005	ug/L	3.2	40
2706407	Endosulfan II	2011/12/09			87	30 - 130	<0.005	ug/L	3.5	40
2706407	Endosulfan sulfate	2011/12/09			94	30 - 130	<0.005	ug/L	1.1	40
2706407	Endrin	2011/12/09			105	30 - 130	<0.005	ug/L	2.9	40
2706407	Endrin aldehyde	2011/12/09			92	30 - 130	<0.005	ug/L	5.6	40
2706407	Endrin ketone	2011/12/09			83	30 - 130	<0.005	ug/L	2.4	40
2706407	Heptachlor	2011/12/09			76	30 - 130	<0.005	ug/L	0	40
2706407	Heptachlor epoxide	2011/12/09			86	30 - 130	<0.005	ug/L	1.2	40
2706407	Hexachlorobenzene	2011/12/09			78	30 - 130	<0.005	ug/L	0	40
2706407	Lindane	2011/12/09			87	30 - 130	<0.003	ug/L	2.3	40
2706407	Total Endosulfan	2011/12/09					<0.005	ug/L		
2706407	Methoxychlor	2011/12/09			101	30 - 130	<0.01	ug/L	3.0	40
2706407	Mirex	2011/12/09			65	30 - 130	<0.005	ug/L	1.6	40
2706407	Octachlorostyrene	2011/12/09			71	30 - 130	<0.005	ug/L	1.4	40
2706407	Chlordane (Total)	2011/12/09					<0.005	ug/L		
2706407	o,p-DDD + p,p-DDD	2011/12/09					<0.005	ug/L		
2706407	o,p-DDE + p,p-DDE	2011/12/09					<0.005	ug/L		
2706407	o,p-DDT + p,p-DDT	2011/12/09					<0.005	ug/L		
2706407	DDT+ Metabolites	2011/12/09					<0.005	ug/L		
2706407	Total PCB	2011/12/09					<0.05	ug/L		
2706407	Aroclor 1016	2011/12/09					<0.05	ug/L		
2706407	Aroclor 1221	2011/12/09					<0.05	ug/L		
2706407	Aroclor 1232	2011/12/09					<0.05	ug/L		
2706407	Aroclor 1242	2011/12/09					<0.05	ug/L		
2706407	Aroclor 1248	2011/12/09					<0.05	ug/L		

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1J1754
Report Date: 2011/12/14

Maxxam Analytics
Client Project #: B191064

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2706407	Aroclor 1254	2011/12/09					<0.05	ug/L		
2706407	Aroclor 1260	2011/12/09					<0.05	ug/L		
2706407	Toxaphene	2011/12/09					<0.2	ug/L		
2706410	2-Fluorobiphenyl	2011/12/12			83	30 - 130	89	%		
2706410	D14-Terphenyl (FS)	2011/12/12			97	30 - 130	100	%		
2706410	D5-Nitrobenzene	2011/12/12			80	30 - 130	89	%		
2706410	Demeton-S	2011/12/12			97	30 - 130	<2	ug/L	3.4	40
2706410	Dichlorvos	2011/12/12			100	30 - 130	<2	ug/L	4.6	40
2706410	Dimethoate	2011/12/12			96	30 - 130	<2	ug/L	4.9	40
2706410	Fenchlorophos (Ronnel)	2011/12/12			103	30 - 130	<2	ug/L	0.8	40
2706410	Fonofos	2011/12/12			99	30 - 130	<2	ug/L	4.3	40
2706410	Metolachlor	2011/12/12			102	30 - 130	<5	ug/L	1.1	40
2706410	Mevinphos	2011/12/12			98	30 - 130	<2	ug/L	5.6	40
2706410	Phosmet	2011/12/12			108	30 - 130	<2	ug/L	3.4	40
2706410	Triallate	2011/12/12			101	30 - 130	<5	ug/L	1.8	40
2706410	Trifluralin	2011/12/12			98	30 - 130	<5	ug/L	3.4	40
2706410	Atrazine	2011/12/12			101	30 - 130	<1	ug/L	4.8	40
2706410	Diazinon	2011/12/12			109	30 - 130	<2	ug/L	4.7	40
2706410	Malathion	2011/12/12			99	30 - 130	<2	ug/L	3.8	40
2706410	Parathion Ethyl	2011/12/12			108	30 - 130	<2	ug/L	0.8	40
2706410	Parathion Methyl	2011/12/12			96	30 - 130	<2	ug/L	2.7	40
2706410	Simazine	2011/12/12			96	30 - 130	<2	ug/L	5.7	40
2706410	Aldicarb	2011/12/12			100	30 - 130	<5	ug/L	0.3	40
2706410	Bendiocarb	2011/12/12			86	30 - 130	<2	ug/L	19.1	40
2706410	Carbaryl	2011/12/12			60	30 - 130	<5	ug/L	28.1	40
2706410	Carbofuran	2011/12/12			89	30 - 130	<5	ug/L	21.5	40
2706410	Cyanazine (Bladex)	2011/12/12			102	30 - 130	<5	ug/L	2.3	40
2706410	Prometryne	2011/12/12			98	30 - 130	<1	ug/L	0.2	40
2706410	Chlorpyrifos (Dursban)	2011/12/12			106	30 - 130	<2	ug/L	1.5	40
2706410	Terbufos	2011/12/12			91	30 - 130	<1	ug/L	2.5	40
2706410	Phorate	2011/12/12			101	30 - 130	<1	ug/L	2.4	40
2706410	Guthion (Azinphos-methyl)	2011/12/12			109	30 - 130	<1	ug/L	8.0	40
2706410	Ethion	2011/12/12			108	30 - 130	<1	ug/L	0.9	40
2706410	Fenthion	2011/12/12			101	30 - 130	<1	ug/L	0.6	40

Maxxam Job #: B1J1754
Report Date: 2011/12/14

Maxxam Analytics
Client Project #: B191064

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2710660	Nonylphenol (Total)	2011/12/14	108	50 - 130	95	50 - 130	<0.001	mg/L	NC	40

N/A = Not Applicable
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

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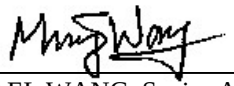
Validation Signature Page

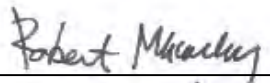
Maxxam Job #: B1J1754

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

CHARLES ANCKER, B.Sc., M.Sc., C.Chem, Senior Analyst



MICHAEL WANG, Senior Analyst



ROBERT MACAULAY, Senior Analyst

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

SAMPLE RECEIPT FORM / CHEMICAL ANALYSIS FORM

FILE #: PR112512

CLIENT: Maxxam Analytics
4606 Canada Way
Burnaby, BC
V5G 1K5

Phone: 604-734-7276
Email: KJanda@maxxam.ca

RECEIVED BY: J. Lawrence **DATE/TIME:** December 5, 2011 (4:20 p.m.)
CONDITION: okay, 4 °C

# of Containers	Sample Type	Sample (Client Codes)	Lab Codes	Test Requested
1	Water	CG8555-03R \ VANCOUVER A	PR112512	TBT

STORAGE: Stored at 4 °C

ANALYTES: HRGC/HRMS analysis for tributyltin

SPECIAL INSTRUCTIONS: none

METHODOLOGY

Reference Method: TBT: in house, SOP LAB04

Data summarized in Data Report Attached

Report sent to: Kelly Janda Date: December 22, 2011

Comments: Results relate only to items tested. Data has been blank corrected.

_____

David Hope PChem, CEO

DATA REPORT

Client: Maxxam
Contact: Kelly Janda

Date Extracted: 8-Dec-11
Date Analysed: 22-Dec-11

	Client ID:	CG8555-03R \ VANCOUVER A
	PRL ID:	PR112512
Compound	**DL µg/L**	**µg/L**
Tributyltin Chloride	0.001	ND
Dibutyltin dichloride	0.001	0.004
Monobutyltin trichloride	0.001	0.009

Compound	**DL µg/L**	**µg/L**
TBT^{+}	0.001	ND
DBT^{++}	0.001	0.003
MBT^{+++}	0.001	0.006
Surrogate Recoveries (%)		
Tributyltin-d27		85

ND - none detected
Data has been blank corrected.

Patrick Pond, CTO

Form Name: DOC20 Data Report TBTW 11-Dec-09 DGH

Pacific Rim Laboratories Inc. #103, 19575-55A Avenue, Surrey, BC V3S 8P8 Canada
Tel: + 604.532.8711 Fax: + 604.532.8712 Email: info@pacificrimlabs.com
www.pacificrimlabs.com

QC REPORT

Client: Maxxam
Contact: Kelly Janda

Date Extracted: 8-Dec-11
Date Analysed: 22-Dec-11

	Client ID:	Blank			Spike	LOF	Recovery
	PRL ID:	TB111052B			TB111053S		
Compound	**DL µg/L**	**µg/L**			**µg/L**	**µg/L**	
Tributyltin Chloride	0.001	ND			0.347	0.400	87%
Dibutyltin dichloride	0.001	ND			0.260	0.400	65%
Monobutyltin trichloride	0.001	0.005			0.070	0.400	17%

Compound	**DL µg/L**	**µg/L**
TBT^{+}	0.001	ND
DBT^{++}	0.001	ND
MBT^{+++}	0.001	0.003
Surrogate Recoveries (%)		
Tributyltin-d27		89

ND - none detected

Patrick Pond, CTO

Form Name: DOC20 Data Report TBTW 09-Dec-09 DGH

Pacific Rim Laboratories Inc. #103, 19575-55A Avenue, Surrey, BC V3S 8P8 Canada
Tel: + 604.532.8711 Fax: + 604.532.8712 Email: info@pacificrimlabs.com
www.pacificrimlabs.com

Acronyms used in reporting organotins:

TBT = Tributyltin
DBT = Dibutyltin
MBT = Monobutyltin
TBTCl = Tributyltin chloride
DBTCl = Dibutyltin dichloride
MBTCl = Monobutyltin trichloride

This method analyzes organotin derivatives in water, sediment and biota. The method cannot determine which organotin salt is present in the sample, therefore all data is quantified in terms of organotin chlorides and expressed as cation equivalents (TBT^{+}, DBT^{++}, MBT^{+++}).

In sea water and under normal conditions, TBT exists as three species (hydroxide, chloride, and carbonate), which remain in equilibrium. At pH values less than 7.0, the predominate forms are $Bu_3SnOH_2^{+}$ and Bu_3SnCl, at pH 8, they are Bu_3SnCl, Bu_3SnOH, and $Bu_3SnCO_3^{-}$, and at pH values above 10, Bu_3SnOH and $Bu_3SnCO_3^{-}$ predominate. Source: http://www.inchem.org/documents/ehc/ehc/ehc116.htm#SectionNumber:1.1

TBT data has been reported in many conventions over the years. To convert to other units, use the multipliers below.

To convert	**To:**	**Multiply by:**
Tributyltin chloride	As Sn	0.3647
Tributyltin chloride	As TBTO	0.9760
Tributyltin chloride	As TBT^{+}	0.8911
Dibutyltin dichloride	As Sn	0.3907
Dibutyltin dichloride	As TBTO	0.9110
Dibutyltin dichloride	As DBT^{++}	0.7666
Dibutyltin dichloride	As TBT^{+}	0.9546
Monobutyltin trichloride	As Sn	0.4207
Monobutyltin trichloride	As TBTO	0.8461
Monobutyltin trichloride	As MBT^{+++}	0.6231
Monobutyltin trichloride	As TBT^{+}	1.0279
As Sn	As TBTO	2.8097

Acceptable recoveries for Tributyltin surrogate standards

Sediment/biota	TBT d_{27}	20-150%
Water	TBT d_{27}	10-130%

maxxam.ca
MAXXAM ANALYTICS
4606 Canada Way
Burnaby, BC V5G 1K5
Office 604 734 7276
Toll Free 800 665 8566
Fax 604 731 2386

Kelly Janda
Maxxam Analytics Inc. (ZEN001)
4606 Canada Way
Burnaby, BC
V5G1K5

January 04, 2012

Dear Kelly:

Subject: Methylmercury Speciation Results (Maxxam Ref# CX19)

Please find the following Liquid Chromatography Inductively Coupled Plasma Mass Spectrometry (LC-ICPMS) data for the water samples you sent in recently for Methylmercury (MeHg) analysis under Maxxam Job# B191064.

A] Sample Preparation:

An aliquot of each sample was filtered into an autosampler vial for analysis.

B] Sample analysis:

Samples were analysed by LC-ICPMS using a Dionex DX-500 Chromatography System and a Thermo X-Series ICPMS. The chromatographic mode employed was reversed phase chromatography using a mercaptoethanol based mobile phase. Following chromatographic separation, the mobile phase was transferred to the ICPMS system for time resolved analysis of ^{202}Hg.

If you have any questions or comments, do not hesitate to get in touch.

Yours sincerely,

Lyle Cline
Technical Coordinator (Product Testing)

maxxam.ca

MAXXAM ANALYTICS
4606 Canada Way
Burnaby, BC V5G 1K5

Office 604 734 7276
Toll Free 800 665 8566
Fax 604 731 2386

ANALYTICAL REPORT

MAXXAM REF: CX19

Date: January 04, 2012

Mercury as Methylmercury by LC-ICPMS

Client: Maxxam Analytics
Attention: Kelly Janda

Sample Results

Maxxam ID	Client Sample ID	Mercury as Methylmercury (µg/L)
CX1901	CG8555-04 VANCOUVER AQUAR	<0.20
CX1901sp	CG8555-04 VANCOUVER AQUAR (spiked at 5 µg/L)	4.25

Signed:..... Date: Jan 4, 2012

maxxam.ca
MAXXAM ANALYTICS
4606 Canada Way
Burnaby, BC V5G 1K5
Office 604 734 7276
Toll Free 800 665 8566
Fax 604 731 2386

Kelly Janda
Maxxam Analytics Inc. (ZEN001)
4606 Canada Way
Burnaby, BC
V5G1K5

January 10, 2012

Dear Kelly:

Subject: Methylmercury Speciation Results (Maxxam Ref# CY14)

Please find the following Liquid Chromatography Inductively Coupled Plasma Mass Spectrometry (LC-ICPMS) data for the tissue samples you sent in recently for Methylmercury (MeHg) analysis under Maxxam Job# B191064.

A] Sample Preparation:

A 0.5g aliquot of each sample was subjected to an aqueous based extraction according to BBY9SOP-00001. An aliquot of the extract was filtered into an autosampler vial for analysis.

B] Sample analysis:

Samples were analysed according to BBY9SOP-00001 by LC-ICPMS using a Dionex DX-500 Chromatography System and a Thermo X-Series ICPMS. The chromatographic mode employed was reversed phase chromatography using a mercaptoethanol based mobile phase. Following chromatographic separation, the mobile phase was transferred to the ICPMS system for time resolved analysis of ^{202}Hg.

All reported concentrations are relative to wet weight of sample.

If you have any questions or comments, do not hesitate to get in touch.

Yours sincerely,

Lyle Cline
Technical Coordinator (Product Testing)

maxxam.ca
MAXXAM ANALYTICS
4606 Canada Way
Burnaby, BC V5G 1K5
Office 604 734 7276
Toll Free 800 665 8566
Fax 604 731 2386

ANALYTICAL REPORT

MAXXAM REF: CY14

Date: January 10, 2012

Mercury as Methylmercury by LC-ICPMS

Client: Maxxam Analytics
Attention: Kelly Janda

Sample Results

Maxxam ID	Client Sample ID	Dilution Factor (w/v)	Mercury as Methylmercury (ng/g)
cy1401	B191064 CF2050	18.9	4.1
cy1402	B191064 CF2951	19.5	BQL
cy1403	B191064 CF2952	19.9	4.4
cy1404	B191064 CF2953	19.3	3.9
cy1404pd	B191064 CF2953 (duplicate)	19.7	BQL
cy1405	B191064 CF2954	19.4	BQL
cy1405psp	B191064 CF2954 (spiked at 96.6 ng/g)	19.3	90.8
cy1406	B191064 CF2955	19.5	4.2
cy1407	B191064 CF2957	19.8	4.1

BQL: Below quantitation Limit (0.2 ng/mL multiplied by dilution factor).

Signed:..... Date: Jan 10, 2012

Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

CAPITAL REGIONAL DISTRICT
- CRD-VIC
Maxxam PM Kelly Janda

SUBCONTRACTING REQUEST FORM

To: Maxxam Calgary Environmental

Job# B191064

Yes ☐ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
Yes ☐ No Special Protocol (if yes, Protocol _____)

Received a Subcontract Lab by (sign) _____ (print) JOSH KNOSKY

Received a Subcontract Lab (Date) 2011/09/07 (Time) 0845

Received Lab's Job # _____ Inspected by (print) MINXU SIF ☐ Yes ☐ No

Upon receipt, record 3 temperatures for each package/cooler. If required by contract or legal sample, indicate if custody sealed.

Temp1 4.0 Temp2 3.7 Temp3 3.6 Custody sealed Yes

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ0637-06R \ M1NW	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0637-06R \ M1NW	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0637-06R \ M1NW	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0637-06R \ M1NW	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0637-06R \ M1NW	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0638-06R \ M1S	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0638-06R \ M1S	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0638-06R \ M1S	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0638-06R \ M1S	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0638-06R \ M1S	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0639-06R \ M1SE	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0639-06R \ M1SE	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0639-06R \ M1SE	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0639-06R \ M1SE	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0639-06R \ M1SE	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0640-06R \ M1SW	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0640-06R \ M1SW	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12

Received 26 x 250 mL jars
1 x 60 mL jar

Missing BQ0642-03R
BQ0643-02R
BQ0652-03R
BQ0653-02R

Preprocessing MXO 2011/10/07

Extra
BQ0644-01 1x250 J
BQ0654-01 1x250 J

Continued...

Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

CAPITAL REGIONAL DISTRICT
- CRD-VIC
Maxxam PM Kelly Janda

SUBCONTRACTING REQUEST FORM

To: Maxxam Calgary Environmental

Job# B191064

Yes No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
Yes No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) _____ (Time) _____

Received Lab's Job # _____ Inspected by (print) _____ SIF ☐ Yes ☐ No
Upon receipt, record 3 temperatures for each package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 Temp2 Temp3 Custody sealed _____

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ0640-06R \ M1SW	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0640-06R \ M1SW	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0640-06R \ M1SW	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0641-06R \ M1W	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0641-06R \ M1W	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0641-06R \ M1W	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0641-06R \ M1W	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0641-06R \ M1W	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0642-02R \ M2E	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0642-02R \ M2E	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0642-02R \ M2E	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0642-03R \ M2E	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0642-03R \ M2E	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0643-02R \ M2E-DUP	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0643-03R \ M2E-DUP	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0643-03R \ M2E-DUP	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0643-03R \ M2E-DUP	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17

Continued...

Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

CAPITAL REGIONAL DISTRICT
- CRD-VIC
Maxxam PM Kelly Janda

SUBCONTRACTING REQUEST FORM

To: Maxxam Calgary Environmental

Job# B191064

Yes ☐ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
Yes ☐ No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) _____ (Time) _____

Received Lab's Job # _____ Inspected by (print) _____ SIF ☐ Yes ☐ No
Upon receipt, record 3 temperatures for **each** package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 _____ Temp2 _____ Temp3 _____ Custody sealed _____

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ0643-03R \ M2E-DUP	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0644-02R \ M2E-TRIP	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0644-02R \ M2E-TRIP	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0644-02R \ M2E-TRIP	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0644-02R \ M2E-TRIP	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0644-02R \ M2E-TRIP	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0645-06R \ M2SE	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0645-06R \ M2SE	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0645-06R \ M2SE	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0645-06R \ M2SE	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0645-06R \ M2SE	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0646-06R \ M2NE	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0646-06R \ M2NE	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0646-06R \ M2NE	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0646-06R \ M2NE	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0646-06R \ M2NE	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0647-06R \ M2NE	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12

Continued...

Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

CAPITAL REGIONAL DISTRICT
- CRD-VIC
Maxxam PM Kelly Janda

SUBCONTRACTING REQUEST FORM

To: Maxxam Calgary Environmental

Job# B191064

Yes No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
Yes No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) _____ (Time) _____

Received Lab's Job # _____ Inspected by (print) _____ SIF ☐ Yes ☐ No
Upon receipt, record 3 temperatures for **each** package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 _____ Temp2 _____ Temp3 _____ Custody sealed _____

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ0647-06R \ M2NE	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0647-06R \ M2NE	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0647-06R \ M2NE	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0647-06R \ M2NE	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0648-06R \ M2NE	SED	Drying aud Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0648-06R \ M2NE	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0648-06R \ M2NE	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0648-06R \ M2NE	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0648-06R \ M2NE	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0649-06R \ M0	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0649-06R \ M0	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0649-06R \ M0	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0649-06R \ M0	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0649-06R \ M0	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0650-06R \ M1E	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0650-06R \ M1E	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0650-06R \ M1E	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12

Continued...

Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

CAPITAL REGIONAL DISTRICT
- CRD-VIC
Maxxam PM Kelly Janda

SUBCONTRACTING REQUEST FORM

To: Maxxam Calgary Environmental

Job# B191064

Yes No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
Yes No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) _____ (Time) _____

Received Lab's Job # _____ Inspected by (print) _____ SIF ☐ Yes ☐ No
Upon receipt, record 3 temperatures for **each** package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 _____ Temp2 _____ Temp3 _____ Custody sealed _____

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ0650-06R \ M1E	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0650-06R \ M1E	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0651-06R \ M4E	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0651-06R \ M4E	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0651-06R \ M4E	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0651-06R \ M4E	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0651-06R \ M4E	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0652-02R \ M4SE	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0652-02R \ M4SE	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0652-02R \ M4SE	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0652-03R \ M4SE	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0652-03R \ M4SE	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0653-02R \ M4SE-DUP	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0653-03R \ M4SE-DUP	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0653-03R \ M4SE-DUP	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0653-03R \ M4SE-DUP	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0653-03R \ M4SE-DUP	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12

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Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

CAPITAL REGIONAL DISTRICT
- CRD-VIC
Maxxam PM Kelly Janda

SUBCONTRACTING REQUEST FORM

To: Maxxam Calgary Environmental

Job# B191064

Yes ☐ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
Yes ☐ No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) _____ (Time) _____

Received Lab's Job # _____ Inspected by (print) _____ SIF ☐ Yes ☐ No
Upon receipt, record 3 temperatures for each package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 Temp2 Temp3 Custody sealed

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ0654-02R \ M4SE-TRIP	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0654-02R \ M4SE-TRIP	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0654-02R \ M4SE-TRIP	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0654-02R \ M4SE-TRIP	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0654-02R \ M4SE-TRIP	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0655-06R \ M8E	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0655-06R \ M8E	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0655-06R \ M8E	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0655-06R \ M8E	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0655-06R \ M8E	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0656-06R \ PB1	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0656-06R \ PB1	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0656-06R \ PB1	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0656-06R \ PB1	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0656-06R \ PB1	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0657-06R \ PB2	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12

Continued...

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Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

CAPITAL REGIONAL DISTRICT
- CRD-VIC
Maxxam PM Kelly Janda

SUBCONTRACTING REQUEST FORM

To: Maxxam Calgary Environmental

Job# B191064

Yes No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
Yes No Special Protocol (if yes, Protocol)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) _____ (Time) _____

Received Lab's Job # _____ Inspected by (print) _____ SIF ☐ Yes ☐ No
Upon receipt, record 3 temperatures for each package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 _____ Temp2 _____ Temp3 _____ Custody sealed _____

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ0657-06R \ PB2	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0657-06R \ PB2	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
✓ BQ0657-06R \ PB2	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0657-06R \ PB2	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0658-06R \ PB3	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0658-06R \ PB3	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
✓ BQ0658-06R \ PB3	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0658-06R \ PB3	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0658-06R \ PB3	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0659-06R \ C1E	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0659-06R \ C1E	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
✓ BQ0659-06R \ C1E	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0659-06R \ C1E	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0659-06R \ C1E	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0660-06R \ C2E	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
✓ BQ0660-06R \ C2E	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
BQ0660-06R \ C2E	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12

Continued...

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CAPITAL REGIONAL DISTRICT
- CRD-VIC
Maxxam PM Kelly Janda

SUBCONTRACTING REQUEST FORM

To: Maxxam Calgary Environmental

Job# B191064

☐ Yes ☐ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
☐ Yes ☐ No Special Protocol (if yes, Protocol _____)

Received at Subcontract Lab by (sign) _____ (print) Josh Kingsbury
Received at Subcontract Lab (Date) 20/09/07 (Time) 0845

Received Lab's Job # _____ Inspected by (print) _____ SIF ☐ Yes ☐ No
Upon receipt, record 3 temperatures for **each** package/cooler. If required by contract or legal sample, indicate if custody sealed.

Temp1 4.0 Temp2 3.7 Temp3 3.6 Custody sealed Yes

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ0660-06R \ C2E	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0660-06R \ C2E	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12
BQ0661-06R \ C4E	SED	Drying and Grinding	1(AJAR)	2011/09/14	2011/10/12
BQ0661-06R \ C4E	SED	Sub Sample for Dry Grind	1(AJAR)	2011/09/14	2011/10/12
✓ BQ0661-06R \ C4E	SED	Sub-sample for metals	1(AJAR)	2011/09/14	2011/10/12
BQ0661-06R \ C4E	SED	Total Organic Carbon LECO Method	1(AJAR)	2011/09/14	2011/10/17
BQ0661-06R \ C4E	SED	Texture by Hydrometer, incl Gravel (Wet)	1(AJAR)	2011/09/14	2011/10/12

COMMENT: PLEASE RUN THESE SAMPLES IN 2 BATCHES (SAME INSTRUMENT, SAME WS) BQ0637 TO BQ0648 ARE 1

NOTES:
1) Please call us if due date cannot be met. Please reference Sample ID on your report.
2) Include copy of this completed form, Client COC & signed final report to KJanda@maxxam.ca, and to **customerservicebc@maxxamanalytics.com**

SHIPPING INSTRUCTIONS

Ship Immediately (highlight Yellow) ☐ Ship Cold
Requires 9am ☐ Ship Room Temp
Requires Sat. Delivery ☐ Ship Frozen
Regular Ship next available day ☐ COC Must be Attached
Sender (Print) _____ Initial _____

SHIPPING DEPARTMENT CHECKLIST

☐ Correct Shipping location
☐ Correct Sample Ids (Paperwork vs Bottles)
☐ Yes ☐ No Special-Cooler, Ice, Tape-custody seal, Date&Sign
Date Shipped 11/10/6
Shipper (Print) Jen Initial JV

Your Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Your C.O.C. #: 08314940

Attention: JASON CLARKE
WORLEYPARSONS CANADA SERVICES LTD
100-3795 CAREY RD
VICTORIA, BC
CANADA V8Z 6T8

Report Date: 2012/02/23

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B192006
Received: 2011/09/28, 08:45

Sample Matrix: Sediment
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Soil by GC/MS	1	2011/10/05	2011/10/10	BBY8SOP-00023	EPA SW846 3540C
Phenols in Soil by GCMS	1	2011/10/03	2011/10/08	BBY8SOP-00025	EPA 8270D
Ecotox Report Attachment	1	2012/02/15	2012/02/15		
Ecotox Report Attachment	1	2012/02/15	2012/02/15		
Fecal Coliforms (MTF) in Soil	2	N/A	2011/09/30	BBY4-00119	SM 9221
Elements by ICPMS (total)	2	2011/10/01	2011/10/03	BBY7SOP-00001	EPA 6020A
Simultaneously Extractable Metals-ICPMS	2	2011/10/12	2011/10/12	BBY7SOP-00001	EPA 6020A
Moisture	1	N/A	2011/10/01	BBY8SOP-00017	Ont MOE -E 3139
Moisture	1	N/A	2011/10/05	BBY8SOP-00017	Ont MOE -E 3139
Moisture	1	N/A	2011/10/13	BBY8SOP-00017	Ont MOE -E 3139
PAH in Soil by GC/MS (SIM)	1	2011/09/30	2011/10/03	BBY8SOP-00022	EPA 8270D
Total LMW, HMW, Total PAH Calc	1	N/A	2011/10/04		PAHTOT-S
Polychlorinated Biphenyls in Soil	1	N/A	2011/10/03	BBY8SOP-00036	EPA 8080
pH (2:1 DI Water Extract)	2	2011/10/04	2011/10/04	BBY6SOP-00028	Carter, SSMA 16.2
CSR VH C6-C10 in Soil by GC/FID	1	2011/09/30	2011/09/30	BBY8SOP-00011	EPA SW8260C
Particle Size Distribution - Standard (1)	2	2011/10/04	2011/10/04		
Sulfide (AVS) (soil) - Calc for umole/g	1	2011/09/28	2011/10/13	BRN SOP-00229 R2.0	EPA821-R91-100
Sulfide (AVS) (soil) - Calc for umole/g	1	2011/09/28	2011/10/14	BRN SOP-00229 R2.0	EPA821-R91-100
Sulfide (AVS) (soil)	2	2011/10/12	2011/10/12	BBY6SOP-00007	EPA821-R91-100
Sublet (Inorganics) (2)	1	N/A	2011/11/21		
Texture Class (1)	2	N/A	2011/11/08		
VOCs in Soil by HS GC/MS	1	2011/09/30	2011/09/30	BBY8-SOP-0009	EPA 8260C
Volatile HC-BTEX	1	N/A	2011/10/05	BBY8-SOP-00011	BC Env Lab Manual
Nonyl Phenol Soil Subcontract (2)	1	2011/11/24	2011/11/24		
Pesticides, OC Soil Subcontract (3)	1	2011/10/06	2011/10/09	CAM SOP-00307	EPA 8081A(1)
PBDE Soil Subcontract (2)	1	2011/10/06	2011/10/13		
TOC Soil Subcontract (3)	1	2011/11/22	2011/10/11		
TOC Soil Subcontract (3)	1	2011/11/22	2011/10/12		

* Results relate only to the items tested.

(1) This test was performed by Maxxam Winnipeg
(2) This test was performed by Ext. Sublet from Victoria
(3) This test was performed by Maxxam Ontario (From Burnaby)

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Maxxam Job #: B192006
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Debbie Nordbruget, Sample Logistics Technician
Email: DNordbruget@maxxam.ca
Phone# (250) 385-6112

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B192006
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

RESULTS OF CHEMICAL ANALYSES OF SEDIMENT

Maxxam ID		BQ5955		BQ5956	BQ5957		BQ5958		
Sampling Date		2011/09/27 15:00		2011/09/27 16:00	2011/09/27 15:00		2011/09/27 16:00		
	Units	**FC4000ENE - COMPOSITE**	**QC Batch**	**FC3500NE - COMPOSITE**	**FC4000ENE - GRAB**	**RDL**	**FC3500NE - GRAB**	**RDL**	**QC Batch**
Calculated Parameters									
No Parameter	N/A			ATTACHED		N/A			5599913
Parameter									
Subcontract Parameter	N/A	ATTACHED	5384003	ATTACHED		N/A			5384048
Calculated Parameters									
Sulphide	umole/g				0.0176	0.0077	0.0119	0.0083	5219336
MISCELLANEOUS									
Sulphide	ug/g				0.56 (1)	0.25	0.38 (1)	0.27	5255705
Physical Properties									
Texture	N/A	LOAMY SAND	5219297	LOAMY SAND		N/A			5219297

POLYCHLORINATED BIPHENYLS BY GC-ECD (SEDIMENT)

Maxxam ID		BQ5956		
Sampling Date		2011/09/27 16:00		
	Units	**FC3500NE - COMPOSITE**	**RDL**	**QC Batch**
Polychlorinated Biphenyls				
Aroclor 1242	mg/kg	<0.030	0.030	5225048
Aroclor 1248	mg/kg	<0.030	0.030	5225048
Aroclor 1254	mg/kg	<0.030	0.030	5225048
Aroclor 1260	mg/kg	<0.030	0.030	5225048
Total PCB	mg/kg	<0.030	0.030	5225048
Surrogate Recovery (%)				
Hexabromobiphenyl (sur.)	%	90		5225048

N/A = Not Applicable
RDL = Reportable Detection Limit
(1) - RDL raised due to sample dilution.

Maxxam Job #: B192006
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
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Sampler Initials: BL

PARTICLE SIZE DISTRIBUTION ANALYSIS (SEDIMENT)

Maxxam ID		BQ5955	BQ5956		
Sampling Date		2011/09/27 15:00	2011/09/27 16:00		
	Units	**FC4000ENE - COMPOSITE**	**FC3500NE - COMPOSITE**	**RDL**	**QC Batch**
Percent Passing					
<0.002mm Pipette	%	3.90	6.99	0.01	5344372
<0.053mm Pipette	%	10.79	19.61	0.01	5344372
<0.125mm, Sieve #120	%	16.89	65.44	0.01	5344372
<0.250mm, Sieve #60	%	42.45	93.88	0.01	5344372
<2.00mm, Sieve #10	%	82.17	97.81	0.01	5344372
Percent of Entire Sample					
<0.002mm	%	3.90	6.99	0.01	5344372
<0.053mm & >0.002mm	%	6.89	12.61	0.01	5344372
<2.00mm & >0.053mm	%	71.38	78.20	0.01	5344372
>2.00mm	%	17.84	2.19	0.01	5344372
% of the <2mm Fraction					
% Clay <0.002mm	%	4.75	7.15	0.01	5344372
% Sand <2.00mm & >0.053mm	%	86.87	79.95	0.01	5344372
% Silt <0.053mm & >0.002mm	%	8.38	12.90	0.01	5344372

PHYSICAL TESTING (SEDIMENT)

Maxxam ID		BQ5956		BQ5957		BQ5958		
Sampling Date		2011/09/27 16:00		2011/09/27 15:00		2011/09/27 16:00		
	Units	**FC3500NE - COMPOSITE**	**QC Batch**	**FC4000ENE - GRAB**	**QC Batch**	**FC3500NE - GRAB**	**RDL**	**QC Batch**
Physical Properties								
Moisture	%	31	5223504	27	5261212	31	0.3	5235750

RDL = Reportable Detection Limit

Maxxam Job #: B192006
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ5956		
Sampling Date		2011/09/27 16:00		
	Units	**FC3500NE - COMPOSITE**	**RDL**	**QC Batch**
Base Neutrals				
2,4-dinitrotoluene	mg/kg	<0.05	0.05	5239555
2,6-dinitrotoluene	mg/kg	<0.05	0.05	5239555
2-chloronaphthalene	mg/kg	<0.08	0.08	5239555
3,3'-Dichlorobenzidine	mg/kg	<0.5	0.5	5239555
4-bromophenyl phenyl ether	mg/kg	<0.06	0.06	5239555
4-chlorophenyl phenyl ether	mg/kg	<0.07	0.07	5239555
Bis(2-chloroethoxy)methane	mg/kg	<0.08	0.08	5239555
Bis(2-chloroethyl)ether	mg/kg	<0.06	0.06	5239555
Bis(2-chloroisopropyl)ether	mg/kg	<0.2	0.2	5239555
Dibenzofuran	mg/kg	<0.1	0.1	5239555
Hexachlorobutadiene	mg/kg	<0.05	0.05	5239555
Hexachlorocyclopentadiene	mg/kg	<1(1)	1	5239555
Hexachloroethane	mg/kg	<0.06	0.06	5239555
Isophorone	mg/kg	<0.06	0.06	5239555
Nitrobenzene	mg/kg	<0.07	0.07	5239555
N-nitroso-di-n-propylamine	mg/kg	<0.06	0.06	5239555
N-nitrosodiphenylamine	mg/kg	<0.08	0.08	5239555
Chlorobenzenes				
1,2,4-trichlorobenzene	mg/kg	<0.06	0.06	5239555
1,2-dichlorobenzene	mg/kg	<0.1	0.1	5239555
1,3-dichlorobenzene	mg/kg	<0.1	0.1	5239555
1,4-dichlorobenzene	mg/kg	<0.1	0.1	5239555
Hexachlorobenzene	mg/kg	<0.06	0.06	5239555
Phenols				
4-chloro-3-methylphenol	mg/kg	<0.07	0.07	5239555
m,p-Cresol	mg/kg	<0.05	0.05	5239555
Phthalate Esters				
Bis(2-ethylhexyl)phthalate	mg/kg	<2	2	5239555
Butyl benzyl phthalate	mg/kg	<0.1	0.1	5239555
Diethyl phthalate	mg/kg	<0.09	0.09	5239555
Dimethyl phthalate	mg/kg	<0.07	0.07	5239555
Di-n-butyl phthalate	mg/kg	<0.07	0.07	5239555
Di-n-octyl phthalate	mg/kg	<0.1	0.1	5239555

RDL = Reportable Detection Limit
(1) - RDL raised due to Continuing Calibration Verification below criteria - Pot. low bias

Maxxam Job #: B192006
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ5956		
Sampling Date		2011/09/27 16:00		
	Units	**FC3500NE - COMPOSITE**	**RDL**	**QC Batch**
SEMI-VOLATILE ORGANICS				
Phenol	mg/kg	<0.050	0.050	5245678
2-chlorophenol	mg/kg	<0.0050	0.0050	5245678
3 & 4-chlorophenol	mg/kg	<0.0050	0.0050	5245678
2-methylphenol	mg/kg	<0.050	0.050	5245678
3 & 4-methylphenol	mg/kg	<0.050	0.050	5245678
2-nitrophenol	mg/kg	<0.050	0.050	5245678
2,4-dimethylphenol	mg/kg	<0.050	0.050	5245678
2,4 + 2,5-Dichlorophenol	mg/kg	<0.0050	0.0050	5245678
2,3-Dichlorophenol	mg/kg	<0.0050	0.0050	5245678
2,6-dichlorophenol	mg/kg	<0.0050	0.0050	5245678
3,5-Dichlorophenol	mg/kg	<0.0050	0.0050	5245678
3,4-Dichlorophenol	mg/kg	<0.0050	0.0050	5245678
2,4,5-trichlorophenol	mg/kg	<0.0050	0.0050	5245678
2,4,6-trichlorophenol	mg/kg	<0.0050	0.0050	5245678
2,3,5-trichlorophenol	mg/kg	<0.0050	0.0050	5245678
2,3,6-Trichlorophenol	mg/kg	<0.0050	0.0050	5245678
2,3,4-trichlorophenol	mg/kg	<0.0050	0.0050	5245678
3,4,5-Trichlorophenol	mg/kg	<0.0050	0.0050	5245678
2,4-dinitrophenol	mg/kg	<0.080	0.080	5245678
4,6-dinitro-2-methylphenol	mg/kg	<0.50(1)	0.50	5245678
2,3,4,6-tetrachlorophenol	mg/kg	<0.0050	0.0050	5245678
2,3,4,5-tetrachlorophenol	mg/kg	<0.0050	0.0050	5245678
2,3,5,6-tetrachlorophenol	mg/kg	<0.0050	0.0050	5245678
4-nitrophenol	mg/kg	<0.050	0.050	5245678
Pentachlorophenol	mg/kg	<0.0050	0.0050	5245678
Surrogate Recovery (%)				
2,4,6-TRIBROMOPHENOL (sur.)	%	83		5245678
2-FLUOROBIPHENYL (sur.)	%	80		5239555
TERPHENYL-D14 (sur.)	%	82		5239555
D5-PHENOL (sur.)	%	82		5245678
D5-NITROBENZENE (sur.)	%	79		5239555

RDL = Reportable Detection Limit
(1) - RDL raised due to Continuing Calibration Verification below criteria - Pot. low bias

Maxxam Job #: B192006
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)

Maxxam ID		BQ5957	BQ5958		
Sampling Date		2011/09/27 15:00	2011/09/27 16:00		
	Units	**FC4000ENE - GRAB**	**FC3500NE - GRAB**	**RDL**	**QC Batch**
SEM Metals by ICPMS					
SEM Cadmium (Cd)	umole/g	0.0004	0.0009	0.0002	5257476
SEM Copper (Cu)	umole/g	0.052	0.079	0.004	5257476
SEM Lead (Pb)	umole/g	0.0118	0.0167	0.0002	5257476
SEM Mercury (Hg)	umole/g	<0.0003	<0.0003	0.0003	5257476
SEM Nickel (Ni)	umole/g	0.151	0.177	0.004	5257476
SEM Zinc (Zn)	umole/g	0.230	0.451	0.008	5257476

MICROBIOLOGY (SEDIMENT)

Maxxam ID		BQ5957	BQ5958		
Sampling Date		2011/09/27 15:00	2011/09/27 16:00		
	Units	**FC4000ENE - GRAB**	**FC3500NE - GRAB**	**RDL**	**QC Batch**
Microbiological Param.					
Fecal Coliforms	MPN/100g	<20	20	20	5225544

RDL = Reportable Detection Limit

Maxxam Job #: B192006
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

CSR/CCME METALS IN SOIL (SEDIMENT)

Maxxam ID		BQ5955	BQ5956		
Sampling Date		2011/09/27 15:00	2011/09/27 16:00		
	Units	**FC4000ENE - COMPOSITE**	**FC3500NE - COMPOSITE**	**RDL**	**QC Batch**
Physical Properties					
Soluble (2:1) pH	pH Units	8.53	8.34	0.01	5228272
Total Metals by ICPMS					
Total Aluminum (Al)	mg/kg	6910	10600	100	5228268
Total Antimony (Sb)	mg/kg	0.15	0.16	0.10	5228268
Total Arsenic (As)	mg/kg	3.54	4.53	0.50	5228268
Total Barium (Ba)	mg/kg	17.6	23.3	0.10	5228268
Total Beryllium (Be)	mg/kg	<0.40	<0.40	0.40	5228268
Total Bismuth (Bi)	mg/kg	<0.10	<0.10	0.10	5228268
Total Cadmium (Cd)	mg/kg	0.086	0.124	0.050	5228268
Total Calcium (Ca)	mg/kg	73100	9590	100	5228268
Total Chromium (Cr)	mg/kg	16.6	21.2	1.0	5228268
Total Cobalt (Co)	mg/kg	5.11	6.04	0.30	5228268
Total Copper (Cu)	mg/kg	7.89	10.2	0.50	5228268
Total Iron (Fe)	mg/kg	16200	21700	100	5228268
Total Lead (Pb)	mg/kg	3.91	5.14	0.10	5228268
Total Lithium (Li)	mg/kg	9.3	15.7	5.0	5228268
Total Magnesium (Mg)	mg/kg	5060	6050	100	5228268
Total Manganese (Mn)	mg/kg	193	176	0.20	5228268
Total Mercury (Hg)	mg/kg	<0.050	<0.050	0.050	5228268
Total Molybdenum (Mo)	mg/kg	0.21	0.22	0.10	5228268
Total Nickel (Ni)	mg/kg	15.7	16.6	0.80	5228268
Total Phosphorus (P)	mg/kg	448	486	10	5228268
Total Potassium (K)	mg/kg	1280	1630	100	5228268
Total Selenium (Se)	mg/kg	<0.50	<0.50	0.50	5228268
Total Silver (Ag)	mg/kg	<0.050	<0.050	0.050	5228268
Total Sodium (Na)	mg/kg	3690	4370	100	5228268
Total Strontium (Sr)	mg/kg	376	47.6	0.10	5228268
Total Thallium (Tl)	mg/kg	0.098	0.120	0.050	5228268
Total Tin (Sn)	mg/kg	0.27	0.41	0.10	5228268
Total Titanium (Ti)	mg/kg	403	592	1.0	5228268
Total Uranium (U)	mg/kg	0.417	0.435	0.050	5228268
Total Vanadium (V)	mg/kg	30.5	37.9	2.0	5228268
Total Zinc (Zn)	mg/kg	30.0	46.1	1.0	5228268
Total Zirconium (Zr)	mg/kg	0.83	2.79	0.50	5228268

RDL = Reportable Detection Limit

Maxxam Job #: B192006
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

CSR PAH IN SOIL BY GC-MS (SEDIMENT)

Maxxam ID		BQ5956		
Sampling Date		2011/09/27 16:00		
	Units	**FC3500NE - COMPOSITE**	**RDL**	**QC Batch**
Polycyclic Aromatics				
Naphthalene	mg/kg	<0.050	0.050	5232214
2-Methylnaphthalene	mg/kg	<0.050	0.050	5232214
Acenaphthylene	mg/kg	<0.050	0.050	5232214
Acenaphthene	mg/kg	<0.050	0.050	5232214
Fluorene	mg/kg	<0.050	0.050	5232214
Phenanthrene	mg/kg	<0.050	0.050	5232214
Anthracene	mg/kg	<0.050	0.050	5232214
Fluoranthene	mg/kg	<0.050	0.050	5232214
Pyrene	mg/kg	<0.050	0.050	5232214
Benzo(a)anthracene	mg/kg	<0.050	0.050	5232214
Chrysene	mg/kg	<0.050	0.050	5232214
Benzo(b&j)fluoranthene	mg/kg	<0.050	0.050	5232214
Benzo(k)fluoranthene	mg/kg	<0.050	0.050	5232214
Benzo(a)pyrene	mg/kg	<0.050	0.050	5232214
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	0.050	5232214
Dibenz(a,h)anthracene	mg/kg	<0.050	0.050	5232214
Benzo(g,h,i)perylene	mg/kg	<0.050	0.050	5232214
Low Molecular Weight PAH`s	mg/kg	<0.050	0.050	5216562
High Molecular Weight PAH`s	mg/kg	<0.050	0.050	5216562
Total PAH	mg/kg	<0.050	0.050	5216562
Surrogate Recovery (%)				
D10-ANTHRACENE (sur.)	%	101		5232214
D8-ACENAPHTHYLENE (sur.)	%	96		5232214
D8-NAPHTHALENE (sur.)	%	100		5232214
TERPHENYL-D14 (sur.)	%	103		5232214

RDL = Reportable Detection Limit

Maxxam Job #: B192006
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

CSR VOC + VPH IN SOIL (SEDIMENT)

Maxxam ID		BQ5958		
Sampling Date		2011/09/27 16:00		
	Units	**FC3500NE - GRAB**	**RDL**	**QC Batch**
Volatiles				
VPH (VH6 to 10 - BTEX)	mg/kg	<10	10	5217483
Volatile Hydrocarbons				
CSR VH C6-C10	mg/kg	<10	10	5227395

RDL = Reportable Detection Limit

Maxxam Job #: B192006
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

CSR VOC + VPH IN SOIL (SEDIMENT)

Maxxam ID		BQ5958		
Sampling Date		2011/09/27 16:00		
	Units	**FC3500NE - GRAB**	**RDL**	**QC Batch**
Volatiles				
Chloromethane	mg/kg	<0.10	0.10	5227218
Vinyl chloride	mg/kg	<0.060	0.060	5227218
Bromomethane	mg/kg	<0.30	0.30	5227218
Chloroethane	mg/kg	<0.10	0.10	5227218
Trichlorofluoromethane	mg/kg	<0.20	0.20	5227218
1,1-dichloroethene	mg/kg	<0.025	0.025	5227218
Dichloromethane	mg/kg	<0.10	0.10	5227218
trans-1,2-dichloroethene	mg/kg	<0.025	0.025	5227218
1,1-dichloroethane	mg/kg	<0.025	0.025	5227218
cis-1,2-dichloroethene	mg/kg	<0.025	0.025	5227218
Chloroform	mg/kg	<0.050	0.050	5227218
1,1,1-trichloroethane	mg/kg	<0.025	0.025	5227218
1,2-dichloroethane	mg/kg	<0.025	0.025	5227218
Carbon tetrachloride	mg/kg	<0.025	0.025	5227218
Benzene	mg/kg	<0.0050	0.0050	5227218
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	0.10	5227218
1,2-dichloropropane	mg/kg	<0.025	0.025	5227218
Trichloroethene	mg/kg	<0.0090	0.0090	5227218
Bromodichloromethane	mg/kg	<0.050	0.050	5227218
cis-1,3-dichloropropene	mg/kg	<0.050	0.050	5227218
trans-1,3-dichloropropene	mg/kg	<0.050	0.050	5227218
1,1,2-trichloroethane	mg/kg	<0.025	0.025	5227218
Toluene	mg/kg	<0.020	0.020	5227218
Chlorodibromomethane	mg/kg	<0.050	0.050	5227218
Tetrachloroethene	mg/kg	<0.025	0.025	5227218
Chlorobenzene	mg/kg	<0.025	0.025	5227218
1,1,1,2-tetrachloroethane	mg/kg	<0.025	0.025	5227218
Ethylbenzene	mg/kg	<0.010	0.010	5227218
m & p-Xylene	mg/kg	0.069	0.040	5227218
Bromoform	mg/kg	<0.050	0.050	5227218
Styrene	mg/kg	<0.030	0.030	5227218
o-Xylene	mg/kg	<0.040	0.040	5227218
Xylenes (Total)	mg/kg	0.069	0.040	5227218
1,1,2,2-tetrachloroethane	mg/kg	<0.025	0.025	5227218

RDL = Reportable Detection Limit

Maxxam Job #: B192006
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

CSR VOC + VPH IN SOIL (SEDIMENT)

Maxxam ID		BQ5958		
Sampling Date		2011/09/27 16:00		
	Units	**FC3500NE - GRAB**	**RDL**	**QC Batch**
Surrogate Recovery (%)				
4-BROMOFLUOROBENZENE (sur.)	%	90		5227218
D10-ETHYLBENZENE (sur.)	%	103		5227218
D4-1,2-DICHLOROETHANE (sur.)	%	97		5227218
D8-TOLUENE (sur.)	%	96		5227218

RDL = Reportable Detection Limit

Maxxam Job #: B192006
Report Date: 2012/02/23

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Package 1	11.3°C
Package 2	9.7°C
Package 3	7.3°C
Package 4	13.7°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Sample BQ5955-01: Lots of shell debris in sample. KMP.

Sample BQ5956-01: Lots of shell debris in sample. KMP.

Sample BQ5957-01: ** SEM/AVS = 25.29 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ5958-01: ** SEM/AVS = 60.95 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Maxxam Job #: B192006
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
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Sampler Initials: BL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5223504	Moisture	2011/10/01					<0.3	%	2.3	20		
5225048	Hexabromobiphenyl (sur.)	2011/10/03	84	60 - 130	94	60 - 130	98	%				
5225048	Aroclor 1254	2011/10/03	90	70 - 110	98	70 - 110	<0.030	mg/kg	NC	50		
5225048	Aroclor 1242	2011/10/03					<0.030	mg/kg	NC	50		
5225048	Aroclor 1248	2011/10/03					<0.030	mg/kg	NC	50		
5225048	Aroclor 1260	2011/10/03					<0.030	mg/kg	NC	50		
5225048	Total PCB	2011/10/03					<0.030	mg/kg	NC	50		
5227218	4-BROMOFLUOROBENZENE (sur.)	2011/09/30	97	70 - 130	101	70 - 130	93	%				
5227218	D10-ETHYLBENZENE (sur.)	2011/09/30	107	50 - 130	97	50 - 130	105	%				
5227218	D4-1,2-DICHLOROETHANE (sur.)	2011/09/30	97	70 - 130	101	70 - 130	101	%				
5227218	D8-TOLUENE (sur.)	2011/09/30	96	70 - 130	98	70 - 130	98	%				
5227218	Chloromethane	2011/09/30	122	40 - 150	93	40 - 150	<0.10	mg/kg	NC	40		
5227218	Vinyl chloride	2011/09/30	102	40 - 150	100	40 - 150	<0.060	mg/kg	NC	40		
5227218	Bromomethane	2011/09/30	90	40 - 150	101	40 - 150	<0.30	mg/kg	NC	40		
5227218	Chloroethane	2011/09/30	107	40 - 150	105	40 - 150	<0.10	mg/kg	NC	40		
5227218	Trichlorofluoromethane	2011/09/30	107	40 - 150	107	40 - 150	<0.20	mg/kg	NC	40		
5227218	1,1-dichloroethene	2011/09/30	95	60 - 140	96	60 - 140	<0.025	mg/kg	NC	40		
5227218	Dichloromethane	2011/09/30	93	60 - 140	91	60 - 140	<0.10	mg/kg	NC	40		
5227218	trans-1,2-dichloroethene	2011/09/30	89	60 - 140	89	60 - 140	<0.025	mg/kg	NC	40		
5227218	1,1-dichloroethane	2011/09/30	95	60 - 140	95	60 - 140	<0.025	mg/kg	NC	40		
5227218	cis-1,2-dichloroethene	2011/09/30	84	60 - 140	85	60 - 140	<0.025	mg/kg	NC	40		
5227218	Chloroform	2011/09/30	90	60 - 140	90	60 - 140	<0.050	mg/kg	NC	40		
5227218	1,1,1-trichloroethane	2011/09/30	95	60 - 140	96	60 - 140	<0.025	mg/kg	NC	40		
5227218	1,2-dichloroethane	2011/09/30	89	60 - 140	89	60 - 140	<0.025	mg/kg	NC	40		
5227218	Carbon tetrachloride	2011/09/30	96	60 - 140	96	60 - 140	<0.025	mg/kg	NC	40		
5227218	Benzene	2011/09/30	100	60 - 140	99	60 - 140	<0.0050	mg/kg	NC	40		
5227218	1,2-dichloropropane	2011/09/30	93	60 - 140	91	60 - 140	<0.025	mg/kg	NC	40		
5227218	Trichloroethene	2011/09/30	97	60 - 140	96	60 - 140	<0.0090	mg/kg	NC	40		
5227218	Bromodichloromethane	2011/09/30	90	60 - 140	91	60 - 140	<0.050	mg/kg	NC	40		
5227218	cis-1,3-dichloropropene	2011/09/30	85	60 - 140	94	60 - 140	<0.050	mg/kg	NC	40		
5227218	trans-1,3-dichloropropene	2011/09/30	93	60 - 140	102	60 - 140	<0.050	mg/kg	NC	40		
5227218	1,1,2-trichloroethane	2011/09/30	88	60 - 140	88	60 - 140	<0.025	mg/kg	NC	40		
5227218	Toluene	2011/09/30	90	60 - 140	88	60 - 140	<0.020	mg/kg	NC	40		
5227218	Chlorodibromomethane	2011/09/30	91	60 - 140	92	60 - 140	<0.050	mg/kg	NC	40		
5227218	Tetrachloroethene	2011/09/30	93	60 - 140	93	60 - 140	<0.025	mg/kg	NC	40		
5227218	Chlorobenzene	2011/09/30	89	60 - 140	93	60 - 140	<0.025	mg/kg	NC	40		
5227218	1,1,1,2-tetrachloroethane	2011/09/30	91	60 - 140	91	60 - 140	<0.025	mg/kg	NC	40		
5227218	Ethylbenzene	2011/09/30	103	60 - 140	104	60 - 140	<0.010	mg/kg	NC	40		
5227218	m & p-Xylene	2011/09/30	95	60 - 140	97	60 - 140	<0.040	mg/kg	NC	40		
5227218	Bromoform	2011/09/30	89	60 - 140	89	60 - 140	<0.050	mg/kg	NC	40		

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Sampler Initials: BL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5227218	Styrene	2011/09/30	84	60 - 140	84	60 - 140	<0.030	mg/kg	NC	40		
5227218	o-Xylene	2011/09/30	101	60 - 140	100	60 - 140	<0.040	mg/kg	NC	40		
5227218	1,1,2,2-tetrachloroethane	2011/09/30	96	60 - 140	101	60 - 140	<0.025	mg/kg	NC	40		
5227218	Methyl-tert-butylether(MTBE)	2011/09/30					<0.10	mg/kg	NC	40		
5227218	Xylenes (Total)	2011/09/30					<0.040	mg/kg	NC	40		
5227395	CSR VH C6-C10	2011/09/30					<10	mg/kg	NC	50	98	60 - 140
5228268	Total Antimony (Sb)	2011/10/03	87	75 - 125	99	75 - 125	<0.10	mg/kg			98	70 - 130
5228268	Total Arsenic (As)	2011/10/03	91	75 - 125	95	75 - 125	<0.50	mg/kg	0.9	30	87	70 - 130
5228268	Total Barium (Ba)	2011/10/03	NC	75 - 125	96	75 - 125	<0.10	mg/kg	2.3	35	95	70 - 130
5228268	Total Beryllium (Be)	2011/10/03	97	75 - 125	96	75 - 125	<0.40	mg/kg				
5228268	Total Cadmium (Cd)	2011/10/03	97	75 - 125	101	75 - 125	<0.050	mg/kg			104	70 - 130
5228268	Total Chromium (Cr)	2011/10/03	NC	75 - 125	95	75 - 125	<1.0	mg/kg	8.3	30	91	70 - 130
5228268	Total Cobalt (Co)	2011/10/03	96	75 - 125	97	75 - 125	<0.30	mg/kg			88	70 - 130
5228268	Total Copper (Cu)	2011/10/03	NC	75 - 125	100	75 - 125	<0.50	mg/kg	4.1	30	87	70 - 130
5228268	Total Lead (Pb)	2011/10/03	NC	75 - 125	98	75 - 125	<0.10	mg/kg	4.9	35	93	70 - 130
5228268	Total Lithium (Li)	2011/10/03	96	75 - 125	94	75 - 125	<5.0	mg/kg				
5228268	Total Manganese (Mn)	2011/10/03	NC	75 - 125	99	75 - 125	<0.20	mg/kg			92	70 - 130
5228268	Total Mercury (Hg)	2011/10/03	NC	75 - 125	98	75 - 125	<0.050	mg/kg				
5228268	Total Molybdenum (Mo)	2011/10/03	95	75 - 125	94	75 - 125	<0.10	mg/kg			102	70 - 130
5228268	Total Nickel (Ni)	2011/10/03	98	75 - 125	98	75 - 125	<0.80	mg/kg			92	70 - 130
5228268	Total Selenium (Se)	2011/10/03	96	75 - 125	101	75 - 125	<0.50	mg/kg				
5228268	Total Silver (Ag)	2011/10/03	94	75 - 125	87	75 - 125	<0.050	mg/kg				
5228268	Total Strontium (Sr)	2011/10/03	NC	75 - 125	95	75 - 125	<0.10	mg/kg			85	70 - 130
5228268	Total Thallium (Tl)	2011/10/03	93	75 - 125	94	75 - 125	<0.050	mg/kg			81	70 - 130
5228268	Total Tin (Sn)	2011/10/03	NC	75 - 125	92	75 - 125	<0.10	mg/kg				
5228268	Total Titanium (Ti)	2011/10/03	NC	75 - 125	97	75 - 125	<1.0	mg/kg			94	70 - 130
5228268	Total Uranium (U)	2011/10/03	99	75 - 125	100	75 - 125	<0.050	mg/kg			88	70 - 130
5228268	Total Vanadium (V)	2011/10/03	NC	75 - 125	100	75 - 125	<2.0	mg/kg			95	70 - 130
5228268	Total Zinc (Zn)	2011/10/03	NC	75 - 125	102	75 - 125	<1.0	mg/kg	0.7	30	87	70 - 130
5228268	Total Aluminum (Al)	2011/10/03					<100	mg/kg			96	70 - 130
5228268	Total Calcium (Ca)	2011/10/03					<100	mg/kg			85	70 - 130
5228268	Total Iron (Fe)	2011/10/03					<100	mg/kg			89	70 - 130
5228268	Total Magnesium (Mg)	2011/10/03					<100	mg/kg			89	70 - 130
5228268	Total Phosphorus (P)	2011/10/03					<10	mg/kg			87	70 - 130
5228268	Total Bismuth (Bi)	2011/10/03					<0.10	mg/kg				
5228268	Total Potassium (K)	2011/10/03					<100	mg/kg				
5228268	Total Sodium (Na)	2011/10/03					<100	mg/kg				
5228268	Total Zirconium (Zr)	2011/10/03					<0.50	mg/kg				
5228272	Soluble (2:1) pH	2011/10/04			102	96 - 104			0.6	20		
5232214	D10-ANTHRACENE (sur.)	2011/10/03	99	60 - 130	96	60 - 130	98	%				

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Sampler Initials: BL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5232214	D8-ACENAPHTHYLENE (sur.)	2011/10/03	102	50 - 130	92	50 - 130	97	%				
5232214	D8-NAPHTHALENE (sur.)	2011/10/03	98	50 - 130	96	50 - 130	103	%				
5232214	TERPHENYL-D14 (sur.)	2011/10/03	100	60 - 130	97	60 - 130	104	%				
5232214	Naphthalene	2011/10/03	78	50 - 130	85	50 - 130	<0.050	mg/kg	NC	50		
5232214	2-Methylnaphthalene	2011/10/03	84	50 - 130	87	50 - 130	<0.050	mg/kg	NC	50		
5232214	Acenaphthylene	2011/10/03	80	50 - 130	82	50 - 130	<0.050	mg/kg	NC	50		
5232214	Acenaphthene	2011/10/03	82	50 - 130	87	50 - 130	<0.050	mg/kg	NC	50		
5232214	Fluorene	2011/10/03	85	50 - 130	88	50 - 130	<0.050	mg/kg	NC	50		
5232214	Phenanthrene	2011/10/03	77	60 - 130	84	60 - 130	<0.050	mg/kg	NC	50		
5232214	Anthracene	2011/10/03	79	60 - 130	86	60 - 130	<0.050	mg/kg	NC	50		
5232214	Fluoranthene	2011/10/03	81	60 - 130	90	60 - 130	<0.050	mg/kg	NC	50		
5232214	Pyrene	2011/10/03	82	60 - 130	91	60 - 130	<0.050	mg/kg	NC	50		
5232214	Benzo(a)anthracene	2011/10/03	75	60 - 130	74	60 - 130	<0.050	mg/kg	NC	50		
5232214	Chrysene	2011/10/03	74	60 - 130	92	60 - 130	<0.050	mg/kg	NC	50		
5232214	Benzo(b&j)fluoranthene	2011/10/03	85	60 - 130	91	60 - 130	<0.050	mg/kg	45.9	50		
5232214	Benzo(k)fluoranthene	2011/10/03	72	60 - 130	84	60 - 130	<0.050	mg/kg	NC	50		
5232214	Benzo(a)pyrene	2011/10/03	81	60 - 130	91	60 - 130	<0.050	mg/kg	NC	50		
5232214	Indeno(1,2,3-cd)pyrene	2011/10/03	76	60 - 130	85	60 - 130	<0.050	mg/kg	NC	50		
5232214	Dibenz(a,h)anthracene	2011/10/03	82	60 - 130	87	60 - 130	<0.050	mg/kg	NC	50		
5232214	Benzo(g,h,i)perylene	2011/10/03	70	60 - 130	85	60 - 130	<0.050	mg/kg	NC	50		
5235750	Moisture	2011/10/05					<0.3	%	0.6	20		
5239555	2,4,6-TRIBROMOPHENOL (sur.)	2011/10/10	107	19 - 122	79	19 - 122	51	%				
5239555	2-FLUOROBIPHENYL (sur.)	2011/10/10	81	30 - 115	88	30 - 115	87	%				
5239555	TERPHENYL-D14 (sur.)	2011/10/10	82	18 - 137	104	18 - 137	97	%				
5239555	D5-PHENOL (sur.)	2011/10/10	83	24 - 113	81	24 - 113	70	%				
5239555	2,4-dinitrotoluene	2011/10/10	94	24 - 96	74	24 - 96	<0.05	mg/kg	NC	50		
5239555	D5-NITROBENZENE (sur.)	2011/10/10	82	23 - 120	85	23 - 120	82	%				
5239555	N-nitroso-di-n-propylamine	2011/10/10	81	40 - 140	77	40 - 140	<0.06	mg/kg	NC	50		
5239555	1,2,4-trichlorobenzene	2011/10/10	81	44 - 142	80	44 - 142	<0.06	mg/kg	NC	50		
5239555	1,4-dichlorobenzene	2011/10/10	69	20 - 124	71	20 - 124	<0.1	mg/kg	NC	50		
5239555	4-chloro-3-methylphenol	2011/10/10	85	22 - 147	66	22 - 147	<0.07	mg/kg	NC	50		
5239555	2,6-dinitrotoluene	2011/10/10					<0.05	mg/kg	NC	50		
5239555	2-chloronaphthalene	2011/10/10					<0.08	mg/kg	NC	50		
5239555	3,3'-Dichlorobenzidine	2011/10/10					<0.5	mg/kg	NC	50		
5239555	4-bromophenyl phenyl ether	2011/10/10					<0.06	mg/kg	NC	50		
5239555	4-chlorophenyl phenyl ether	2011/10/10					<0.07	mg/kg	NC	50		
5239555	Bis(2-chloroethoxy)methane	2011/10/10					<0.08	mg/kg	NC	50		
5239555	Bis(2-chloroethyl)ether	2011/10/10					<0.06	mg/kg	NC	50		
5239555	Bis(2-chloroisopropyl)ether	2011/10/10					<0.2	mg/kg	NC	50		
5239555	Dibenzofuran	2011/10/10					<0.1	mg/kg	NC	50		

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Sampler Initials: BL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5239555	Hexachlorobutadiene	2011/10/10					<0.05	mg/kg	NC	50		
5239555	Hexachlorocyclopentadiene	2011/10/10					<0.2	mg/kg	NC (1)	50		
5239555	Hexachloroethane	2011/10/10					<0.06	mg/kg	NC	50		
5239555	Isophorone	2011/10/10					<0.06	mg/kg	NC	50		
5239555	Nitrobenzene	2011/10/10					<0.07	mg/kg	NC	50		
5239555	N-nitrosodiphenylamine	2011/10/10					<0.08	mg/kg	NC	50		
5239555	1,2-dichlorobenzene	2011/10/10					<0.1	mg/kg	NC	50		
5239555	1,3-dichlorobenzene	2011/10/10					<0.1	mg/kg	NC	50		
5239555	Hexachlorobenzene	2011/10/10					<0.06	mg/kg	NC	50		
5239555	m,p-Cresol	2011/10/10					<0.05	mg/kg	NC	50		
5239555	Bis(2-ethylhexyl)phthalate	2011/10/10					<2	mg/kg	NC	50		
5239555	Butyl benzyl phthalate	2011/10/10					<0.1	mg/kg	NC	50		
5239555	Diethyl phthalate	2011/10/10					<0.09	mg/kg	NC	50		
5239555	Dimethyl phthalate	2011/10/10					<0.07	mg/kg	NC	50		
5239555	Di-n-butyl phthalate	2011/10/10					<0.07	mg/kg	NC	50		
5239555	Di-n-octyl phthalate	2011/10/10					<0.1	mg/kg	NC	50		
5245678	2,4,6-TRIBROMOPHENOL (sur.)	2011/10/08	85	19 - 122	80	19 - 122	16 (2, 3)	%				
5245678	D5-PHENOL (sur.)	2011/10/08	82	24 - 113	82	24 - 113	21 (2, 3)	%				
5245678	Phenol	2011/10/08	82	12 - 110	85	12 - 110	<0.050	mg/kg	NC	50		
5245678	2-chlorophenol	2011/10/08	88	27 - 123	92	27 - 123	<0.0050	mg/kg	NC	50		
5245678	3 & 4-chlorophenol	2011/10/08	88	27 - 123	90	27 - 123	<0.0050	mg/kg	NC	50		
5245678	2-methylphenol	2011/10/08	86	25 - 120	81	25 - 120	<0.050	mg/kg	NC	50		
5245678	3 & 4-methylphenol	2011/10/08	86	25 - 120	86	25 - 120	<0.050	mg/kg	NC	50		
5245678	2-nitrophenol	2011/10/08	90	29 - 182	90	29 - 182	<0.050	mg/kg	NC	50		
5245678	2,4-dimethylphenol	2011/10/08	75	32 - 119	45	32 - 119	<0.050	mg/kg	NC	50		
5245678	2,4 + 2,5-Dichlorophenol	2011/10/08	92	39 - 135	94	39 - 135	<0.0050	mg/kg	NC	50		
5245678	2,3-Dichlorophenol	2011/10/08	87	39 - 135	91	39 - 135	<0.0050	mg/kg	NC	50		
5245678	2,6-dichlorophenol	2011/10/08	92	39 - 135	95	39 - 135	<0.0050	mg/kg	NC	50		
5245678	3,5-Dichlorophenol	2011/10/08	85	39 - 135	83	39 - 135	<0.0050	mg/kg	NC	50		
5245678	3,4-Dichlorophenol	2011/10/08	89	39 - 135	85	39 - 135	<0.0050	mg/kg	NC	50		
5245678	2,4,5-trichlorophenol	2011/10/08	97	37 - 144	94	37 - 144	<0.0050	mg/kg	NC	50		
5245678	2,4,6-trichlorophenol	2011/10/08	96	37 - 144	92	37 - 144	<0.0050	mg/kg	NC	50		
5245678	2,3,5-trichlorophenol	2011/10/08	95	37 - 144	90	37 - 144	<0.0050	mg/kg	NC	50		
5245678	2,3,6-Trichlorophenol	2011/10/08	91	37 - 144	92	37 - 144	<0.0050	mg/kg	NC	50		
5245678	2,3,4-trichlorophenol	2011/10/08	95	37 - 144	93	37 - 144	<0.0050	mg/kg	NC	50		
5245678	3,4,5-Trichlorophenol	2011/10/08	100	37 - 144	88	37 - 144	<0.0050	mg/kg	NC	50		
5245678	2,4-dinitrophenol	2011/10/08	95	1 - 191	45	1 - 191	<0.080	mg/kg	NC	50		
5245678	4,6-dinitro-2-methylphenol	2011/10/08	85	1 - 181	63	1 - 181	<0.080	mg/kg	NC (1)	50		
5245678	2,3,4,6-tetrachlorophenol	2011/10/08	87	14 - 176	91	14 - 176	<0.0050	mg/kg	NC	50		
5245678	2,3,4,5-tetrachlorophenol	2011/10/08	106	14 - 176	81	14 - 176	<0.0050	mg/kg	NC	50		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5245678	2,3,5,6-tetrachlorophenol	2011/10/08	93	14 - 176	74	14 - 176	<0.0050	mg/kg	NC	50		
5245678	4-nitrophenol	2011/10/08	95	1 - 132	79	1 - 132	<0.050	mg/kg	NC	50		
5245678	Pentachlorophenol	2011/10/08	115	14 - 176	62	14 - 176	<0.0050	mg/kg	NC	50		
5255705	Sulphide	2011/10/12	NC	75 - 125	98	75 - 125	0.27, RDL=0.20	ug/g	13.2	30		
5257476	SEM Cadmium (Cd)	2011/10/12					<0.0002	umole/g	6.7	30		
5257476	SEM Copper (Cu)	2011/10/12					<0.004	umole/g	10.5	30		
5257476	SEM Lead (Pb)	2011/10/12					<0.0002	umole/g	52.8(2)	30		
5257476	SEM Mercury (Hg)	2011/10/12					<0.0003	umole/g	NC	30		
5257476	SEM Nickel (Ni)	2011/10/12					<0.004	umole/g	1.6	30		
5257476	SEM Zinc (Zn)	2011/10/12					<0.008	umole/g	0.8	30		
5261212	Moisture	2011/10/13					<0.3	%	6.5	20		

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - RDL raised due to Continuing Calibration Verification below criteria - Pot. low bias
(2) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
(3) - Surrogate recovery below control limit - Pot. low bias

B192006

WorleyParsons
resources & energy

CHAIN-OF-CUSTODY RECORD AND ANALSIS REQUEST

Maxxam
Suite 1104 South Wing, 4464 Markam Street
Victoria BC
Tel: (250) 385 6112, Fax: (250) 382 6364

WorleyParsons Canada Ltd.
Suite 100 - 3795 Carey Road
Victoria BC, V8Z 6T8
Tel: (250) 384 1499, Fax: (250) 384 1201

08314940

PAGE1 OF2

Client: WorleyParsons Canada Ltd.
Project Manager: Jason Clarke
Address: #100 - 3795 Carey Rd
Victoria, BC V8Z 6T8
Tel #: 250-384-1499 Fax #:250-384-1201
Email: Jason.R.Clarke@worleyparsons.com
Project ID: 09185 - CRD - Sediment

- [X] Invoice WorleyParsons
- [X] Report WorleyParsons
- [X] Digital WorleyParsons
- [X] PDF WorleyParsons
- [ ] Invoice Client care of WorleyParson

ANALYSES REQUESTED

SAMPLE DESCRIPTION/ID	Maxxam ID	Date & Time Sampled (D/M/Y)	Particle Size (1)	TOC, TC, TN (2)	Total P, Metals (3)	PAHs, Phthalates (4)	Org. Chlorine Pesticides (5)	Chorinated Phenolics (6)	PBDEs (7)	PCBs (8)	Nonyphenol & ethoxolates (9)	Pharm and Pers Care (10)	Mar. Amphipod & Polychate (11)	Mar Polychate Bioaccumulat			Comments	Sample Type	No. of Containers
FC 4000ENE-Composite marine		15:00 Sept 27/11	X	X	X												BQ5955	Sediment	
FC3500NE Composite sediment		1800 "	X	X	X	X	X	X	X	X	X	X	X	X			BQ5956	Sediment	
																		Sediment	
																		Sediment	
																		Sediment	
																		Sediment	
																		Sediment	
																		Sediment	
																		Sediment	
																		Sediment	

PLEASE FILL IN ALL THE REQUIRED AREAS BELOW

TAT (Turnaround Time)
- [x] STD
- [ ] RUSH (2-DAY)
- [ ] RUSH (1-DAY)
- [ ] RUSH (Same Day)
- [ ] Hydrocarbon Screening

DATE Required:
TIME Required:

Regulatory Guideline
- [ ] CSR
- [ ] CCME
- [ ] Other (specify)
- [ ] Other (specify)
- [ ] Special Detection Limits / Contaminant Type:

Reporting Format
- [x] AutoFax
- [x] AutoEmail
- [x]

Mailing Address: If different than above
peter.howland@worleyparsons.com
brian.lynch@worleyparsons.com

LABORATORY USE ONLY
Received by: MICHELLE VON SCHILLING
Date: 2011/09/28 Time: 08:45
Comment(s):
Work Order Number:
Temperature: 10,11,13 / 8,9,10 7,8,7 14,14,13
Laboratory prepared Containers: [ ] Yes [ ] No
Custody Seal in Tact on Cooler: [ ] Yes [ ] No N/A
Due Date:

Sampled by:
Name (print): Date:

Relinquished by: [signature]
Name (print): Jessie Gardner Date: 28/09/11

Date:
Time:

White: PSC Yellow: Mail Pink: Receiver Golden Rod: Customer Copy

WorleyParsons
resources & energy

Maxxam
Suite 1104 South Wing, 4464 Markam Street
Victoria BC
Tel: (250) 385 6112, Fax: (250) 382 6364

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

WorleyParsons Canada Ltd.
Suite 100 - 3795 Carey Road
Victoria BC, V8Z 6T8
Tel: (250) 384 1499, Fax: (250) 384 1201

B192004

COC#:

Client: WorleyParsons Canada Ltd.
Project Manager: Jason Clarke
Address: #100 - 3795 Carey Rd
Victoria, BC V8Z 6T8
Tel #: 250-384-1499 Fax #:250-384-1201
Email: Jason.R.Clarke@worleyparsons.com
Project ID: 09185

ANALYSES REQUESTED

- [x] Invoice WorleyParsons
- [x] Report WorleyParsons
- [x] Digital WorleyParsons
- [x] PDF WorleyParsons
- [ ] Invoice Client care of WorleyParson

SAMPLE DESCRIPTION/ID	Maxxam ID	Date & Time Sampled (D/M/Y)	Fecal Coliform	AVS and SEM	VOCs inc BTEX	Comments	Sample Type	No. of Containers
FC4000ENE-Grab	marine Sed.	15:00 Sept 27/11	X	X		BQ5957	Sediment	
FC3500NE-Grab		16:00 "	X	XX		BQ5958	Sediment	
							Sediment	
							Sediment	
							Sediment	
							Sediment	
							Sediment	
							Sediment	
							Sediment	
							Sediment	

PLEASE FILL IN ALL THE REQUIRED AREAS BELOW

TAT (Turnaround Time)
- [x] STD
- [ ] RUSH (2-DAY)
- [ ] RUSH (1-DAY)
- [ ] RUSH (Same Day)
- [ ] Hydrocarbon Screening

DATE Required:
TIME Required:

Regulatory Guideline
- [ ] CSR
- [ ] CCME
- [ ] Other (specify)
- [ ] Other (specify)
- [ ] Special Detection Limits / Contaminant Type:

Reporting Format
- [x] AutoFax
- [x] AutoEmail
- [x]

Mailing Address: If different than above
peter.howland@worleyparsons.com
brian.lynch@worleyparsons.com

LABORATORY USE ONLY
Received by: Michelle von Schilling
Date: 2011/09/28 Time: 08:45
Comment(s):
Work Order Number:
Temperature: 10,11,13/10,9,10/7,8,7/14,14,13
Laboratory prepared Containers: [ ] Yes [ ] No
Custody Seal in Tact on Cooler: [ ] Yes [ ] No N/A
Due Date:

Sampled by:
Name (print): Date:

Relinquished by:
Name (print): Julie Gardner Date: 2011/09/11

Date:
Time:

White: PSC Yellow: Mail Pink: Receiver Golden Rod: Customer Copy

Your Project #: B192006
Your C.O.C. #: na

Attention: Debbie Nordbruget
Maxxam Analytics
Vancouver Island Tech. Park
1104 - 4464 Markham St
Victoria, BC
CANADA V8Z 7X8

Report Date: 2011/10/19

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1F3680
Received: 2011/10/04, 09:20

Sample Matrix: Soil
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Miscellaneous Inorganics Test (1)	2	N/A	2011/10/11		
Moisture	1	N/A	2011/10/07	CAM SOP-00445	McKeague 2nd ed 1978
OC Pesticides (Selected) & PCB (2)	1	2011/10/06	2011/10/09	CAM SOP-00307	SW846 8081, 8082
Total Carbon in Soil	2	N/A	2011/10/05	CAM SOP-00468	Leco Manual
Total Organic Carbon in Soil	2	N/A	2011/10/07	CAM SOP-00468	LECO Combustion

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Sample(s) analyzed using methodologies that have not been subjected to Maxxam's standard validation process for the submitted matrix and is not an accredited method. Analysis performed with client consent, however results should be viewed with discretion
(2) Chlordane (Total) = Alpha Chlordane + Gamma Chlordane

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

HEATHER JASUMANI, Campobello Customer Service
Email: Heather.Jasumani@maxxamanalytics.com
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B1F3680
Report Date: 2011/10/19

Maxxam Analytics
Client Project #: B192006

RESULTS OF ANALYSES OF SOIL

Maxxam ID		LD2289	LD2290	LD2291		
Sampling Date		2011/09/27	2011/09/27	2011/09/27		
COC Number		na	na	na		
	Units	**BQ5955-02R / FC4000ENE-CO**	**BQ5956-05R / FC3500NE-CO**	**BQ5956-02R / FC3500NE-CO**	**RDL**	**QC Batch**
Inorganics						
Total Carbon (C)	mg/kg	7100		5800	500	2637685
Miscellaneous Inorganics	N/A	0.05		0.06	0.05	2643402
Moisture	%		30		1	2641508
Total Organic Carbon	mg/kg	3900		4300	500	2639063

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1F3680
Report Date: 2011/10/19

Maxxam Analytics
Client Project #: B192006

ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		LD2290		
Sampling Date		2011/09/27		
COC Number		na		
	Units	**BQ5956-05R / FC3500NE-CO**	**RDL**	**QC Batch**
Pesticides & Herbicides				
Aroclor 1262	ug/g	ND	0.03	2640100
Aroclor 1268	ug/g	ND	0.03	2640100
Aldrin	ug/g	ND	0.004	2640100
alpha-BHC	ug/g	ND	0.004	2640100
beta-BHC	ug/g	ND	0.004	2640100
delta-BHC	ug/g	ND	0.004	2640100
a-Chlordane	ug/g	ND	0.004	2640100
g-Chlordane	ug/g	ND	0.004	2640100
Chlordane (Total)	ug/g	ND	0.004	2640100
o,p-DDD	ug/g	ND	0.004	2640100
p,p-DDD	ug/g	ND	0.004	2640100
o,p-DDD + p,p-DDD	ug/g	ND	0.004	2640100
o,p-DDE	ug/g	ND	0.004	2640100
p,p-DDE	ug/g	ND	0.004	2640100
o,p-DDE + p,p-DDE	ug/g	ND	0.004	2640100
o,p-DDT	ug/g	ND	0.004	2640100
p,p-DDT	ug/g	ND	0.004	2640100
o,p-DDT + p,p-DDT	ug/g	ND	0.004	2640100
DDT+ Metabolites	ug/g	ND	0.004	2640100
Dieldrin	ug/g	ND	0.004	2640100
Endosulfan I (alpha)	ug/g	ND	0.004	2640100
Endosulfan II	ug/g	ND	0.004	2640100
Endosulfan sulfate	ug/g	ND	0.004	2640100
Total Endosulfan	ug/g	ND	0.004	2640100
Endrin	ug/g	ND	0.004	2640100
Endrin aldehyde	ug/g	ND	0.004	2640100
Endrin ketone	ug/g	ND	0.004	2640100
Heptachlor	ug/g	ND	0.004	2640100
Heptachlor epoxide	ug/g	ND	0.004	2640100
Hexachlorobenzene	ug/g	ND	0.004	2640100
Lindane	ug/g	ND	0.004	2640100

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B1F3680
Report Date: 2011/10/19

Maxxam Analytics
Client Project #: B192006

ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		LD2290		
Sampling Date		2011/09/27		
COC Number		na		
	Units	**BQ5956-05R / FC3500NE-CO**	**RDL**	**QC Batch**
Methoxychlor	ug/g	ND	0.01	2640100
Mirex	ug/g	ND	0.004	2640100
Octachlorostyrene	ug/g	ND	0.004	2640100
Total PCB	ug/g	ND	0.06	2640100
Aroclor 1016	ug/g	ND	0.03	2640100
Aroclor 1221	ug/g	ND	0.06	2640100
Aroclor 1232	ug/g	ND	0.03	2640100
Aroclor 1242	ug/g	ND	0.03	2640100
Aroclor 1248	ug/g	ND	0.03	2640100
Aroclor 1254	ug/g	ND	0.03	2640100
Aroclor 1260	ug/g	ND	0.03	2640100
Toxaphene	ug/g	ND	0.2	2640100
Surrogate Recovery (%)				
2,4,5,6-Tetrachloro-m-xylene	%	74		2640100
Decachlorobiphenyl	%	84		2640100

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1F3680
Report Date: 2011/10/19

Maxxam Analytics
Client Project #: B192006

GENERAL COMMENTS

MISCINORG=% Nitrogen By Leco Combustion

OC Pesticide Analysis: Detection limits were adjusted for high moisture content.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Analytics
Attention: Debbie Nordbruget
Client Project #: B192006
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: MB1F3680

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2637685	OK	QC Standard	Total Carbon (C)	2011/10/05		89	%	80 - 120
		Method Blank	Total Carbon (C)	2011/10/05	ND, RDL=500		mg/kg	
		RPD [LD2289-01]	Total Carbon (C)	2011/10/05	6.4		%	35
2639063	OK	QC Standard	Total Organic Carbon	2011/10/07		105	%	80 - 120
		Method Blank	Total Organic Carbon	2011/10/07	ND, RDL=500		mg/kg	
		RPD [LD2289-01]	Total Organic Carbon	2011/10/07	11.9		%	35
2640100	DH	Matrix Spike	2,4,5,6-Tetrachloro-m-xylene	2011/10/09		89	%	30 - 130
			Decachlorobiphenyl	2011/10/09		89	%	30 - 130
			Aldrin	2011/10/09		94	%	30 - 130
			alpha-BHC	2011/10/09		103	%	30 - 130
			beta-BHC	2011/10/09		101	%	30 - 130
			delta-BHC	2011/10/09		101	%	30 - 130
			a-Chlordane	2011/10/09		92	%	30 - 130
			g-Chlordane	2011/10/09		122	%	30 - 130
			o,p-DDD	2011/10/09		88	%	30 - 130
			p,p-DDD	2011/10/09		95	%	30 - 130
			o,p-DDE	2011/10/09		127	%	30 - 130
			p,p-DDE	2011/10/09		104	%	30 - 130
			o,p-DDT	2011/10/09		106	%	30 - 130
			p,p-DDT	2011/10/09		100	%	30 - 130
			Dieldrin	2011/10/09		93	%	30 - 130
			Endosulfan I (alpha)	2011/10/09		104	%	30 - 130
			Endosulfan II	2011/10/09		92	%	30 - 130
			Endosulfan sulfate	2011/10/09		91	%	30 - 130
			Endrin	2011/10/09		94	%	30 - 130
			Endrin aldehyde	2011/10/09		72	%	30 - 130
			Endrin ketone	2011/10/09		91	%	30 - 130
			Heptachlor	2011/10/09		95	%	30 - 130
			Heptachlor epoxide	2011/10/09		90	%	30 - 130
			Hexachlorobenzene	2011/10/09		90	%	30 - 130
			Lindane	2011/10/09		93	%	30 - 130
			Methoxychlor	2011/10/09		94	%	30 - 130
			Mirex	2011/10/09		77	%	30 - 130
			Octachlorostyrene	2011/10/09		88	%	30 - 130
		Spiked Blank	2,4,5,6-Tetrachloro-m-xylene	2011/10/09		73	%	30 - 130
			Decachlorobiphenyl	2011/10/09		89	%	30 - 130
			Aldrin	2011/10/09		91	%	30 - 130
			alpha-BHC	2011/10/09		86	%	30 - 130
			beta-BHC	2011/10/09		90	%	30 - 130
			delta-BHC	2011/10/09		94	%	30 - 130
			a-Chlordane	2011/10/09		96	%	30 - 130
			g-Chlordane	2011/10/09		99	%	30 - 130
			o,p-DDD	2011/10/09		95	%	30 - 130
			p,p-DDD	2011/10/09		101	%	30 - 130
			o,p-DDE	2011/10/09		94	%	30 - 130
			p,p-DDE	2011/10/09		96	%	30 - 130
			o,p-DDT	2011/10/09		90	%	30 - 130
			p,p-DDT	2011/10/09		86	%	30 - 130
			Dieldrin	2011/10/09		109	%	30 - 130
			Endosulfan I (alpha)	2011/10/09		109	%	30 - 130
			Endosulfan II	2011/10/09		101	%	30 - 130
			Endosulfan sulfate	2011/10/09		105	%	30 - 130
			Endrin	2011/10/09		91	%	30 - 130
			Endrin aldehyde	2011/10/09		71	%	30 - 130
			Endrin ketone	2011/10/09		97	%	30 - 130

Maxxam Analytics
Attention: Debbie Nordbruget
Client Project #: B192006
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB1F3680

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2640100	DH	Spiked Blank	Heptachlor	2011/10/09		82	%	30 - 130
			Heptachlor epoxide	2011/10/09		93	%	30 - 130
			Hexachlorobenzene	2011/10/09		75	%	30 - 130
			Lindane	2011/10/09		87	%	30 - 130
			Methoxychlor	2011/10/09		82	%	30 - 130
			Mirex	2011/10/09		87	%	30 - 130
			Octachlorostyrene	2011/10/09		98	%	30 - 130
		RPD	Total PCB	2011/10/09	NC		%	50
			Aroclor 1242	2011/10/09	NC		%	50
			Toxaphene	2011/10/09	NC		%	50
		Method Blank	2,4,5,6-Tetrachloro-m-xylene	2011/10/09		72	%	30 - 130
			Decachlorobiphenyl	2011/10/09		85	%	30 - 130
			Aroclor 1262	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1268	2011/10/09	ND, RDL=0.02		ug/g	
			Aldrin	2011/10/09	ND, RDL=0.002		ug/g	
			alpha-BHC	2011/10/09	ND, RDL=0.002		ug/g	
			beta-BHC	2011/10/09	ND, RDL=0.002		ug/g	
			delta-BHC	2011/10/09	ND, RDL=0.002		ug/g	
			a-Chlordane	2011/10/09	ND, RDL=0.002		ug/g	
			g-Chlordane	2011/10/09	ND, RDL=0.002		ug/g	
			Chlordane (Total)	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDD	2011/10/09	ND, RDL=0.002		ug/g	
			p,p-DDD	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDD + p,p-DDD	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDE	2011/10/09	ND, RDL=0.002		ug/g	
			p,p-DDE	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDE + p,p-DDE	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDT	2011/10/09	ND, RDL=0.002		ug/g	
			p,p-DDT	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDT + p,p-DDT	2011/10/09	ND, RDL=0.002		ug/g	
			DDT+ Metabolites	2011/10/09	ND, RDL=0.002		ug/g	
			Dieldrin	2011/10/09	ND, RDL=0.002		ug/g	
			Endosulfan I (alpha)	2011/10/09	ND, RDL=0.002		ug/g	
			Endosulfan II	2011/10/09	ND, RDL=0.002		ug/g	
			Endosulfan sulfate	2011/10/09	ND, RDL=0.002		ug/g	
			Total Endosulfan	2011/10/09	ND, RDL=0.002		ug/g	
			Endrin	2011/10/09	ND, RDL=0.002		ug/g	
			Endrin aldehyde	2011/10/09	ND, RDL=0.002		ug/g	
			Endrin ketone	2011/10/09	ND, RDL=0.002		ug/g	
			Heptachlor	2011/10/09	ND, RDL=0.002		ug/g	
			Heptachlor epoxide	2011/10/09	ND, RDL=0.002		ug/g	
			Hexachlorobenzene	2011/10/09	ND, RDL=0.002		ug/g	
			Lindane	2011/10/09	ND, RDL=0.002		ug/g	
			Methoxychlor	2011/10/09	ND, RDL=0.005		ug/g	
			Mirex	2011/10/09	ND, RDL=0.002		ug/g	
			Octachlorostyrene	2011/10/09	ND, RDL=0.002		ug/g	
			Total PCB	2011/10/09	ND, RDL=0.03		ug/g	
			Aroclor 1016	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1221	2011/10/09	ND, RDL=0.03		ug/g	
			Aroclor 1232	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1242	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1248	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1254	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1260	2011/10/09	ND, RDL=0.02		ug/g	
			Toxaphene	2011/10/09	ND, RDL=0.08		ug/g	

Maxxam Analytics
Attention: Debbie Nordbruget
Client Project #: B192006
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB1F3680

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2640100	DH	RPD	Aroclor 1262	2011/10/09	NC		%	50
			Aroclor 1268	2011/10/09	NC		%	50
			Aldrin	2011/10/09	NC		%	50
			alpha-BHC	2011/10/09	NC		%	50
			beta-BHC	2011/10/09	NC		%	50
			delta-BHC	2011/10/09	NC		%	50
			a-Chlordane	2011/10/09	NC		%	50
			g-Chlordane	2011/10/09	NC		%	50
			Chlordane (Total)	2011/10/09	NC		%	50
			o,p-DDD	2011/10/09	NC		%	50
			p,p-DDD	2011/10/09	NC		%	50
			o,p-DDD + p,p-DDD	2011/10/09	NC		%	50
			o,p-DDE	2011/10/09	NC		%	50
			p,p-DDE	2011/10/09	NC		%	50
			o,p-DDE + p,p-DDE	2011/10/09	NC		%	50
			o,p-DDT	2011/10/09	NC		%	50
			p,p-DDT	2011/10/09	NC		%	50
			o,p-DDT + p,p-DDT	2011/10/09	NC		%	50
			DDT+ Metabolites	2011/10/09	NC		%	50
			Dieldrin	2011/10/09	NC		%	50
			Endosulfan I (alpha)	2011/10/09	NC		%	50
			Endosulfan II	2011/10/09	NC		%	50
			Endosulfan sulfate	2011/10/09	NC		%	50
			Total Endosulfan	2011/10/09	NC		%	50
			Endrin	2011/10/09	NC		%	50
			Endrin aldehyde	2011/10/09	NC		%	50
			Endrin ketone	2011/10/09	NC		%	50
			Heptachlor	2011/10/09	NC		%	50
			Heptachlor epoxide	2011/10/09	NC		%	50
			Hexachlorobenzene	2011/10/09	NC		%	50
			Lindane	2011/10/09	NC		%	50
			Methoxychlor	2011/10/09	NC		%	50
			Mirex	2011/10/09	NC		%	50
			Octachlorostyrene	2011/10/09	NC		%	50
			Aroclor 1016	2011/10/09	NC		%	50
			Aroclor 1221	2011/10/09	NC		%	50
			Aroclor 1232	2011/10/09	NC		%	50
			Aroclor 1248	2011/10/09	NC		%	50
			Aroclor 1254	2011/10/09	NC		%	50
			Aroclor 1260	2011/10/09	NC		%	50
2641508	PHM	RPD	Moisture	2011/10/07	3.0		%	20
2643402	OK	QC Standard	Miscellaneous Inorganics	2011/10/11		91	%	N/A
		Method Blank	Miscellaneous Inorganics	2011/10/11	ND, RDL=0.05		N/A	
		RPD [LD2289-01]	Miscellaneous Inorganics	2011/10/11	NC		%	N/A

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B1F3680

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

CHARLES ANCKER, B.Sc., M.Sc., C.Chem, Senior Analyst

CRISTINA CARRIERE, Scientific Services

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

4-Oct-11 09:20

B1F3680

Page #: 1

Maxxam Analytics
Vancouver Island Technology Park 1104 - 4464
Victoria, British Columbia, V8Z 7X8
Phone: (250) 385 6112
Fax: (250) 382 6364

ENV-727

PKN

ARSONS CANADA
SERVICES LTD - VICTORIA
Maxxam PM Debbie Nordbruget

SUBCONTRACTING REQUEST FORM

To: Maxxam Ontario (From Burnaby)

Job# B192006

☐ Yes ☑ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
☐ Yes ☑ No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) 2011/10/04 (Time) 9:20

Received Lab's Job # _____ Inspected by (print) _____ SIF ☐ Yes ☐ No
Upon receipt, record 3 temperatures for **each** package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 6°C Temp2 5°C Temp3 6°C Custody sealed NO

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ5955-02R \ FC4000ENE - CO	SED	TOC Soil Subcontract	1(CJAR)	2011/09/27	2011/10/14
BQ5956-05R \ FC3500NE - CO	SED	Pesticides, OC Soil Subcontract	1(AJAR)	2011/09/27	2011/10/14
BQ5956-02R \ FC3500NE - CO	SED	TOC Soil Subcontract	1(CJAR)	2011/09/27	2011/10/14

NOTES:
1) Please call us if due date cannot be met. Please reference Sample ID on your report.
2) Include copy of this completed form, Client COC & signed final report to

TOC soil subcontract: Please perform TOC, Total Carbon and Total Nitrogen analysis.

SHIPPING INSTRUCTIONS

☐ Ship Immediately (highlight Yellow)
☐ Requires 9am
☐ Requires Sat. Delivery
☑ Regular Ship next available day
☐ Ship Cold
☐ Ship Room Temp
☐ Ship Frozen
☐ COC Must be Attached

Sender (Print) D. Nordbruget Initial _____

SHIPPING DEPARTMENT CHECKLIST

☑ Correct Shipping location
☑ Correct Sample Ids (Paperwork vs Bottles)
☑ Yes ☐ No Special-Cooler, (Ice,) Tape-custody seal. Date&Sign
Date Shipped 03 Oct 2011
Shipper (Print) D. Nordbruget Initial _____

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37863	***Date:*** 01-Nov-2011
Analysis Type: Polybrominated Diphenylether	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520 ***Samples:*** L16976-1 BQ5956-08R	***Blank:*** WG37863-101
	Reference or Spike: WG37863-102
	Duplicate:

Comments:

1. Data are not blank corrected.

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
BQ5956-08R
Sample Collection:
27-Sep-2011

Form 1A

BROMINATED DIPHENYLETHER CONGENER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16976-1
Matrix:	SOLID	**Sample Size:**	10.1 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 12:26:21	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 6**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg/g (dry weight basis)	**% Moisture:**	32.6

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,4-DiBDE	7		NDR	0.860	0.145 (S)	0.62	0.926
2,4'-DiBDE	8	8 + 11	C	0.792	0.108 (S)	0.48	0.958
2,6-DiBDE	10		ND		0.173 (S)		
3,3'-DiBDE	11	8 + 11	C8				
3,4-DiBDE	12	12 + 13	C ND		0.099 (Q)		
3,4'-DiBDE	13	12 + 13	C12				
4,4'-DiBDE	15			0.499	0.099 (Q)	0.57	1.001
2,2',4-TriBDE	17	17 + 25	C	2.68	0.244 (S)	0.92	0.972
2,3',4-TriBDE	25	17 + 25	C17				
2,4,4'-TriBDE	28	28 + 33	C	1.85	0.207 (S)	0.89	1.000
2,4,6-TriBDE	30		ND		0.284 (S)		
2,4',6-TriBDE	32		ND		0.220 (S)		
2',3,4-TriBDE	33	28 + 33	C28				
3,3',4-TriBDE	35		ND		0.162 (S)		
3,4,4'-TriBDE	37		ND		0.149 (S)		
2,2',4,4'-TeBDE	47			44.8	0.099 (Q)	0.70	1.000
2,2',4,5'-TeBDE	49			3.29	0.099 (Q)	0.70	0.975
2,2',4,6'-TeBDE	51		NDR	0.409	0.099 (Q)	0.47	0.967
2,3',4,4'-TeBDE	66			1.36	0.099 (Q)	0.79	1.021
2,3',4',6-TeBDE	71		ND		0.099 (Q)		
2,4,4',6-TeBDE	75		ND		0.099 (Q)		
3,3',4,4'-TeBDE	77		ND		0.099 (Q)		
3,3',4,5'-TeBDE	79		ND		0.099 (Q)		
2,2',3,4,4'-PeBDE	85			2.52	0.144 (S)	1.05	0.992
2,2',4,4',5-PeBDE	99			43.1	0.101 (S)	1.05	1.001
2,2',4,4',6-PeBDE	100			9.79	0.099 (Q)	1.04	1.000
2,3,3',4,4'-PeBDE	105		ND		0.185 (S)		

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,3,4,5,6-PeBDE	116		ND		0.265 (S)		
2,3',4,4',6-PeBDE	119	119 + 120	C NDR	0.164	0.160 (S)	0.61	1.011
2,3',4,5,5'-PeBDE	120	119 + 120	C119				
3,3',4,4',5-PeBDE	126		ND		0.099 (Q)		
2,2',3,3',4,4'-HxBDE	128		NDR	0.320	0.263 (S)	0.61	1.090
2,2',3,4,4',5'-HxBDE	138	138 + 166	C	0.592	0.185 (S)	0.68	1.044
2,2',3,4,4',6'-HxBDE	140			0.198	0.113 (S)	0.86	1.022
2,2',4,4',5,5'-HxBDE	153			3.78	0.121 (S)	0.74	1.001
2,2',4,4',5,6'-HxBDE	154			3.40	0.099 (Q)	0.82	1.001
2,2',4,4',6,6'-HxBDE	155			0.549	0.099 (Q)	0.80	0.981
2,3,4,4',5,6-HxBDE	166	138 + 166	C138				
2,2',3,4,4',5,6-HpBDE	181		NDR	0.162	0.099 (Q)	0.45	1.046
2,2',3,4,4',5',6-HpBDE	183			0.946	0.099 (Q)	0.88	1.000
2,3,3',4,4',5,6-HpBDE	190		NDR	0.311	0.099 (Q)	0.50	1.053
2,2',3,4,4',5,5',6-OcBDE	203			1.89	0.505 (S)	0.79	1.012
2,2',3,3',4,4',5,5',6-NoBDE	206			4.66	1.11 (S)	0.97	1.115
2,2',3,3',4,4',5,6,6'-NoBDE	207			6.54	0.907 (S)	1.08	1.098
2,2',3,3',4,5,5',6,6'-NoBDE	208			4.32	1.08 (S)	0.91	1.091
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			56.8	15.1 (S)	0.98	1.001

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; C = co-eluting congener.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16141A.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_L16976-1_Form1A_BE11_332S6_SJ1376718.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
BQ5956-08R
Sample Collection:
27-Sep-2011

Form 2

BROMINATED DIPHENYLETHER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16976-1
Matrix:	SOLID	**Sample Size:**	10.1 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 12:26:21	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 6**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg absolute	**% Moisture:**	32.6

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	SPIKE CONC.	CONC. FOUND	R(%) [3]	ION ABUND. RATIO	RRT
13C12-4,4'-DiBDE	15L			2000	1640	81.9	0.52	0.665
13C12-2,4,4'-TriBDE	28L			2000	1120	55.8	1.03	0.831
13C12-2,2',4,4'-TeBDE	47L			2000	1670	83.5	1.56	0.988
13C12-3,3',4,4'-TeBDE	77L			2000	1920	96.1	1.61	1.042
13C12-2,2',4,4',5-PeBDE	99L			1980	1400	70.8	1.02	1.133
13C12-2,2',4,4',6-PeBDE	100L			2000	1330	66.5	1.05	1.100
13C12-3,3',4,4',5-PeBDE	126L			2000	2060	103	1.04	1.199
13C12-2,2',4,4',5,5'-HxBDE	153L			2000	1670	83.4	1.45	0.880
13C12-2,2',4,4',5,6'-HxBDE	154L			2000	1560	77.8	1.36	0.851
13C12-2,2',3,4,4',5',6-HpBDE	183L			2000	1610	80.7	1.02	0.966
13C12-2,2',3,3',4,4',6,6'-OcBDE	197L			2000	1560	77.9	0.83	1.063
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			20000	9240	46.2	1.25	1.080
CLEANUP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			2000	1780	88.8	1.45	1.013

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report.
(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16682.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_L16976-1_Form2_BE11_332S6_SJ1376718.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 1A

BROMINATED DIPHENYLETHER CONGENER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37863-101
Matrix:	SOLID	**Sample Size:**	10.0 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 11:28:10	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 5**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1

Concentration Units: pg/g

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Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,4-DiBDE	7		ND		0.225 (S)		
2,4'-DiBDE	8	8 + 11	C ND		0.167 (S)		
2,6-DiBDE	10		ND		0.269 (S)		
3,3'-DiBDE	11	8 + 11	C8				
3,4-DiBDE	12	12 + 13	C ND		0.139 (S)		
3,4'-DiBDE	13	12 + 13	C12				
4,4'-DiBDE	15		ND		0.121 (S)		
2,2',4-TriBDE	17	17 + 25	C ND		0.207 (S)		
2,3',4-TriBDE	25	17 + 25	C17				
2,4,4'-TriBDE	28	28 + 33	C ND		0.175 (S)		
2,4,6-TriBDE	30		ND		0.241 (S)		
2,4',6-TriBDE	32		ND		0.187 (S)		
2',3,4-TriBDE	33	28 + 33	C28				
3,3',4-TriBDE	35		ND		0.137 (S)		
3,4,4'-TriBDE	37		ND		0.126 (S)		
2,2',4,4'-TeBDE	47			2.77	0.100 (Q)	0.72	1.001
2,2',4,5'-TeBDE	49			0.206	0.100 (Q)	0.80	0.975
2,2',4,6'-TeBDE	51		ND		0.100 (Q)		
2,3',4,4'-TeBDE	66		NDR	0.156	0.100 (Q)	0.93	1.022
2,3',4',6-TeBDE	71		ND		0.100 (Q)		
2,4,4',6-TeBDE	75		ND		0.100 (Q)		
3,3',4,4'-TeBDE	77		ND		0.100 (Q)		
3,3',4,5'-TeBDE	79		ND		0.100 (Q)		
2,2',3,4,4'-PeBDE	85		ND		0.172 (S)		
2,2',4,4',5-PeBDE	99		NDR	2.29	0.117 (S)	1.23	1.001
2,2',4,4',6-PeBDE	100			0.432	0.100 (Q)	1.05	1.001
2,3,3',4,4'-PeBDE	105		ND		0.222 (S)		

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,3,4,5,6-PeBDE	116		ND		0.318 (S)		
2,3',4,4',6-PeBDE	119	119 + 120	C ND		0.192 (S)		
2,3',4,5,5'-PeBDE	120	119 + 120	C119				
3,3',4,4',5-PeBDE	126		ND		0.111 (S)		
2,2',3,3',4,4'-HxBDE	128		ND		0.317 (S)		
2,2',3,4,4',5'-HxBDE	138	138 + 166	C ND		0.264 (S)		
2,2',3,4,4',6'-HxBDE	140		ND		0.161 (S)		
2,2',4,4',5,5'-HxBDE	153			0.276	0.181 (S)	0.67	1.000
2,2',4,4',5,6'-HxBDE	154			0.213	0.100 (S)	0.78	1.001
2,2',4,4',6,6'-HxBDE	155		ND		0.120 (S)		
2,3,4,4',5,6-HxBDE	166	138 + 166	C138				
2,2',3,4,4',5,6-HpBDE	181		ND		0.100 (Q)		
2,2',3,4,4',5',6-HpBDE	183			0.261	0.100 (Q)	1.09	1.000
2,3,3',4,4',5,6-HpBDE	190		ND		0.100 (Q)		
2,2',3,4,4',5,5',6-OcBDE	203		NDR	0.387	0.100 (Q)	0.48	1.011
2,2',3,3',4,4',5,5',6-NoBDE	206		ND		1.32 (S)		
2,2',3,3',4,4',5,6,6'-NoBDE	207		NDR	1.92	1.08 (S)	1.94	1.099
2,2',3,3',4,5,5',6,6'-NoBDE	208		ND		1.29 (S)		
2,2',3,3',4,4',5,5',6,6'-DeBDE	209		ND		23.0 (S)		

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; C = co-eluting congener.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16141A.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_WG37863-101_Form1A_BE11_332S5_SJ1376715.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 2

BROMINATED DIPHENYLETHER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37863-101
Matrix:	SOLID	**Sample Size:**	10.0 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 11:28:10	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 5**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	SPIKE CONC.	CONC. FOUND	R(%) [3]	ION ABUND. RATIO	RRT
13C12-4,4'-DiBDE	15L			2000	1410	70.6	0.52	0.665
13C12-2,4,4'-TriBDE	28L			2000	977	48.8	1.05	0.832
13C12-2,2',4,4'-TeBDE	47L			2000	1430	71.6	1.53	0.987
13C12-3,3',4,4'-TeBDE	77L			2000	1650	82.5	1.56	1.042
13C12-2,2',4,4',5-PeBDE	99L			1980	1190	59.9	1.05	1.132
13C12-2,2',4,4',6-PeBDE	100L			2000	1120	56.0	1.04	1.100
13C12-3,3',4,4',5-PeBDE	126L			2000	1670	83.4	1.08	1.198
13C12-2,2',4,4',5,5'-HxBDE	153L			2000	1440	72.2	1.39	0.881
13C12-2,2',4,4',5,6'-HxBDE	154L			2000	1420	70.9	1.41	0.851
13C12-2,2',3,4,4',5',6-HpBDE	183L			2000	1390	69.3	1.06	0.966
13C12-2,2',3,3',4,4',6,6'-OcBDE	197L			2000	1310	65.4	0.81	1.063
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			20000	6980	34.9	1.24	1.080
CLEANUP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			2000	1590	79.5	1.43	1.013

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report.
(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16682.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_WG37863-101_Form2_BE11_332S5_SJ1376715.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 8A

BROMINATED DIPHENYLETHER ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37863-102
Matrix:	SOLID	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 08:33:51	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**OPR Data Filename:**	**BE11_332 S: 2**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1

CONCENTRATIONS REPORTED ARE CONCENTRATIONS IN EXTRACT, BASED ON A 20 uL EXTRACT VOLUME.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	ION ABUND. RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS [2] (ng/mL)	% RECOVERY
2,4,4'-TriBDE	28	28 + 33	C	1.04	97.4	91.4	48.7 - 146	93.8
2',3,4-TriBDE	33	28 + 33	C28					
2,2',4,4'-TeBDE	47			0.70	50.0	48.5	25.0 - 75.0	96.9
2,2',4,4',5-PeBDE	99			1.05	50.0	46.9	25.0 - 75.0	93.8
2,2',4,4',6-PeBDE	100			1.05	50.0	46.6	25.0 - 75.0	93.3
2,2',4,4',5,5'-HxBDE	153			0.78	50.0	44.8	25.0 - 75.0	89.5
2,2',4,4',5,6'-HxBDE	154			0.78	50.0	44.2	25.0 - 75.0	88.4
2,2',3,4,4',5',6-HpBDE	183			1.00	50.0	48.8	25.0 - 75.0	97.5
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			0.83	500	422	200 - 1000	84.3

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(2) Contract-required limits for OPR as specified in Table 6, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: Form16688A.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_WG37863-102_Form8A_SJ1376736.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 8B

BROMINATED DIPHENYLETHER ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37863-102
Matrix:	SOLID	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 08:33:51	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**OPR Data Filename:**	**BE11_332 S: 2**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1

CONCENTRATIONS REPORTED ARE CONCENTRATIONS IN EXTRACT, BASED ON A 20 uL EXTRACT VOLUME.

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	ION ABUND. RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS [3] (ng/mL)	% RECOVERY
13C12-2,4,4'-TriBDE	28L			1.02	100	54.7	30.0 - 140	54.7
13C12-2,2',4,4'-TeBDE	47L			1.56	100	85.2	30.0 - 140	85.2
13C12-2,2',4,4',5-PeBDE	99L			1.03	99.0	74.7	29.7 - 139	75.5
13C12-2,2',4,4',6-PeBDE	100L			1.05	100	66.1	30.0 - 140	66.1
13C12-2,2',4,4',5,5'-HxBDE	153L			1.41	100	84.5	30.0 - 140	84.5
13C12-2,2',4,4',5,6'-HxBDE	154L			1.38	100	77.5	30.0 - 140	77.5
13C12-2,2',3,4,4',5',6-HpBDE	183L			1.05	100	81.9	30.0 - 140	81.9
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			1.24	1000	519	200 - 2000	51.9
CLEANUP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			1.39	100	88.2	40.0 - 125	88.2

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report.
(3) Contract-required limits for OPR as specified in Table 6, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: Form16688B.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_WG37863-102_Form8B_SJ1376736.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 3A

BROMINATED DIPHENYLETHER INITIAL CALIBRATION RELATIVE RESPONSES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 21-Jul-2011

Instrument ID: HR GC/MS

GC Column ID: DB5HT

CS0 Data Filename: N/A

CS1 Data Filename: BE11_255A S: 8

CS2 Data Filename: BE11_255A S: 7

CS3 Data Filename: BE11_255A S: 4

CS4 Data Filename: BE11_255A S: 3

CS5 Data Filename: BE11_255A S: 2

CS6 Data Filename: N/A

				RELATIVE RESPONSE (RR)								
COMPOUND	**IUPAC NO.**	**CO-ELUTIONS**	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**MEAN RR**	**CV[2] (%RSD)**
2,4,4'-TriBDE	28	28 + 33	C		0.96	0.98	0.94	0.95	0.95		0.96	1.54
2',3,4-TriBDE	33	28 + 33	C28									
2,2',4,4'-TeBDE	47				1.38	1.25	1.23	1.26	1.28		1.28	4.72
2,2',4,4',5-PeBDE	99				1.25	1.17	1.17	1.16	1.17		1.18	3.04
2,2',4,4',6-PeBDE	100				1.23	1.18	1.18	1.19	1.22		1.20	1.82
2,2',4,4',5,5'-HxBDE	153				1.25	1.11	1.15	1.18	1.15		1.17	4.35
2,2',4,4',5,6'-HxBDE	154				1.44	1.35	1.35	1.37	1.35		1.37	2.80
2,2',3,4,4',5',6-HpBDE	183				1.20	1.00	1.12	1.12	1.13		1.12	6.43
2,2',3,3',4,4',5,5',6,6'-DeBDE	209				1.72	1.23	1.45	1.33	1.23		1.39	14.6

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(2) For contract CV specifications, see Section 10.4.4, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16683A.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1; Report Filename: 1614_PBDPE_21-Jul-2011_BE11__Form3A_GS43149.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 3B

BROMINATED DIPHENYLETHER INITIAL CALIBRATION RELATIVE RESPONSES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 21-Jul-2011

Instrument ID: HR GC/MS

GC Column ID: DB5HT

CS0 Data Filename: N/A

CS1 Data Filename: BE11_255A S: 8

CS2 Data Filename: BE11_255A S: 7

CS3 Data Filename: BE11_255A S: 4

CS4 Data Filename: BE11_255A S: 3

CS5 Data Filename: BE11_255A S: 2

CS6 Data Filename: N/A

				RELATIVE RESPONSE (RR)								
COMPOUND	**IUPAC NO.** [1]	**CO-ELUTIONS**	**LAB FLAG**[2]	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**MEAN RR**	**CV**[3] **(%RSD)**
13C12-2,4,4'-TriBDE	28L				2.70	2.58	2.69	2.76	3.03		2.75	6.14
13C12-2,2',4,4'-TeBDE	47L				0.94	0.95	0.97	1.07	1.19		1.02	10.5
13C12-2,2',4,4',5-PeBDE	99L				1.38	1.37	1.47	1.65	1.99		1.57	16.6
13C12-2,2',4,4',6-PeBDE	100L				2.20	2.21	2.28	2.46	2.79		2.39	10.4
13C12-2,2',4,4',5,5'-HxBDE	153L				2.19	2.09	2.11	2.50	3.31		2.44	21.0
13C12-2,2',4,4',5,6'-HxBDE	154L				3.20	3.05	3.05	3.46	4.24		3.40	14.7
13C12-2,2',3,4,4',5',6-HpBDE	183L				1.96	1.85	1.90	2.24	2.92		2.17	20.5
CLEAN-UP STANDARD												
13C12-2,2',3,4,4',6-HxBDE	139L				2.73	2.59	2.57	2.61	2.57		2.61	2.64

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(3) For contract CV specifications, see Section 10.5.6, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16683B.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_21-Jul-2011_BE11__Form3B_GS43149.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 3C

BROMINATED DIPHENYLETHER INITIAL CALIBRATION ION ABUNDANCE RATIOS

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 21-Jul-2011

Instrument ID: HR GC/MS

GC Column ID: DB5HT

CS0 Data Filename: N/A

CS1 Data Filename: BE11_255A S: 8

CS2 Data Filename: BE11_255A S: 7

CS3 Data Filename: BE11_255A S: 4

CS4 Data Filename: BE11_255A S: 3

CS5 Data Filename: BE11_255A S: 2

CS6 Data Filename: N/A

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG[1]	M/Z's FORMING RATIO [2]	ION ABUNDANCE RATIO CS0	CS1	CS2	CS3	CS4	CS5	CS6	QC LIMITS [2]
2,4,4'-TriBDE	28	28 + 33	C	**M+2/M+4**		1.05	1.05	1.00	1.04	1.03		0.88-1.18
2',3,4-TriBDE	33	28 + 33	C28									
2,2',4,4'-TeBDE	47			**M+2/M+4**		0.80	0.71	0.69	0.71	0.70		0.60-0.81
2,2',4,4',5-PeBDE	99			**M+4/M+6**		1.06	1.04	1.04	1.04	1.04		0.88-1.18
2,2',4,4',6-PeBDE	100			**M+4/M+6**		1.09	1.08	1.04	1.03	1.04		0.88-1.18
2,2',4,4',5,5'-HxBDE	153			**M+4/M+6**		0.81	0.79	0.77	0.77	0.78		0.65-0.89
2,2',4,4',5,6'-HxBDE	154			**M+4/M+6**		0.71	0.79	0.77	0.77	0.78		0.65-0.89
2,2',3,4,4',5',6-HpBDE	183			**M+6/M+8**		0.96	1.10	1.04	1.03	1.03		0.88-1.18
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			**M+8/M+10**		0.84	0.73	0.86	0.85	0.85		0.73-0.99

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(2) See Table 8 Method 1614 for m/z specifications and ion abundance ratio control limits; QC Limits apply to CS2 to CS5 only.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16683C.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_21-Jul-2011_BE11__Form3C_GS43149.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 3D

BROMINATED DIPHENYLETHER INITIAL CALIBRATION ION ABUNDANCE RATIOS

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 21-Jul-2011

Instrument ID: HR GC/MS

GC Column ID: DB5HT

CS0 Data Filename: N/A

CS1 Data Filename: BE11_255A S: 8

CS2 Data Filename: BE11_255A S: 7

CS3 Data Filename: BE11_255A S: 4

CS4 Data Filename: BE11_255A S: 3

CS5 Data Filename: BE11_255A S: 2

CS6 Data Filename: N/A

LABELED COMPOUND	IUPAC NO.[1]	CO-ELUTIONS	LAB FLAG[2]	M/Z's FORMING RATIO [3]	ION ABUNDANCE RATIO CS0	CS1	CS2	CS3	CS4	CS5	CS6	QC LIMITS [3]
13C12-2,4,4'-TriBDE	28L			**M+2/M+4**		1.04	1.07	1.03	1.07	1.07		0.88-1.18
13C12-2,2',4,4'-TeBDE	47L			**M+4/M+6**		1.61	1.61	1.56	1.55	1.61		1.31-1.77
13C12-2,2',4,4',5-PeBDE	99L			**M+4/M+6**		1.07	1.04	1.04	1.04	1.04		0.88-1.18
13C12-2,2',4,4',6-PeBDE	100L			**M+4/M+6**		1.06	1.05	1.06	1.05	1.05		0.88-1.18
13C12-2,2',4,4',5,5'-HxBDE	153L			**M+6/M+8**		1.39	1.43	1.38	1.38	1.43		1.16-1.58
13C12-2,2',4,4',5,6'-HxBDE	154L			**M+6/M+8**		1.38	1.41	1.41	1.39	1.43		1.16-1.58
13C12-2,2',3,4,4',5',6-HpBDE	183L			**M+6/M+8**		1.03	1.04	1.02	1.05	1.06		0.88-1.18
CLEAN-UP STANDARD												
13C12-2,2',3,4,4',6-HxBDE	139L			**M+6/M+8**		1.38	1.38	1.40	1.37	1.37		1.16-1.58

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(3) See Table 8 Method 1614 for m/z specifications and ion abundance ratio control limits.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16683D.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_21-Jul-2011_BE11__Form3D_GS43149.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 4A

BROMINATED DIPHENYLETHER CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**VER Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	MZ's FORMING RATIO [2]	ION ABUND. RATIO	QC LIMITS [3]	CONC. FOUND (ng/mL)	CONC. RANGE [4] (ng/mL)
2,4,4'-TriBDE	28	28 + 33	C	**M+2/M+4**	1.03	0.88-1.18	92.0	68.2 - 127
2',3,4-TriBDE	33	28 + 33	C28					
2,2',4,4'-TeBDE	47			**M+2/M+4**	0.68	0.60-0.81	47.2	35.0 - 65.0
2,2',4,4',5-PeBDE	99			**M+4/M+6**	1.05	0.88-1.18	45.6	35.0 - 65.0
2,2',4,4',6-PeBDE	100			**M+4/M+6**	1.03	0.88-1.18	46.0	35.0 - 65.0
2,2',4,4',5,5'-HxBDE	153			**M+4/M+6**	0.77	0.65-0.89	44.6	35.0 - 65.0
2,2',4,4',5,6'-HxBDE	154			**M+4/M+6**	0.78	0.65-0.89	45.0	35.0 - 65.0
2,2',3,4,4',5',6-HpBDE	183			**M+6/M+8**	1.03	0.88-1.18	48.1	35.0 - 65.0
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			**M+8/M+10**	0.87	0.73-0.99	423	250 - 1000

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(2) See Table 8, Method 1614, for m/z specifications.
(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1614.
(4) Contract-required concentration range as specified in Table 6, Method 1614, under VER.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Thong Do_____

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Report Filename: 1614_PBDPE_BE11_332S1__Form4A_SJ1376734.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 4B
BROMINATED DIPHENYLETHER CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**VER Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	MZ's FORMING RATIO [3]	ION ABUND. RATIO	QC LIMITS [4]	CONC. FOUND (ng/mL)	CONC. RANGE [5] (ng/mL)
13C12-2,4,4'-TriBDE	28L			**M+2/M+4**	1.02	0.88-1.18	60.3	50.0 - 150
13C12-2,2',4,4'-TeBDE	47L			**M+4/M+6**	1.57	1.31-1.77	88.0	50.0 - 150
13C12-2,2',4,4',5-PeBDE	99L			**M+4/M+6**	1.03	0.88-1.18	72.3	49.5 - 149
13C12-2,2',4,4',6-PeBDE	100L			**M+4/M+6**	1.05	0.88-1.18	65.9	50.0 - 150
13C12-2,2',4,4',5,5'-HxBDE	153L			**M+6/M+8**	1.37	1.16-1.58	81.0	50.0 - 150
13C12-2,2',4,4',5,6'-HxBDE	154L			**M+6/M+8**	1.36	1.16-1.58	74.9	50.0 - 150
13C12-2,2',3,4,4',5',6-HpBDE	183L			**M+6/M+8**	1.07	0.88-1.18	81.5	50.0 - 150
CLEAN-UP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			**M+6/M+8**	1.39	1.16-1.58	83.6	60.0 - 130

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(3) See Table 8, Method 1614, for m/z specifications.
(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1614.
(5) Contract-required concentration range as specified in Table 6, Method 1614, under VER.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Thong Do_____

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AXYS METHOD MLA-033 Rev 06

Form 6A
BROMINATED DIPHENYLETHER RELATIVE RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**VER Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	RETENTION TIME REFERENCE	IUPAC NO. [2]	RRT	RRT QC LIMITS [3]
2,4,4'-TriBDE	28	28 + 33	C	13C12-2,4,4'-TriBDE	28L	1.0000	0.9985-1.0022
2',3,4-TriBDE	33	28 + 33	C28				
2,2',4,4'-TeBDE	47			13C12-2,2',4,4'-TeBDE	47L	1.0012	0.9988-1.0019
2,2',4,4',5-PeBDE	99			13C12-2,2',4,4',5-PeBDE	99L	1.0005	0.9989-1.0016
2,2',4,4',6-PeBDE	100			13C12-2,2',4,4',6-PeBDE	100L	1.0000	0.9989-1.0017
2,2',4,4',5,5'-HxBDE	153			13C12-2,2',4,4',5,5'-HxBDE	153L	1.0005	0.9990-1.0015
2,2',4,4',5,6'-HxBDE	154			13C12-2,2',4,4',5,6'-HxBDE	154L	1.0005	0.9990-1.0015
2,2',3,4,4',5',6-HpBDE	183			13C12-2,2',3,4,4',5',6-HpBDE	183L	1.0004	0.9991-1.0013
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L	1.0003	0.9993-1.0010

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(2) Suffix "L" indicates labeled compound
(3) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Thong Do_____

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AXYS METHOD MLA-033 Rev 06

Form 6B
BROMINATED DIPHENYLETHER RELATIVE RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**VER Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	RETENTION TIME REFERENCE	IUPAC NO. [1]	RRT	RRT QC LIMITS [3]
13C12-2,4,4'-TriBDE	28L			13C12-3,3',4,5'-TeBDE	79L	0.8315	0.8223-0.8407
13C12-2,2',4,4'-TeBDE	47L			13C12-3,3',4,5'-TeBDE	79L	0.9871	0.9810-0.9933
13C12-2,2',4,4',5-PeBDE	99L			13C12-3,3',4,5'-TeBDE	79L	1.1330	1.1238-1.1422
13C12-2,2',4,4',6-PeBDE	100L			13C12-3,3',4,5'-TeBDE	79L	1.1005	1.0913-1.1097
13C12-2,2',4,4',5,5'-HxBDE	153L			13C12-2,2',3,4,4',5,5'-HpBDE	180L	0.8809	0.8745-0.8873
13C12-2,2',4,4',5,6'-HxBDE	154L			13C12-2,2',3,4,4',5,5'-HpBDE	180L	0.8506	0.8442-0.8570
13C12-2,2',3,4,4',5',6-HpBDE	183L			13C12-2,2',3,4,4',5,5'-HpBDE	180L	0.9658	0.9616-0.9701
CLEANUP STANDARD							
13C12-2,2',3,4,4',6-HxBDE	139L			13C12-2,2',4,4',5,5'-HxBDE	153L	1.0121	1.0073-1.0170

(1) Suffix "L" indicates labeled compound
(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(3) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Thong Do_____

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Report Filename: 1614_PBDPE_BE11_332S1__Form6B_SJ1376734.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 3A
BROMINATED DIPHENYLETHER INITIAL CALIBRATION RELATIVE RESPONSES, ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**CAL Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	RRF	MZ's FORMING RATIO [2]	ION ABUND. RATIO	RATIO QC LIMITS [3]	RRT	RRT QC LIMITS
2,4-DiBDE	7			0.54	**M/M+2**	0.51	0.43-0.59	0.928	0.914 - 0.942
2,4'-DiBDE	8	8 + 11	C	0.73	**M/M+2**	0.51	0.43-0.59	0.957	0.947 - 0.966
2,6-DiBDE	10			0.45	**M/M+2**	0.52	0.43-0.59	0.862	0.843 - 0.880
3,3'-DiBDE	11	8 + 11	C8						
3,4-DiBDE	12	12 + 13	C	0.88	**M/M+2**	0.51	0.43-0.59	0.977	0.968 - 0.986
3,4'-DiBDE	13	12 + 13	C12						
4,4'-DiBDE	15			1.00	**M/M+2**	0.52	0.43-0.59	1.001	0.998 - 1.003
2,2',4-TriBDE	17	17 + 25	C	0.81	**M+2/M+4**	1.03	0.88-1.18	0.975	0.968 - 0.982
2,3',4-TriBDE	25	17 + 25	C17						
2,4,6-TriBDE	30			0.70	**M+2/M+4**	1.01	0.88-1.18	0.894	0.879 - 0.909
2,4',6-TriBDE	32			0.90	**M+2/M+4**	1.03	0.88-1.18	0.952	0.945 - 0.959
3,3',4-TriBDE	35			1.22	**M+2/M+4**	1.02	0.88-1.18	1.018	1.010 - 1.025
3,4,4'-TriBDE	37			1.33	**M+2/M+4**	1.02	0.88-1.18	1.038	1.031 - 1.046
2,2',4,5'-TeBDE	49			0.83	**M+2/M+4**	0.70	0.60-0.81	0.975	0.969 - 0.981
2,2',4,6'-TeBDE	51			1.23	**M+2/M+4**	0.69	0.60-0.81	0.967	0.961 - 0.973
2,3',4,4'-TeBDE	66			0.73	**M+2/M+4**	0.70	0.60-0.81	1.022	1.016 - 1.029
2,3',4',6-TeBDE	71			0.89	**M+2/M+4**	0.69	0.60-0.81	0.981	0.975 - 0.987
2,4,4',6-TeBDE	75			0.94	**M+2/M+4**	0.71	0.60-0.81	0.962	0.956 - 0.968
3,3',4,4'-TeBDE	77			1.29	**M+2/M+4**	0.68	0.60-0.81	1.000	0.999 - 1.002
3,3',4,5'-TeBDE	79			1.12	**M+2/M+4**	0.71	0.60-0.81	1.014	1.007 - 1.020
2,2',3,4,4'-PeBDE	85			0.68	**M+4/M+6**	1.03	0.88-1.18	0.992	0.987 - 0.997
2,3,3',4,4'-PeBDE	105			0.53	**M+4/M+6**	1.04	0.88-1.18	1.009	1.004 - 1.014
2,3,4,5,6-PeBDE	116			0.37	**M+4/M+6**	1.02	0.88-1.18	1.009	1.003 - 1.014
2,3',4,4',6-PeBDE	119	119 + 120	C	0.61	**M+4/M+6**	1.04	0.88-1.18	1.011	1.005 - 1.016
2,3',4,5,5'-PeBDE	120	119 + 120	C119						
3,3',4,4',5-PeBDE	126			1.19	**M+4/M+6**	1.05	0.88-1.18	1.001	0.999 - 1.002
2,2',3,3',4,4'-HxBDE	128			0.63	**M+4/M+6**	0.76	0.65-0.89	1.090	1.082 - 1.097
2,2',3,4,4',5'-HxBDE	138	138 + 166	C	0.64	**M+4/M+6**	0.78	0.65-0.89	1.045	1.040 - 1.050
2,2',3,4,4',6'-HxBDE	140			1.04	**M+4/M+6**	0.77	0.65-0.89	1.021	1.016 - 1.026
2,2',4,4',6,6'-HxBDE	155			1.41	**M+4/M+6**	0.76	0.65-0.89	0.981	0.976 - 0.986
2,3,4,4',5,6-HxBDE	166	138 + 166	C138						
2,2',3,4,4',5,6-HpBDE	181			0.55	**M+6/M+8**	1.01	0.88-1.18	1.045	1.041 - 1.050
2,3,3',4,4',5,6-HpBDE	190			0.31	**M+6/M+8**	1.02	0.88-1.18	1.052	1.047 - 1.056
2,2',3,3',4,4',6,6'-OcBDE	197	197 + 204	C	0.86	**M+6/M+8**	0.81	0.70-0.94	0.999	0.997 - 1.001
2,2',3,4,4',5,5',6-OcBDE	203			0.62	**M+6/M+8**	0.81	0.70-0.94	1.011	1.007 - 1.015
2,2',3,4,4',5,6,6'-OcBDE	204	197 + 204	C197						
2,3,3',4,4',5,5',6-OcBDE	205			0.31	**M+6/M+8**	0.82	0.70-0.94	1.033	1.029 - 1.037
2,2',3,3',4,4',5,5',6-NoBDE	206			0.24	**M+8/M+10**	1.09	0.88-1.18	1.114	1.108 - 1.120
2,2',3,3',4,4',5,6,6'-NoBDE	207			0.29	**M+8/M+10**	1.03	0.88-1.18	1.099	1.093 - 1.105
2,2',3,3',4,5,5',6,6'-NoBDE	208			0.24	**M+8/M+10**	1.03	0.88-1.18	1.091	1.085 - 1.097

(1) Where applicable, custom lab flags have been used on this report.
(2) See Table 8, Method 1614, for m/z specifications.
(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Thong Do_____

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Report Filename: 1614_PBDPE_BE11_332S1__Form346A_SJ1376764_GS43149.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 3B

BROMINATED DIPHENYLETHER INITIAL CALIBRATION RELATIVE RESPONSES, ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**CAL Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	RRF	MZ's FORMING RATIO [3]	ION ABUND. RATIO	RATIO QC LIMITS [4]	RRT	RRT QC LIMITS
13C12-4,4'-DiBDE	15L			2.86	**M/M+2**	0.52	0.43-0.59	0.665	0.653 - 0.677
13C12-2,4,4'-TriBDE	28L			1.66	**M+2/M+4**	1.02	0.88-1.18	0.831	0.822 - 0.841
13C12-2,2',4,4'-TeBDE	47L			0.90	**M+4/M+6**	1.57	1.31-1.77	0.987	0.981 - 0.993
13C12-3,3',4,4'-TeBDE	77L			0.94	**M+4/M+6**	1.58	1.31-1.77	1.042	1.036 - 1.048
13C12-2,2',4,4',5-PeBDE	99L			1.15	**M+4/M+6**	1.03	0.88-1.18	1.133	1.124 - 1.142
13C12-2,2',4,4',6-PeBDE	100L			1.57	**M+4/M+6**	1.05	0.88-1.18	1.100	1.091 - 1.110
13C12-3,3',4,4',5-PeBDE	126L			1.29	**M+4/M+6**	1.03	0.88-1.18	1.199	1.189 - 1.208
13C12-2,2',4,4',5,5'-HxBDE	153L			1.98	**M+6/M+8**	1.37	1.16-1.58	0.881	0.874 - 0.887
13C12-2,2',4,4',5,6'-HxBDE	154L			2.55	**M+6/M+8**	1.36	1.16-1.58	0.851	0.844 - 0.857
13C12-2,2',3,4,4',5',6-HpBDE	183L			1.77	**M+6/M+8**	1.07	0.88-1.18	0.966	0.962 - 0.970
13C12-2,2',3,3',4,4',6,6'-OcBDE	197L			1.52	**M+6/M+8**	0.85	0.70-0.94	1.063	1.057 - 1.070
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			0.39	**M+10/M+12**	1.25	1.05-1.41	1.080	1.075 - 1.085
ADDITIONAL STANDARD									
13C12-2,2',3,4,4',5'-HxBDE	138L			0.68	**M+6/M+8**	1.42	1.16-1.58	1.044	1.039 - 1.048

(1) Suffix "L" indicates labeled compound
(2) Where applicable, custom lab flags have been used on this report.
(3) See Table 8, Method 1614, for m/z specifications.
(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
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Report Filename: 1614_PBDPE_BE11_332S1__Form346B_SJ1376764_GS43149.html; Workgroup: WG37863; Design ID: 1677]

AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
1,2,3,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD	1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF			1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls												
PCB 1 2-Chlorobiphenyl	7	7								7	7	
PCB 3 4-Chlorobiphenyl	7	7								7	7	
PCB 4 2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5 2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15 4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18 2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19 2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31 2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37 3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44 2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52 2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54 2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66 2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77 3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81 3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87 2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

AXYS Analytical Services Ltd.

Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

AXYS Analytical Services Ltd.

Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

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		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37878	***Date:*** 22-Nov-2011
Analysis Type: (AC2) Pharmaceutical & Personal Care Products	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520

Samples:

L16978-1	BQ5956-10R
L16978-2	BR3044-10R
L16978-3	BR3045-10R
L16978-4	BR3046-10R
L16978-5	BQ9606-10R

Blank: WG37878-101

Reference or Spike: WG37878-102

Duplicate:

Comments:

1. Data are not blank corrected.

AXYS METHOD MLA-075 Rev 3

Form 3A
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 17-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QB1K_191 S: 7
CS1 Data Filename: QB1K_191 S: 8
CS2 Data Filename: QB1K_191 S: 9
CS3 Data Filename: QB1K_191 S: 10
CS4 Data Filename: QB1K_191 S: 11
CS5 Data Filename: QB1K_191 S: 12
CS6 Data Filename: N/A
CS7 Data Filename: N/A
CS8 Data Filename: N/A

COMPOUND	LAB FLAG [1]	PERCENT RECOVERY (%) CS0	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8
Anhydrochlortetracycline [ACTC]		122	73.4	111	85.4	109	99.1			
Anhydrotetracycline [ATC]		119	72.6	101	96.8	114	96.5			
Chlortetracycline [CTC]		135	79.4	89.2	77.9	120	98.2			
Demeclocycline		107	92.5	81.5	106	118	94.6			
Doxycycline		109	79.7	102	97.8	116	95.5			
4-Epianhydrochlortetracycline [EACTC]		102	65.5	129	94.0	114	94.8			
4-Epianhydrotetracycline [EATC]		79.1	84.4	112	117	116	91.5			
4-Epichlortetracycline [ECTC]		109	78.7	89.0	117	111	94.9			
4-Epioxytetracycline [EOTC]		112	89.7	107	94.4	94.8	102			
4-Epitetracycline [ETC]		125	84.6	104	96.1	85.7	105			
Isochlortetracycline [ICTC]		96.7	78.3	107	111	114	93.8			
Minocycline		124	82.7	77.7	107	112	97.1			
Oxytetracycline [OTC]		110	75.8	93.9	111	115	94.3			
Tetracycline [TC]		114	76.6	92.0	115	106	96.9			

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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Report Filename: GENERIC-SPECS_PPC_LC_17-Oct-2011_QB1K__Form3A_GS43273.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3B
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 17-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QB1K_191 S: 7
CS1 Data Filename: QB1K_191 S: 8
CS2 Data Filename: QB1K_191 S: 9
CS3 Data Filename: QB1K_191 S: 10
CS4 Data Filename: QB1K_191 S: 11
CS5 Data Filename: QB1K_191 S: 12
CS6 Data Filename: N/A
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERIES (%)								
LABELED COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
D6-Thiabendazole		129	135	72.2	89.9	77.3	96.8			

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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Report Filename: GENERIC-SPECS_PPC_LC_17-Oct-2011_QB1K__Form3B_GS43273.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3C
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 17-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QB1K_191 S: 7
CS1 Data Filename: QB1K_191 S: 8
CS2 Data Filename: QB1K_191 S: 9
CS3 Data Filename: QB1K_191 S: 10
CS4 Data Filename: QB1K_191 S: 11
CS5 Data Filename: QB1K_191 S: 12
CS6 Data Filename: N/A
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
Anhydrochlortetracycline [ACTC]		20:53	20:49	20:51	20:49	20:48	20:50				20:50
Anhydrotetracycline [ATC]		16:41	16:41	16:40	16:40	16:39	16:40				16:40
Chlortetracycline [CTC]		12:05	12:02	12:05	12:07	12:05	12:02				12:04
Demeclocycline		9:44	9:43	9:46	9:51	9:44	9:44				9:45
Doxycycline		14:41	14:37	14:37	14:38	14:41	14:40				14:39
4-Epianhydrochlortetracycline [EACTC]		19:08	19:11	19:08	19:08	19:08	19:12				19:09
4-Epianhydrotetracycline [EATC]		15:24	15:25	15:24	15:25	15:26	15:25				15:25
4-Epichlortetracycline [ECTC]		10:08	10:00	10:02	10:03	10:02	10:03				10:03
4-Epioxytetracycline [EOTC]		6:58	6:39	6:45	6:39	6:45	6:42				6:45
4-Epitetracycline [ETC]		6:20	5:52	6:08	6:02	6:07	6:08				6:06
Isochlortetracycline [ICTC]		10:08	10:10	10:10	10:08	10:11	10:07				10:09
Minocycline		3:29	3:27	3:41	3:40	3:36	3:46				3:37
Oxytetracycline [OTC]		7:22	7:27	7:19	7:24	7:24	7:22				7:23
Tetracycline [TC]		7:54	8:00	7:52	7:56	7:59	7:57				7:56

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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Report Filename: GENERIC-SPECS_PPC_LC_17-Oct-2011_QB1K__Form3C_GS43273.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3D
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 17-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QB1K_191 S: 7
CS1 Data Filename: QB1K_191 S: 8
CS2 Data Filename: QB1K_191 S: 9
CS3 Data Filename: QB1K_191 S: 10
CS4 Data Filename: QB1K_191 S: 11
CS5 Data Filename: QB1K_191 S: 12
CS6 Data Filename: N/A
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
LABELED COMPOUND	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
D6-Thiabendazole		5:12	5:14	5:14	5:12	5:11	5:08				5:12

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form3D.xsl; Created: 22-Nov-2011 16:35:57; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_17-Oct-2011_QB1K__Form3D_GS43273.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4A
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	17-Oct-2011	**VER Data Filename:**	QB1K_191 S: 16
Instrument ID:	LC MS/MS	**Analysis Date:**	18-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	00:09:12

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Anhydrochlortetracycline [ACTC]		20:46	250	187	75.0
Anhydrotetracycline [ATC]		16:41	250	169	67.7
Chlortetracycline [CTC]		12:05	100	73.1	73.1
Demeclocycline		9:46	250	193	77.2
Doxycycline		14:38	100	72.6	72.6
4-Epianhydrochlortetracycline [EACTC]		19:09	1000	818	81.8
4-Epianhydrotetracycline [EATC]		15:25	250	208	83.1
4-Epichlortetracycline [ECTC]		10:03	250	183	73.2
4-Epioxytetracycline [EOTC]		6:44	100	84.0	84.0
4-Epitetracycline [ETC]		6:04	100	84.5	84.5
Isochlortetracycline [ICTC]		10:15	100	93.0	93.0
Minocycline		3:40	1000	774	77.4
Oxytetracycline [OTC]		7:27	100	79.5	79.5
Tetracycline [TC]		8:02	100	79.1	79.1

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form4A.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QB1K_191S16__Form4A_SJ1382974.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4B
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	17-Oct-2011	**VER Data Filename:**	QB1K_191 S: 16
Instrument ID:	LC MS/MS	**Analysis Date:**	18-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	00:09:12

LABELED COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
D6-Thiabendazole		5:14	100	110	110

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form4B.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QB1K_191S16__Form4B_SJ1382974.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 04:45:59	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 25**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		14.6 (L)	
Anhydrotetracycline [ATC]	ND		14.6 (L)	
Chlortetracycline [CTC]	ND		5.85 (L)	
Demeclocycline	ND		14.6 (L)	
Doxycycline	ND		5.85 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		58.5 (L)	
4-Epianhydrotetracycline [EATC]	ND		14.6 (L)	
4-Epichlortetracycline [ECTC]	ND		14.6 (L)	
4-Epioxytetracycline [EOTC]	ND		5.85 (L)	
4-Epitetracycline [ETC]	ND		5.85 (L)	
Isochlortetracycline [ICTC]	ND		5.85 (L)	
Minocycline	ND		58.5 (L)	
Oxytetracycline [OTC]	ND		5.85 (L)	
Tetracycline [TC]	ND		5.85 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 15-Nov-2011 14:20:51; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-1_Form1A_QB1K_191S25_SJ1382979.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 04:45:59	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 25**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	85.3	85.3	5:19

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 15-Nov-2011 14:20:51; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-1_Form2_QB1K_191S25_SJ1382979.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 05:16:37	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 26**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		14.4 (L)	
Anhydrotetracycline [ATC]	ND		14.4 (L)	
Chlortetracycline [CTC]	ND		5.76 (L)	
Demeclocycline	ND		14.4 (L)	
Doxycycline	ND		5.76 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		57.6 (L)	
4-Epianhydrotetracycline [EATC]	ND		14.4 (L)	
4-Epichlortetracycline [ECTC]	ND		14.4 (L)	
4-Epioxytetracycline [EOTC]	ND		5.76 (L)	
4-Epitetracycline [ETC]	ND		5.76 (L)	
Isochlortetracycline [ICTC]	ND		5.76 (L)	
Minocycline	ND		57.6 (L)	
Oxytetracycline [OTC]	ND		5.76 (L)	
Tetracycline [TC]	ND		5.76 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-2_Form1A_QB1K_191S26_SJ1382980.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 05:16:37	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 26**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	77.1	77.1	5:16

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-2_Form2_QB1K_191S26_SJ1382980.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 05:47:22	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 27**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		13.7 (L)	
Anhydrotetracycline [ATC]	ND		18.2 (S)	
Chlortetracycline [CTC]	ND		5.47 (L)	
Demeclocycline	ND		13.7 (L)	
Doxycycline	ND		5.47 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		54.7 (L)	
4-Epianhydrotetracycline [EATC]	ND		13.7 (L)	
4-Epichlortetracycline [ECTC]	ND		13.7 (L)	
4-Epioxytetracycline [EOTC]	ND		5.47 (L)	
4-Epitetracycline [ETC]	ND		5.47 (L)	
Isochlortetracycline [ICTC]	ND		5.47 (L)	
Minocycline	ND		54.7 (L)	
Oxytetracycline [OTC]	ND		5.47 (L)	
Tetracycline [TC]	ND		5.47 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-3_Form1A_QB1K_191S27_SJ1382981.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 05:47:22	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 27**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	88.7	88.7	5:14

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-3_Form2_QB1K_191S27_SJ1382981.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 06:18:10	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 28**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		14.6 (L)	
Anhydrotetracycline [ATC]	ND		20.2 (S)	
Chlortetracycline [CTC]	ND		5.86 (L)	
Demeclocycline	ND		14.6 (L)	
Doxycycline	ND		5.86 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		58.6 (L)	
4-Epianhydrotetracycline [EATC]	ND		23.6 (S)	
4-Epichlortetracycline [ECTC]	ND		14.6 (L)	
4-Epioxytetracycline [EOTC]	ND		5.86 (L)	
4-Epitetracycline [ETC]	ND		5.86 (L)	
Isochlortetracycline [ICTC]	ND		5.86 (L)	
Minocycline	ND		58.6 (L)	
Oxytetracycline [OTC]	ND		5.86 (L)	
Tetracycline [TC]	ND		5.86 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-4_Form1A_QB1K_191S28_SJ1382982.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 06:18:10	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 28**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	87.9	87.9	5:11

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-4_Form2_QB1K_191S28_SJ1382982.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 06:48:56	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 29**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		14.0 (L)	
Anhydrotetracycline [ATC]	ND		14.0 (L)	
Chlortetracycline [CTC]	ND		5.64 (S)	
Demeclocycline	ND		14.0 (L)	
Doxycycline	ND		5.60 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		56.0 (L)	
4-Epianhydrotetracycline [EATC]	ND		14.0 (L)	
4-Epichlortetracycline [ECTC]	ND		14.0 (L)	
4-Epioxytetracycline [EOTC]	ND		5.60 (L)	
4-Epitetracycline [ETC]	ND		5.60 (L)	
Isochlortetracycline [ICTC]	ND		5.60 (L)	
Minocycline	ND		56.0 (L)	
Oxytetracycline [OTC]	ND		5.60 (L)	
Tetracycline [TC]	ND		5.60 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 15-Nov-2011 14:40:56; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-5_Form1A_QB1K_191S29_SJ1382983.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 06:48:56	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 29**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	97.5	97.5	5:14

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 15-Nov-2011 14:40:56; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-5_Form2_QB1K_191S29_SJ1382983.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 03:44:24	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 23**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		15.7 (S)	
Anhydrotetracycline [ATC]	ND		16.6 (S)	
Chlortetracycline [CTC]	ND		6.00 (L)	
Demeclocycline	ND		15.0 (L)	
Doxycycline	ND		6.00 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		60.0 (L)	
4-Epianhydrotetracycline [EATC]	ND		16.4 (S)	
4-Epichlortetracycline [ECTC]	ND		15.0 (L)	
4-Epioxytetracycline [EOTC]	ND		6.00 (L)	
4-Epitetracycline [ETC]	ND		6.00 (L)	
Isochlortetracycline [ICTC]	ND		6.00 (L)	
Minocycline	ND		60.0 (L)	
Oxytetracycline [OTC]	ND		6.00 (L)	
Tetracycline [TC]	ND		6.00 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_WG37878-101_Form1A_QB1K_191S23_SJ1382991.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 03:44:24	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 23**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	45.6	45.6	5:17

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_WG37878-101_Form2_QB1K_191S23_SJ1382991.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8A

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102
Matrix:	SOLID	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 01:41:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QB1K_191 S: 19**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
Anhydrochlortetracycline [ACTC]		250	56.7	22.7	20:51
Anhydrotetracycline [ATC]		250	80.0	32.0	16:40
Chlortetracycline [CTC]		100	92.7	92.7	12:05
Demeclocycline		250	162	64.9	9:49
Doxycycline		100	53.9	53.9	14:41
4-Epianhydrochlortetracycline [EACTC]		1000	92.7	9.3	19:11
4-Epianhydrotetracycline [EATC]		250	84.3	33.7	15:24
4-Epichlortetracycline [ECTC]		250	177	70.9	10:02
4-Epioxytetracycline [EOTC]		100	81.9	81.9	6:52
4-Epitetracycline [ETC]		100	105	105	6:00
Isochlortetracycline [ICTC]		100	74.9	74.9	10:15
Minocycline		1000	99.2	9.9	3:43
Oxytetracycline [OTC]		100	102	102	7:30
Tetracycline [TC]		100	87.7	87.7	7:56

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: LC_PPC_LC_PPC075_CYC_WG37878-102_Form8A_SJ1382987.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8B

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102
Matrix:	SOLID	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 01:41:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QB1K_191 S: 19**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
D6-Thiabendazole		100	69.5	69.5	5:19

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Henry Huang_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: LC_PPC_LC_PPC075_CYC_WG37878-102_Form8B_SJ1382987.html; Workgroup: WG37878; Design ID: 1482]

AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
1,2,3,6,7,8-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD		1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF				1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls													
PCB 1	2-Chlorobiphenyl	7	7								7	7	
PCB 3	4-Chlorobiphenyl	7	7								7	7	
PCB 4	2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5	2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15	4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18	2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19	2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31	2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37	3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81	3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

AXYS Analytical Services Ltd.

Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

AXYS Analytical Services Ltd.

Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

Your Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Your C.O.C. #: 08314944

Attention: JASON CLARKE
WORLEYPARSONS CANADA SERVICES LTD
100-3795 CAREY RD
VICTORIA, BC
CANADA V8Z 6T8

Report Date: 2012/02/29
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B192596
Received: 2011/09/29, 08:50

Sample Matrix: Sediment
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Soil by GC/MS (1)	3	2011/10/11	2011/10/14	BBY8SOP-00023	EPA SW846 3540C
Phenols in Soil by GCMS (1)	2	2011/10/03	2011/10/08	BBY8SOP-00025	EPA 8270D
Phenols in Soil by GCMS (1)	1	2011/10/03	2011/10/09	BBY8SOP-00025	EPA 8270D
Fecal Coliforms (MTF) in Soil (1)	4	N/A	2011/09/30	BBY4-00119	SM 9221
Elements by ICPMS (total) (1)	4	2011/10/01	2011/10/04	BBY7SOP-00001	EPA 6020A
Simultaneously Extractable Metals-ICPMS (1)	4	2011/10/12	2011/10/12	BBY7SOP-00001	EPA 6020A
Moisture (1)	3	N/A	2011/10/01	BBY8SOP-00017	Ont MOE -E 3139
Moisture (1)	3	N/A	2011/10/05	BBY8SOP-00017	Ont MOE -E 3139
Moisture (1)	1	N/A	2011/10/13	BBY8SOP-00017	Ont MOE -E 3139
PAH in Soil by GC/MS (SIM) (1)	3	2011/09/30	2011/10/03	BBY8SOP-00022	EPA 8270D
Total LMW, HMW, Total PAH Calc (1)	3	N/A	2011/10/04		PAHTOT-S
Polychlorinated Biphenyls in Soil (1)	1	N/A	2011/10/03	BBY8SOP-00036	EPA 8080
pH (2:1 DI Water Extract) (1)	4	2011/10/04	2011/10/04	BBY6SOP-00028	Carter, SSMA 16.2
CSR VH C6-C10 in Soil by GC/FID (1)	3	2011/09/30	2011/10/02	BBY8SOP-00011	EPA SW8260C
Particle Size Distribution - Standard (2)	4	2011/10/04	2011/10/04		
Sulfide (AVS) (soil) - Calc for umole/g (1)	3	2011/09/29	2011/10/13	BRN SOP-00229 R2.0	EPA821-R91-100
Sulfide (AVS) (soil) - Calc for umole/g (1)	1	2011/09/29	2011/10/14	BRN SOP-00229 R2.0	EPA821-R91-100
Sulfide (AVS) (soil) (1)	4	2011/10/12	2011/10/12	BBY6SOP-00007	EPA821-R91-100
Texture Class (2)	4	N/A	2011/11/08		
VOCs in Soil by HS GC/MS (1)	3	2011/09/30	2011/10/02	BBY8-SOP-0009	EPA 8260C
Volatile HC-BTEX (1)	3	N/A	2011/10/03	BBY8-SOP-00011	BC Env Lab Manual

* Results relate only to the items tested.

(1) This test was performed by Maxxam Vancouver
(2) This test was performed by Maxxam Winnipeg

../2

Maxxam Job #: B192596
Report Date: 2012/02/29

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Sampler Initials: BL

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Debbie Nordbruget, Sample Logistics Technician
Email: DNordbruget@maxxam.ca
Phone# (250) 385-6112

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B192596
Report Date: 2012/02/29

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Sampler Initials: BL

RESULTS OF CHEMICAL ANALYSES OF SEDIMENT

Maxxam ID		BQ9605	BQ9606	BQ9607	BQ9608		
Sampling Date		2011/09/28 13:30	2011/09/28 16:00	2011/09/28 12:20	2011/09/28 11:30		
	Units	**M2300ESE - COMPOSITE**	**M1400ESE - COMPOSITE**	**M1600SE - COMPOSITE**	**M500SE - COMPOSITE**	**RDL**	**QC Batch**
Physical Properties							
Texture	N/A	SANDY LOAM	SANDY LOAM	SANDY LOAM	SANDY LOAM	N/A	5221648

Maxxam ID		BQ9609		BQ9610		BQ9611		BQ9612		
Sampling Date		2011/09/28 13:10		2011/09/28 14:30		2011/09/28 12:00		2011/09/28 11:15		
	Units	**M2300ESE - GRAB**	**RDL**	**M1400ESE - GRAB**	**RDL**	**M1600SE - GRAB**	**RDL**	**M500SE - GRAB**	**RDL**	**QC Batch**
Calculated Parameters										
Sulphide	umole/g	1.50	0.097	0.0519	0.0084	0.394	0.0083	1.59	0.087	5221755
MISCELLANEOUS										
Sulphide	ug/g	47.9	3.1	1.66	0.27	12.6	0.27	50.9	2.8	5255705

POLYCHLORINATED BIPHENYLS BY GC-ECD (SEDIMENT)

Maxxam ID		BQ9606		
Sampling Date		2011/09/28 16:00		
	Units	**M1400ESE - COMPOSITE**	**RDL**	**QC Batch**
Polychlorinated Biphenyls				
Aroclor 1242	mg/kg	<0.030	0.030	5225048
Aroclor 1248	mg/kg	<0.030	0.030	5225048
Aroclor 1254	mg/kg	<0.030	0.030	5225048
Aroclor 1260	mg/kg	<0.030	0.030	5225048
Total PCB	mg/kg	<0.030	0.030	5225048
Surrogate Recovery (%)				
Hexabromobiphenyl (sur.)	%	77		5225048

N/A = Not Applicable
RDL = Reportable Detection Limit

Maxxam Job #: B192596
Report Date: 2012/02/29

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Sampler Initials: BL

PARTICLE SIZE DISTRIBUTION ANALYSIS (SEDIMENT)

Maxxam ID		BQ9605	BQ9606	BQ9607	BQ9608		
Sampling Date		2011/09/28 13:30	2011/09/28 16:00	2011/09/28 12:20	2011/09/28 11:30		
	Units	**M2300ESE - COMPOSITE**	**M1400ESE - COMPOSITE**	**M1600SE - COMPOSITE**	**M500SE - COMPOSITE**	**RDL**	**QC Batch**
Percent Passing							
<0.002mm Pipette	%	6.90	5.49	5.79	8.06	0.01	5345050
<0.053mm Pipette	%	21.11	17.66	17.18	27.71	0.01	5345050
<0.125mm, Sieve #120	%	42.45	41.97	43.42	64.27	0.01	5345050
<0.250mm, Sieve #60	%	52.73	48.85	57.85	71.72	0.01	5345050
<2.00mm, Sieve #10	%	58.18	51.45	61.14	74.33	0.01	5345050
Percent of Entire Sample							
<0.002mm	%	6.90	5.49	5.79	8.06	0.01	5345050
<0.053mm & >0.002mm	%	14.21	12.18	11.39	19.65	0.01	5345050
<2.00mm & >0.053mm	%	37.07	33.79	43.96	46.63	0.01	5345050
>2.00mm	%	41.82	48.55	38.86	25.67	0.01	5345050
% of the <2mm Fraction							
% Clay <0.002mm	%	11.86	10.66	9.47	10.85	0.01	5345050
% Sand <2.00mm & >0.053mm	%	63.72	65.67	71.91	62.72	0.01	5345050
% Silt <0.053mm & >0.002mm	%	24.42	23.67	18.62	26.43	0.01	5345050

PHYSICAL TESTING (SEDIMENT)

Maxxam ID		BQ9605		BQ9606		
Sampling Date		2011/09/28 13:30		2011/09/28 16:00		
	Units	**M2300ESE - COMPOSITE**	**QC Batch**	**M1400ESE - COMPOSITE**	**RDL**	**QC Batch**
Physical Properties						
Moisture	%	36	5232112	40	0.3	5232902

Maxxam ID		BQ9607		BQ9609	BQ9610	BQ9611		BQ9612		
Sampling Date		2011/09/28 12:20		2011/09/28 13:10	2011/09/28 14:30	2011/09/28 12:00		2011/09/28 11:15		
	Units	**M1600SE - COMPOSITE**	**QC Batch**	**M2300ESE - GRAB**	**M1400ESE - GRAB**	**M1600SE - GRAB**	**QC Batch**	**M500SE - GRAB**	**RDL**	**QC Batch**
Physical Properties										
Moisture	%	32	5232902	44	37	35	5225953	39	0.3	5261212

RDL = Reportable Detection Limit

Maxxam Job #: B192596
Report Date: 2012/02/29

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Sampler Initials: BL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ9605	BQ9606	BQ9607		
Sampling Date		2011/09/28 13:30	2011/09/28 16:00	2011/09/28 12:20		
	Units	**M2300ESE - COMPOSITE**	**M1400ESE - COMPOSITE**	**M1600SE - COMPOSITE**	**RDL**	**QC Batch**
Base Neutrals						
2,4-dinitrotoluene	mg/kg	<0.05	<0.05	<0.05	0.05	5253776
2,6-dinitrotoluene	mg/kg	<0.05	<0.05	<0.05	0.05	5253776
2-chloronaphthalene	mg/kg	<0.08	<0.08	<0.08	0.08	5253776
3,3'-Dichlorobenzidine	mg/kg	<0.5	<0.5	<0.5	0.5	5253776
4-bromophenyl phenyl ether	mg/kg	<0.06	<0.06	<0.06	0.06	5253776
4-chlorophenyl phenyl ether	mg/kg	<0.07	<0.07	<0.07	0.07	5253776
Bis(2-chloroethoxy)methane	mg/kg	<0.08	<0.08	<0.08	0.08	5253776
Bis(2-chloroethyl)ether	mg/kg	<0.06	<0.06	<0.06	0.06	5253776
Bis(2-chloroisopropyl)ether	mg/kg	<0.2	<0.2	<0.2	0.2	5253776
Carbazole	mg/kg	<0.1	<0.1	<0.1	0.1	5253776
Dibenzofuran	mg/kg	<0.1	<0.1	<0.1	0.1	5253776
Hexachlorobutadiene	mg/kg	<0.05	<0.05	<0.05	0.05	5253776
Hexachlorocyclopentadiene	mg/kg	<0.5 (1)	<0.5 (1)	<0.5 (1)	0.5	5253776
Hexachloroethane	mg/kg	<0.06	<0.06	<0.06	0.06	5253776
Isophorone	mg/kg	<0.06	<0.06	<0.06	0.06	5253776
Nitrobenzene	mg/kg	<0.07	<0.07	<0.07	0.07	5253776
N-nitroso-di-n-propylamine	mg/kg	<0.06	<0.06	<0.06	0.06	5253776
N-nitrosodiphenylamine	mg/kg	<0.08	<0.08	<0.08	0.08	5253776
Chlorobenzenes						
1,2,4-trichlorobenzene	mg/kg	<0.06	<0.06	<0.06	0.06	5253776
1,2-dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	0.1	5253776
1,3-dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	0.1	5253776
1,4-dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	0.1	5253776
Hexachlorobenzene	mg/kg	<0.06	<0.06	<0.06	0.06	5253776
Phenols						
4-chloro-3-methylphenol	mg/kg	<0.07	<0.07	<0.07	0.07	5253776
m,p-Cresol	mg/kg	0.28	0.06	0.06	0.05	5253776
Phthalate Esters						
Bis(2-ethylhexyl)phthalate	mg/kg	<2	<2	<2	2	5253776
Butyl benzyl phthalate	mg/kg	<0.1	<0.1	<0.1	0.1	5253776
Diethyl phthalate	mg/kg	<0.09	<0.09	<0.09	0.09	5253776
Dimethyl phthalate	mg/kg	<0.07	<0.07	<0.07	0.07	5253776
Di-n-butyl phthalate	mg/kg	<0.07	<0.07	<0.07	0.07	5253776
Di-n-octyl phthalate	mg/kg	<0.1	<0.1	<0.1	0.1	5253776

RDL = Reportable Detection Limit
(1) - RDL raised due to Continuing Calibration Verification below criteria - Pot. low bias

Maxxam Job #: B192596
Report Date: 2012/02/29

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Sampler Initials: BL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BQ9605	BQ9606	BQ9607		
Sampling Date		2011/09/28 13:30	2011/09/28 16:00	2011/09/28 12:20		
	Units	**M2300ESE - COMPOSITE**	**M1400ESE - COMPOSITE**	**M1600SE - COMPOSITE**	**RDL**	**QC Batch**
SEMI-VOLATILE ORGANICS						
Phenol	mg/kg	<0.050	0.072	0.053	0.050	5245678
2-chlorophenol	mg/kg	0.0064	<0.0050	<0.0050	0.0050	5245678
3 & 4-chlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2-methylphenol	mg/kg	<0.050	<0.050	<0.050	0.050	5245678
3 & 4-methylphenol	mg/kg	<0.050	<0.050	<0.050	0.050	5245678
2-nitrophenol	mg/kg	<0.050	<0.050	<0.050	0.050	5245678
2,4-dimethylphenol	mg/kg	<0.050	0.051	<0.050	0.050	5245678
2,4 + 2,5-Dichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,3-Dichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,6-dichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
3,5-Dichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
3,4-Dichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,4,5-trichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,4,6-trichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,3,5-trichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,3,6-Trichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,3,4-trichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
3,4,5-Trichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,4-dinitrophenol	mg/kg	<0.080	<0.080	<0.080	0.080	5245678
4,6-dinitro-2-methylphenol	mg/kg	<0.50(1)	<0.50(1)	<0.50(1)	0.50	5245678
2,3,4,6-tetrachlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,3,4,5-tetrachlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,3,5,6-tetrachlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
4-nitrophenol	mg/kg	<0.050	<0.050	<0.050	0.050	5245678
Pentachlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
Surrogate Recovery (%)						
2,4,6-TRIBROMOPHENOL (sur.)	%	83	85	87		5245678
2-FLUOROBIPHENYL (sur.)	%	77	75	74		5253776
TERPHENYL-D14 (sur.)	%	74	74	78		5253776
D5-PHENOL (sur.)	%	85	81	86		5245678
D5-NITROBENZENE (sur.)	%	78	76	74		5253776

RDL = Reportable Detection Limit
(1) - RDL raised due to Continuing Calibration Verification below criteria - Pot. low bias

Maxxam Job #: B192596
Report Date: 2012/02/29

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Sampler Initials: BL

ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)

Maxxam ID		BQ9609	BQ9610	BQ9611	BQ9612		
Sampling Date		2011/09/28 13:10	2011/09/28 14:30	2011/09/28 12:00	2011/09/28 11:15		
	Units	**M2300ESE - GRAB**	**M1400ESE - GRAB**	**M1600SE - GRAB**	**M500SE - GRAB**	**RDL**	**QC Batch**
SEM Metals by ICPMS							
SEM Cadmium (Cd)	umole/g	0.0081	0.0013	0.0065	0.0086	0.0002	5257476
SEM Copper (Cu)	umole/g	0.117	0.129	0.153	0.251	0.004	5257476
SEM Lead (Pb)	umole/g	0.146	0.0725	0.0931	0.0442	0.0002	5257476
SEM Mercury (Hg)	umole/g	<0.0003	<0.0003	<0.0003	<0.0003	0.0003	5257476
SEM Nickel (Ni)	umole/g	0.162	0.159	0.140	0.197	0.004	5257476
SEM Zinc (Zn)	umole/g	0.804	0.458	1.51	0.588	0.008	5257476

MICROBIOLOGY (SEDIMENT)

Maxxam ID		BQ9609	BQ9610	BQ9611	BQ9612		
Sampling Date		2011/09/28 13:10	2011/09/28 14:30	2011/09/28 12:00	2011/09/28 11:15		
	Units	**M2300ESE - GRAB**	**M1400ESE - GRAB**	**M1600SE - GRAB**	**M500SE - GRAB**	**RDL**	**QC Batch**
Microbiological Param.							
Fecal Coliforms	MPN/100g	790	330	700	1100	20	5227905

RDL = Reportable Detection Limit

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Maxxam Job #: B192596
Report Date: 2012/02/29

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Sampler Initials: BL

CSR/CCME METALS IN SOIL (SEDIMENT)

Maxxam ID		BQ9605	BQ9606	BQ9607	BQ9608		
Sampling Date		2011/09/28 13:30	2011/09/28 16:00	2011/09/28 12:20	2011/09/28 11:30		
	Units	**M2300ESE - COMPOSITE**	**M1400ESE - COMPOSITE**	**M1600SE - COMPOSITE**	**M500SE - COMPOSITE**	**RDL**	**QC Batch**
Physical Properties							
Soluble (2:1) pH	pH Units	8.20	8.14	8.27	8.24	0.01	5228287
Total Metals by ICPMS							
Total Aluminum (Al)	mg/kg	12700	12900	12800	13200	100	5228286
Total Antimony (Sb)	mg/kg	0.33	0.23	0.27	0.55	0.10	5228286
Total Arsenic (As)	mg/kg	5.93	3.87	5.58	6.29	0.50	5228286
Total Barium (Ba)	mg/kg	43.1	44.3	45.8	108	0.10	5228286
Total Beryllium (Be)	mg/kg	<0.40	0.43	<0.40	0.41	0.40	5228286
Total Bismuth (Bi)	mg/kg	0.16	<0.10	<0.10	<0.10	0.10	5228286
Total Cadmium (Cd)	mg/kg	2.97	0.994	1.07	4.47	0.050	5228286
Total Calcium (Ca)	mg/kg	20900	10900	15800	5500	100	5228286
Total Chromium (Cr)	mg/kg	24.7	23.6	24.0	30.5	1.0	5228286
Total Cobalt (Co)	mg/kg	6.65	6.41	6.87	7.25	0.30	5228286
Total Copper (Cu)	mg/kg	41.9	15.1	20.8	24.9	0.50	5228286
Total Iron (Fe)	mg/kg	26100	23400	26600	28800	100	5228286
Total Lead (Pb)	mg/kg	12.1	13.7	13.9	31.9	0.10	5228286
Total Lithium (Li)	mg/kg	19.0	19.7	19.8	20.4	5.0	5228286
Total Magnesium (Mg)	mg/kg	6900	6700	6710	6740	100	5228286
Total Manganese (Mn)	mg/kg	201	193	212	202	0.20	5228286
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	5228286
Total Molybdenum (Mo)	mg/kg	0.79	0.59	0.72	1.42	0.10	5228286
Total Nickel (Ni)	mg/kg	19.2	18.1	20.1	23.5	0.80	5228286
Total Phosphorus (P)	mg/kg	729	637	661	660	10	5228286
Total Potassium (K)	mg/kg	1970	1930	1890	1850	100	5228286
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	5228286
Total Silver (Ag)	mg/kg	0.106	0.055	0.062	0.072	0.050	5228286
Total Sodium (Na)	mg/kg	6780	6890	6330	5910	100	5228286
Total Strontium (Sr)	mg/kg	131	75.8	94.2	44.4	0.10	5228286
Total Thallium (Tl)	mg/kg	0.085	0.093	0.082	0.083	0.050	5228286
Total Tin (Sn)	mg/kg	30.3	9.80	10.6	45.1	0.10	5228286
Total Titanium (Ti)	mg/kg	607	679	688	686	1.0	5228286
Total Uranium (U)	mg/kg	0.701	0.669	0.659	0.947	0.050	5228286
Total Vanadium (V)	mg/kg	45.0	44.2	44.1	45.8	2.0	5228286
Total Zinc (Zn)	mg/kg	76.6	53.9	58.5	75.7	1.0	5228286
Total Zirconium (Zr)	mg/kg	1.88	2.65	3.00	4.10	0.50	5228286

RDL = Reportable Detection Limit

Maxxam Job #: B192596
Report Date: 2012/02/29

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Sampler Initials: BL

CSR PAH IN SOIL BY GC-MS (SEDIMENT)

Maxxam ID		BQ9605		BQ9606		BQ9607		
Sampling Date		2011/09/28 13:30		2011/09/28 16:00		2011/09/28 12:20		
	Units	**M2300ESE - COMPOSITE**	**QC Batch**	**M1400ESE - COMPOSITE**	**QC Batch**	**M1600SE - COMPOSITE**	**RDL**	**QC Batch**
Polycyclic Aromatics								
Naphthalene	mg/kg	<0.050	5231072	<0.050	5229129	0.079	0.050	5231072
2-Methylnaphthalene	mg/kg	<0.050	5231072	<0.050	5229129	<0.050	0.050	5231072
Acenaphthylene	mg/kg	0.075	5231072	<0.050	5229129	0.40	0.050	5231072
Acenaphthene	mg/kg	<0.050	5231072	<0.050	5229129	0.072	0.050	5231072
Fluorene	mg/kg	<0.050	5231072	<0.050	5229129	0.64	0.050	5231072
Phenanthrene	mg/kg	0.23	5231072	0.17	5229129	5.5	0.050	5231072
Anthracene	mg/kg	0.15	5231072	0.054	5229129	1.8	0.050	5231072
Fluoranthene	mg/kg	1.1	5231072	0.17	5229129	8.3	0.050	5231072
Pyrene	mg/kg	1.2	5231072	0.14	5229129	7.7	0.050	5231072
Benzo(a)anthracene	mg/kg	0.57	5231072	0.079	5229129	2.4	0.050	5231072
Chrysene	mg/kg	0.52	5231072	0.082	5229129	2.2	0.050	5231072
Benzo(b&j)fluoranthene	mg/kg	0.32	5231072	0.055	5229129	1.9	0.050	5231072
Benzo(k)fluoranthene	mg/kg	0.47	5231072	0.061	5229129	1.6	0.050	5231072
Benzo(a)pyrene	mg/kg	0.61	5231072	0.063	5229129	2.7	0.050	5231072
Indeno(1,2,3-cd)pyrene	mg/kg	0.25	5231072	<0.050	5229129	1.3	0.050	5231072
Dibenz(a,h)anthracene	mg/kg	0.083	5231072	<0.050	5229129	0.30	0.050	5231072
Benzo(g,h,i)perylene	mg/kg	0.20	5231072	<0.050	5229129	1.3	0.050	5231072
Low Molecular Weight PAH`s	mg/kg	0.45	5220220	0.23	5220220	8.5	0.050	5220220
High Molecular Weight PAH`s	mg/kg	4.1	5220220	0.53	5220220	23	0.050	5220220
Total PAH	mg/kg	4.5	5220220	0.76	5220220	32	0.050	5220220
Surrogate Recovery (%)								
D10-ANTHRACENE (sur.)	%	105	5231072	108	5229129	103		5231072
D8-ACENAPHTHYLENE (sur.)	%	111	5231072	106	5229129	107		5231072
D8-NAPHTHALENE (sur.)	%	103	5231072	110	5229129	100		5231072
TERPHENYL-D14 (sur.)	%	106	5231072	106	5229129	106		5231072

RDL = Reportable Detection Limit

Maxxam Job #: B192596
Report Date: 2012/02/29

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Sampler Initials: BL

CSR VOC + VPH IN SOIL (SEDIMENT)

Maxxam ID		BQ9609	BQ9610	BQ9611		
Sampling Date		2011/09/28 13:10	2011/09/28 14:30	2011/09/28 12:00		
	Units	**M2300ESE - GRAB**	**M1400ESE - GRAB**	**M1600SE - GRAB**	**RDL**	**QC Batch**
Volatiles						
VPH (VH6 to 10 - BTEX)	mg/kg	<10	<10	<10	10	5220996
Volatile Hydrocarbons						
CSR VH C6-C10	mg/kg	<10	<10	<10	10	5229113

RDL = Reportable Detection Limit

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Maxxam Job #: B192596
Report Date: 2012/02/29

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Sampler Initials: BL

CSR VOC + VPH IN SOIL (SEDIMENT)

Maxxam ID		BQ9609	BQ9610	BQ9611		
Sampling Date		2011/09/28 13:10	2011/09/28 14:30	2011/09/28 12:00		
	Units	**M2300ESE - GRAB**	**M1400ESE - GRAB**	**M1600SE - GRAB**	**RDL**	**QC Batch**
Volatiles						
Chloromethane	mg/kg	<0.10	<0.10	<0.10	0.10	5229112
Vinyl chloride	mg/kg	<0.060	<0.060	<0.060	0.060	5229112
Bromomethane	mg/kg	<0.30	<0.30	<0.30	0.30	5229112
Chloroethane	mg/kg	<0.10	<0.10	<0.10	0.10	5229112
Trichlorofluoromethane	mg/kg	<0.20	<0.20	<0.20	0.20	5229112
1,1-dichloroethene	mg/kg	<0.025	<0.025	<0.025	0.025	5229112
Dichloromethane	mg/kg	<0.10	<0.10	<0.10	0.10	5229112
trans-1,2-dichloroethene	mg/kg	<0.025	<0.025	<0.025	0.025	5229112
1,1-dichloroethane	mg/kg	<0.025	<0.025	<0.025	0.025	5229112
cis-1,2-dichloroethene	mg/kg	<0.025	<0.025	<0.025	0.025	5229112
Chloroform	mg/kg	<0.050	<0.050	<0.050	0.050	5229112
1,1,1-trichloroethane	mg/kg	<0.025	<0.025	<0.025	0.025	5229112
1,2-dichloroethane	mg/kg	<0.025	<0.025	<0.025	0.025	5229112
Carbon tetrachloride	mg/kg	<0.025	<0.025	<0.025	0.025	5229112
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5229112
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	<0.10	0.10	5229112
1,2-dichloropropane	mg/kg	<0.025	<0.025	<0.025	0.025	5229112
Trichloroethene	mg/kg	<0.0090	<0.0090	<0.0090	0.0090	5229112
Bromodichloromethane	mg/kg	<0.050	<0.050	<0.050	0.050	5229112
cis-1,3-dichloropropene	mg/kg	<0.050	<0.050	<0.050	0.050	5229112
trans-1,3-dichloropropene	mg/kg	<0.050	<0.050	<0.050	0.050	5229112
1,1,2-trichloroethane	mg/kg	<0.025	<0.025	<0.025	0.025	5229112
Toluene	mg/kg	<0.020	<0.020	<0.020	0.020	5229112
Chlorodibromomethane	mg/kg	<0.050	<0.050	<0.050	0.050	5229112
Tetrachloroethene	mg/kg	<0.025	<0.025	<0.025	0.025	5229112
Chlorobenzene	mg/kg	<0.025	<0.025	<0.025	0.025	5229112
1,1,1,2-tetrachloroethane	mg/kg	<0.025	<0.025	<0.025	0.025	5229112
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	0.010	5229112
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	0.040	5229112
Bromoform	mg/kg	<0.050	<0.050	<0.050	0.050	5229112
Styrene	mg/kg	<0.030	<0.030	<0.030	0.030	5229112
o-Xylene	mg/kg	<0.040	<0.040	<0.040	0.040	5229112
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	0.040	5229112
1,1,2,2-tetrachloroethane	mg/kg	<0.025	<0.025	<0.025	0.025	5229112

RDL = Reportable Detection Limit

Maxxam Job #: B192596
Report Date: 2012/02/29

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Sampler Initials: BL

CSR VOC + VPH IN SOIL (SEDIMENT)

Maxxam ID		BQ9609	BQ9610	BQ9611		
Sampling Date		2011/09/28 13:10	2011/09/28 14:30	2011/09/28 12:00		
	Units	**M2300ESE - GRAB**	**M1400ESE - GRAB**	**M1600SE - GRAB**	**RDL**	**QC Batch**
Surrogate Recovery (%)						
4-BROMOFLUOROBENZENE (sur.)	%	93	95	95		5229112
D10-ETHYLBENZENE (sur.)	%	95	96	95		5229112
D4-1,2-DICHLOROETHANE (sur.)	%	95	98	100		5229112
D8-TOLUENE (sur.)	%	98	98	99		5229112

RDL = Reportable Detection Limit

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Maxxam Job #: B192596
Report Date: 2012/02/29

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Sampler Initials: BL

Package 1	10.3°C
Package 2	10.0°C
Package 3	9.3°C
Package 4	6.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Sample BQ9605-01: Lots of shell debris in sample. KMP.

Sample BQ9606-01: Lots of shell debris in sample. KMP.

Sample BQ9607-01: Lots of shell debris in sample. KMP.

Sample BQ9608-01: Lots of shell debris in sample. KMP.

Sample BQ9609-01: ** SEM/AVS = 0.83 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ9610-01: ** SEM/AVS = 15.81 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ9611-01: ** SEM/AVS = 4.82 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BQ9612-01: ** SEM/AVS = 0.69 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

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WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Sampler Initials: BL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5225048	Hexabromobiphenyl (sur.)	2011/10/03	84	60 - 130	94	60 - 130	98	%				
5225048	Aroclor 1254	2011/10/03	90	70 - 110	98	70 - 110	<0.030	mg/kg	NC	50		
5225048	Aroclor 1242	2011/10/03					<0.030	mg/kg	NC	50		
5225048	Aroclor 1248	2011/10/03					<0.030	mg/kg	NC	50		
5225048	Aroclor 1260	2011/10/03					<0.030	mg/kg	NC	50		
5225048	Total PCB	2011/10/03					<0.030	mg/kg	NC	50		
5225953	Moisture	2011/10/01					<0.3	%	1.7	20		
5228286	Total Antimony (Sb)	2011/10/04	95	75 - 125	99	75 - 125	<0.10	mg/kg			101	70 - 130
5228286	Total Arsenic (As)	2011/10/04	100	75 - 125	99	75 - 125	<0.50	mg/kg	NC	30	97	70 - 130
5228286	Total Barium (Ba)	2011/10/04	NC	75 - 125	104	75 - 125	<0.10	mg/kg	1.6	35	110	70 - 130
5228286	Total Beryllium (Be)	2011/10/04	98	75 - 125	102	75 - 125	<0.40	mg/kg				
5228286	Total Cadmium (Cd)	2011/10/04	100	75 - 125	101	75 - 125	<0.050	mg/kg			103	70 - 130
5228286	Total Chromium (Cr)	2011/10/04	NC	75 - 125	99	75 - 125	<1.0	mg/kg	1.0	30	106	70 - 130
5228286	Total Cobalt (Co)	2011/10/04	95	75 - 125	100	75 - 125	<0.30	mg/kg			98	70 - 130
5228286	Total Copper (Cu)	2011/10/04	NC	75 - 125	101	75 - 125	<0.50	mg/kg	2.8	30	96	70 - 130
5228286	Total Lead (Pb)	2011/10/04	96	75 - 125	103	75 - 125	<0.10	mg/kg	1.9	35	101	70 - 130
5228286	Total Lithium (Li)	2011/10/04	97	75 - 125	99	75 - 125	<5.0	mg/kg				
5228286	Total Manganese (Mn)	2011/10/04	NC	75 - 125	101	75 - 125	<0.20	mg/kg			102	70 - 130
5228286	Total Mercury (Hg)	2011/10/04	94	75 - 125	103	75 - 125	<0.050	mg/kg				
5228286	Total Molybdenum (Mo)	2011/10/04	100	75 - 125	98	75 - 125	<0.10	mg/kg			103	70 - 130
5228286	Total Nickel (Ni)	2011/10/04	NC	75 - 125	100	75 - 125	<0.80	mg/kg			100	70 - 130
5228286	Total Selenium (Se)	2011/10/04	103	75 - 125	104	75 - 125	<0.50	mg/kg				
5228286	Total Silver (Ag)	2011/10/04	85	75 - 125	87	75 - 125	<0.050	mg/kg				
5228286	Total Strontium (Sr)	2011/10/04	NC	75 - 125	101	75 - 125	<0.10	mg/kg			99	70 - 130
5228286	Total Thallium (Tl)	2011/10/04	94	75 - 125	97	75 - 125	<0.050	mg/kg			88	70 - 130
5228286	Total Tin (Sn)	2011/10/04	92	75 - 125	88	75 - 125	<0.10	mg/kg				
5228286	Total Titanium (Ti)	2011/10/04	NC	75 - 125	97	75 - 125	<1.0	mg/kg			101	70 - 130
5228286	Total Uranium (U)	2011/10/04	98	75 - 125	100	75 - 125	<0.050	mg/kg			97	70 - 130
5228286	Total Vanadium (V)	2011/10/04	NC	75 - 125	99	75 - 125	<2.0	mg/kg			105	70 - 130
5228286	Total Zinc (Zn)	2011/10/04	NC	75 - 125	104	75 - 125	<1.0	mg/kg	1.3	30	94	70 - 130
5228286	Total Aluminum (Al)	2011/10/04					<100	mg/kg			104	70 - 130
5228286	Total Calcium (Ca)	2011/10/04					<100	mg/kg			92	70 - 130
5228286	Total Iron (Fe)	2011/10/04					<100	mg/kg			100	70 - 130
5228286	Total Magnesium (Mg)	2011/10/04					<100	mg/kg			98	70 - 130
5228286	Total Phosphorus (P)	2011/10/04					<10	mg/kg			93	70 - 130
5228286	Total Bismuth (Bi)	2011/10/04					<0.10	mg/kg				
5228286	Total Potassium (K)	2011/10/04					<100	mg/kg				
5228286	Total Sodium (Na)	2011/10/04					<100	mg/kg				
5228286	Total Zirconium (Zr)	2011/10/04					<0.50	mg/kg				
5228287	Soluble (2:1) pH	2011/10/04			102	96 - 104			0.1	20		

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Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Sampler Initials: BL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5229112	4-BROMOFLUOROBENZENE (sur.)	2011/10/02	104	70 - 130	98	70 - 130	94	%				
5229112	D10-ETHYLBENZENE (sur.)	2011/10/02	102	50 - 130	90	50 - 130	92	%				
5229112	D4-1,2-DICHLOROETHANE (sur.)	2011/10/02	99	70 - 130	99	70 - 130	95	%				
5229112	D8-TOLUENE (sur.)	2011/10/02	101	70 - 130	96	70 - 130	98	%				
5229112	Chloromethane	2011/10/03	108	40 - 150	92	40 - 150	<0.10	mg/kg	NC	40		
5229112	Vinyl chloride	2011/10/03	105	40 - 150	96	40 - 150	<0.060	mg/kg	NC	40		
5229112	Bromomethane	2011/10/03	86	40 - 150	91	40 - 150	<0.30	mg/kg	NC	40		
5229112	Chloroethane	2011/10/03	111	40 - 150	102	40 - 150	<0.10	mg/kg	NC	40		
5229112	Trichlorofluoromethane	2011/10/03	119	40 - 150	113	40 - 150	<0.20	mg/kg	NC	40		
5229112	1,1-dichloroethene	2011/10/03	100	60 - 140	92	60 - 140	<0.025	mg/kg	NC	40		
5229112	Dichloromethane	2011/10/03	93	60 - 140	91	60 - 140	<0.10	mg/kg	NC	40		
5229112	trans-1,2-dichloroethene	2011/10/03	89	60 - 140	84	60 - 140	<0.025	mg/kg	NC	40		
5229112	1,1-dichloroethane	2011/10/03	99	60 - 140	95	60 - 140	<0.025	mg/kg	NC	40		
5229112	cis-1,2-dichloroethene	2011/10/03	86	60 - 140	81	60 - 140	<0.025	mg/kg	NC	40		
5229112	Chloroform	2011/10/03	93	60 - 140	91	60 - 140	<0.050	mg/kg	NC	40		
5229112	1,1,1-trichloroethane	2011/10/03	91	60 - 140	90	60 - 140	<0.025	mg/kg	NC	40		
5229112	1,2-dichloroethane	2011/10/03	95	60 - 140	96	60 - 140	<0.025	mg/kg	NC	40		
5229112	Carbon tetrachloride	2011/10/03	93	60 - 140	91	60 - 140	<0.025	mg/kg	NC	40		
5229112	Benzene	2011/10/03	98	60 - 140	95	60 - 140	<0.0050	mg/kg	NC	40		
5229112	1,2-dichloropropane	2011/10/03	103	60 - 140	95	60 - 140	<0.025	mg/kg	NC	40		
5229112	Trichloroethene	2011/10/03	98	60 - 140	91	60 - 140	<0.0090	mg/kg	NC	40		
5229112	Bromodichloromethane	2011/10/03	92	60 - 140	91	60 - 140	<0.050	mg/kg	NC	40		
5229112	cis-1,3-dichloropropene	2011/10/03	88	60 - 140	92	60 - 140	<0.050	mg/kg	NC	40		
5229112	trans-1,3-dichloropropene	2011/10/03	93	60 - 140	108	60 - 140	<0.050	mg/kg	NC	40		
5229112	1,1,2-trichloroethane	2011/10/03	91	60 - 140	89	60 - 140	<0.025	mg/kg	NC	40		
5229112	Toluene	2011/10/03	98	60 - 140	90	60 - 140	<0.020	mg/kg	NC	40		
5229112	Chlorodibromomethane	2011/10/03	98	60 - 140	96	60 - 140	<0.050	mg/kg	NC	40		
5229112	Tetrachloroethene	2011/10/03	97	60 - 140	92	60 - 140	<0.025	mg/kg	NC	40		
5229112	Chlorobenzene	2011/10/03	96	60 - 140	93	60 - 140	<0.025	mg/kg	NC	40		
5229112	1,1,1,2-tetrachloroethane	2011/10/03	97	60 - 140	93	60 - 140	<0.025	mg/kg	NC	40		
5229112	Ethylbenzene	2011/10/03	106	60 - 140	100	60 - 140	<0.010	mg/kg	NC	40		
5229112	m & p-Xylene	2011/10/03	114	60 - 140	107	60 - 140	<0.040	mg/kg	NC	40		
5229112	Bromoform	2011/10/03	95	60 - 140	94	60 - 140	<0.050	mg/kg	NC	40		
5229112	Styrene	2011/10/03	111	60 - 140	106	60 - 140	<0.030	mg/kg	NC	40		
5229112	o-Xylene	2011/10/03	106	60 - 140	99	60 - 140	<0.040	mg/kg	NC	40		
5229112	1,1,2,2-tetrachloroethane	2011/10/03	98	60 - 140	101	60 - 140	<0.025	mg/kg	NC	40		
5229112	Methyl-tert-butylether(MTBE)	2011/10/03					<0.10	mg/kg	NC	40		
5229112	Xylenes (Total)	2011/10/03					<0.040	mg/kg	NC	40		
5229113	CSR VH C6-C10	2011/10/03					<10	mg/kg	NC	50	111	60 - 140
5229129	D10-ANTHRACENE (sur.)	2011/10/03	100	60 - 130	103	60 - 130	98	%				

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5229129	D8-ACENAPHTHYLENE (sur.)	2011/10/03	100	50 - 130	104	50 - 130	96	%				
5229129	D8-NAPHTHALENE (sur.)	2011/10/03	101	50 - 130	106	50 - 130	99	%				
5229129	TERPHENYL-D14 (sur.)	2011/10/03	97	60 - 130	100	60 - 130	95	%				
5229129	Naphthalene	2011/10/03	76	50 - 130	98	50 - 130	<0.050	mg/kg	NC	50		
5229129	2-Methylnaphthalene	2011/10/03	76	50 - 130	98	50 - 130	<0.050	mg/kg	NC	50		
5229129	Acenaphthylene	2011/10/03	76	50 - 130	97	50 - 130	<0.050	mg/kg	NC	50		
5229129	Acenaphthene	2011/10/03	79	50 - 130	101	50 - 130	<0.050	mg/kg	NC	50		
5229129	Fluorene	2011/10/03	79	50 - 130	99	50 - 130	<0.050	mg/kg	NC	50		
5229129	Phenanthrene	2011/10/03	78	60 - 130	96	60 - 130	<0.050	mg/kg	NC	50		
5229129	Anthracene	2011/10/03	80	60 - 130	98	60 - 130	<0.050	mg/kg	NC	50		
5229129	Fluoranthene	2011/10/03	79	60 - 130	95	60 - 130	<0.050	mg/kg	NC	50		
5229129	Pyrene	2011/10/03	83	60 - 130	99	60 - 130	<0.050	mg/kg	NC	50		
5229129	Benzo(a)anthracene	2011/10/03	73	60 - 130	88	60 - 130	<0.050	mg/kg	NC	50		
5229129	Chrysene	2011/10/03	82	60 - 130	102	60 - 130	<0.050	mg/kg	NC	50		
5229129	Benzo(b&j)fluoranthene	2011/10/03	71	60 - 130	99	60 - 130	<0.050	mg/kg	NC	50		
5229129	Benzo(k)fluoranthene	2011/10/03	81	60 - 130	90	60 - 130	<0.050	mg/kg	NC	50		
5229129	Benzo(a)pyrene	2011/10/03	78	60 - 130	97	60 - 130	<0.050	mg/kg	NC	50		
5229129	Indeno(1,2,3-cd)pyrene	2011/10/03	75	60 - 130	94	60 - 130	<0.050	mg/kg	NC	50		
5229129	Dibenz(a,h)anthracene	2011/10/03	77	60 - 130	98	60 - 130	<0.050	mg/kg	NC	50		
5229129	Benzo(g,h,i)perylene	2011/10/03	71	60 - 130	90	60 - 130	<0.050	mg/kg	NC	50		
5231072	D10-ANTHRACENE (sur.)	2011/10/03	100	60 - 130	93	60 - 130	94	%				
5231072	D8-ACENAPHTHYLENE (sur.)	2011/10/03	98	50 - 130	91	50 - 130	92	%				
5231072	D8-NAPHTHALENE (sur.)	2011/10/03	92	50 - 130	99	50 - 130	103	%				
5231072	TERPHENYL-D14 (sur.)	2011/10/03	104	60 - 130	104	60 - 130	105	%				
5231072	Naphthalene	2011/10/04	NC	50 - 130	89	50 - 130	<0.050	mg/kg	1.8	50		
5231072	2-Methylnaphthalene	2011/10/04	NC	50 - 130	92	50 - 130	<0.050	mg/kg	1	50		
5231072	Acenaphthylene	2011/10/04	68	50 - 130	83	50 - 130	<0.050	mg/kg	NC(1)	50		
5231072	Acenaphthene	2011/10/04	71	50 - 130	93	50 - 130	<0.050	mg/kg	3.0	50		
5231072	Fluorene	2011/10/04	71	50 - 130	91	50 - 130	<0.050	mg/kg	2.1	50		
5231072	Phenanthrene	2011/10/04	67	60 - 130	90	60 - 130	<0.050	mg/kg	3.6	50		
5231072	Anthracene	2011/10/04	72	60 - 130	92	60 - 130	<0.050	mg/kg	31.2	50		
5231072	Fluoranthene	2011/10/04	74	60 - 130	96	60 - 130	<0.050	mg/kg	1.2	50		
5231072	Pyrene	2011/10/04	79	60 - 130	100	60 - 130	<0.050	mg/kg	0.9	50		
5231072	Benzo(a)anthracene	2011/10/04	59(2)	60 - 130	83	60 - 130	<0.050	mg/kg	NC	50		
5231072	Chrysene	2011/10/04	61	60 - 130	100	60 - 130	<0.050	mg/kg	NC	50		
5231072	Benzo(b&j)fluoranthene	2011/10/04	69	60 - 130	92	60 - 130	<0.050	mg/kg	NC(1)	50		
5231072	Benzo(k)fluoranthene	2011/10/04	71	60 - 130	99	60 - 130	<0.050	mg/kg	NC(1)	50		
5231072	Benzo(a)pyrene	2011/10/04	81	60 - 130	96	60 - 130	<0.050	mg/kg	NC	50		
5231072	Indeno(1,2,3-cd)pyrene	2011/10/04	76	60 - 130	90	60 - 130	<0.050	mg/kg	NC	50		
5231072	Dibenz(a,h)anthracene	2011/10/04	78	60 - 130	95	60 - 130	<0.050	mg/kg	NC	50		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5231072	Benzo(g,h,i)perylene	2011/10/04	70	60 - 130	90	60 - 130	<0.050	mg/kg	NC	50		
5232112	Moisture	2011/10/05					<0.3	%	0.5	20		
5232902	Moisture	2011/10/05					<0.3	%	1.8	20		
5245678	2,4,6-TRIBROMOPHENOL (sur.)	2011/10/08	85	19 - 122	80	19 - 122	16 (2, 3)	%				
5245678	D5-PHENOL (sur.)	2011/10/08	82	24 - 113	82	24 - 113	21 (2, 3)	%				
5245678	Phenol	2011/10/08	82	12 - 110	85	12 - 110	<0.050	mg/kg	NC	50		
5245678	2-chlorophenol	2011/10/08	88	27 - 123	92	27 - 123	<0.0050	mg/kg	NC	50		
5245678	3 & 4-chlorophenol	2011/10/08	88	27 - 123	90	27 - 123	<0.0050	mg/kg	NC	50		
5245678	2-methylphenol	2011/10/08	86	25 - 120	81	25 - 120	<0.050	mg/kg	NC	50		
5245678	3 & 4-methylphenol	2011/10/08	86	25 - 120	86	25 - 120	<0.050	mg/kg	NC	50		
5245678	2-nitrophenol	2011/10/08	90	29 - 182	90	29 - 182	<0.050	mg/kg	NC	50		
5245678	2,4-dimethylphenol	2011/10/08	75	32 - 119	45	32 - 119	<0.050	mg/kg	NC	50		
5245678	2,4 + 2,5-Dichlorophenol	2011/10/08	92	39 - 135	94	39 - 135	<0.0050	mg/kg	NC	50		
5245678	2,3-Dichlorophenol	2011/10/08	87	39 - 135	91	39 - 135	<0.0050	mg/kg	NC	50		
5245678	2,6-dichlorophenol	2011/10/08	92	39 - 135	95	39 - 135	<0.0050	mg/kg	NC	50		
5245678	3,5-Dichlorophenol	2011/10/08	85	39 - 135	83	39 - 135	<0.0050	mg/kg	NC	50		
5245678	3,4-Dichlorophenol	2011/10/08	89	39 - 135	85	39 - 135	<0.0050	mg/kg	NC	50		
5245678	2,4,5-trichlorophenol	2011/10/08	97	37 - 144	94	37 - 144	<0.0050	mg/kg	NC	50		
5245678	2,4,6-trichlorophenol	2011/10/08	96	37 - 144	92	37 - 144	<0.0050	mg/kg	NC	50		
5245678	2,3,5-trichlorophenol	2011/10/08	95	37 - 144	90	37 - 144	<0.0050	mg/kg	NC	50		
5245678	2,3,6-Trichlorophenol	2011/10/08	91	37 - 144	92	37 - 144	<0.0050	mg/kg	NC	50		
5245678	2,3,4-trichlorophenol	2011/10/08	95	37 - 144	93	37 - 144	<0.0050	mg/kg	NC	50		
5245678	3,4,5-Trichlorophenol	2011/10/08	100	37 - 144	88	37 - 144	<0.0050	mg/kg	NC	50		
5245678	2,4-dinitrophenol	2011/10/08	95	1 - 191	45	1 - 191	<0.080	mg/kg	NC	50		
5245678	4,6-dinitro-2-methylphenol	2011/10/08	85	1 - 181	63	1 - 181	<0.080	mg/kg	NC (4)	50		
5245678	2,3,4,6-tetrachlorophenol	2011/10/08	87	14 - 176	91	14 - 176	<0.0050	mg/kg	NC	50		
5245678	2,3,4,5-tetrachlorophenol	2011/10/08	106	14 - 176	81	14 - 176	<0.0050	mg/kg	NC	50		
5245678	2,3,5,6-tetrachlorophenol	2011/10/08	93	14 - 176	74	14 - 176	<0.0050	mg/kg	NC	50		
5245678	4-nitrophenol	2011/10/08	95	1 - 132	79	1 - 132	<0.050	mg/kg	NC	50		
5245678	Pentachlorophenol	2011/10/08	115	14 - 176	62	14 - 176	<0.0050	mg/kg	NC	50		
5253776	2,4,6-TRIBROMOPHENOL (sur.)	2011/10/14	99	19 - 122	64	19 - 122	43	%				
5253776	2-FLUOROBIPHENYL (sur.)	2011/10/14	75	30 - 115	76	30 - 115	74	%				
5253776	TERPHENYL-D14 (sur.)	2011/10/14	80	18 - 137	74	18 - 137	76	%				
5253776	D5-PHENOL (sur.)	2011/10/14	79	24 - 113	74	24 - 113	65	%				
5253776	2,4-dinitrotoluene	2011/10/14	87	24 - 96	69	24 - 96	<0.05	mg/kg	NC	50		
5253776	D5-NITROBENZENE (sur.)	2011/10/14	77	23 - 120	74	23 - 120	73	%				
5253776	N-nitroso-di-n-propylamine	2011/10/14	78	40 - 140	77	40 - 140	<0.06	mg/kg	NC	50		
5253776	1,2,4-trichlorobenzene	2011/10/14	74	44 - 142	75	44 - 142	<0.06	mg/kg	NC	50		
5253776	1,4-dichlorobenzene	2011/10/14	59	20 - 124	61	20 - 124	<0.1	mg/kg	NC	50		
5253776	4-chloro-3-methylphenol	2011/10/14	82	22 - 147	70	22 - 147	<0.07	mg/kg	NC	50		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5253776	2,6-dinitrotoluene	2011/10/14					<0.05	mg/kg	NC	50		
5253776	2-chloronaphthalene	2011/10/14					<0.08	mg/kg	NC	50		
5253776	3,3'-Dichlorobenzidine	2011/10/14					<0.5	mg/kg	NC	50		
5253776	4-bromophenyl phenyl ether	2011/10/14					<0.06	mg/kg	NC	50		
5253776	4-chlorophenyl phenyl ether	2011/10/14					<0.07	mg/kg	NC	50		
5253776	Bis(2-chloroethoxy)methane	2011/10/14					<0.08	mg/kg	NC	50		
5253776	Bis(2-chloroethyl)ether	2011/10/14					<0.06	mg/kg	NC	50		
5253776	Bis(2-chloroisopropyl)ether	2011/10/14					<0.2	mg/kg	NC	50		
5253776	Carbazole	2011/10/14					<0.1	mg/kg	NC	50		
5253776	Dibenzofuran	2011/10/14					<0.1	mg/kg	NC	50		
5253776	Hexachlorobutadiene	2011/10/14					<0.05	mg/kg	NC	50		
5253776	Hexachlorocyclopentadiene	2011/10/14					<0.2	mg/kg	NC(4)	50		
5253776	Hexachloroethane	2011/10/14					<0.06	mg/kg	NC	50		
5253776	Isophorone	2011/10/14					<0.06	mg/kg	NC	50		
5253776	Nitrobenzene	2011/10/14					<0.07	mg/kg	NC	50		
5253776	N-nitrosodiphenylamine	2011/10/14					<0.08	mg/kg	NC	50		
5253776	1,2-dichlorobenzene	2011/10/14					<0.1	mg/kg	NC	50		
5253776	1,3-dichlorobenzene	2011/10/14					<0.1	mg/kg	NC	50		
5253776	Hexachlorobenzene	2011/10/14					<0.06	mg/kg	NC	50		
5253776	m,p-Cresol	2011/10/14					<0.05	mg/kg	NC	50		
5253776	Bis(2-ethylhexyl)phthalate	2011/10/14					<2	mg/kg	NC	50		
5253776	Butyl benzyl phthalate	2011/10/14					<0.1	mg/kg	NC	50		
5253776	Diethyl phthalate	2011/10/14					<0.09	mg/kg	NC	50		
5253776	Dimethyl phthalate	2011/10/14					<0.07	mg/kg	NC	50		
5253776	Di-n-butyl phthalate	2011/10/14					<0.07	mg/kg	NC	50		
5253776	Di-n-octyl phthalate	2011/10/14					<0.1	mg/kg	NC	50		
5255705	Sulphide	2011/10/12	NC	75 - 125	98	75 - 125	0.27, RDL=0.20	ug/g	13.2	30		
5257476	SEM Cadmium (Cd)	2011/10/12					<0.0002	umole/g	6.7	30		
5257476	SEM Copper (Cu)	2011/10/12					<0.004	umole/g	10.5	30		
5257476	SEM Lead (Pb)	2011/10/12					<0.0002	umole/g	52.8(2)	30		
5257476	SEM Mercury (Hg)	2011/10/12					<0.0003	umole/g	NC	30		
5257476	SEM Nickel (Ni)	2011/10/12					<0.004	umole/g	1.6	30		

Maxxam Analytics International Corporation o/a Maxxam Analytics 1104 - 4464 Markham Street, Victoria, BC V8Z 7X8 Tel: (250) 385-6112, Toll Free 1-866 385 6112, Fax: (250) 382-6364 www.maxxam.ca

Maxxam Job #: B192596
Report Date: 2012/02/29

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 907071-0002-NL04A.1-9141
Sampler Initials: BL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5257476	SEM Zinc (Zn)	2011/10/12					<0.008	umole/g	0.8	30		
5261212	Moisture	2011/10/13					<0.3	%	6.5	20		

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - RDL raised due to sample matrix interference.
(2) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
(3) - Surrogate recovery below control limit - Pot. low bias
(4) - RDL raised due to Continuing Calibration Verification below criteria - Pot. low bias

WorleyParsons
resources & energy

Maxxam
Suite 1104 South Wing, 4464 Markam Street
Victoria BC
Tel: (250) 385 6112, Fax: (250) 382 6364

WorleyParsons Canada Ltd.
Suite 100 - 3795 Carey Road
Victoria BC, V8Z 6T8
Tel: (250) 384 1499, Fax: (250) 384 1201

B192596

CHAIN-OF-CUSTODY RECORD AND ANALSIS REQUEST

08314944

Client: WorleyParsons Canada Ltd.
Project Manager: Jason Clarke
Address: #100 - 3795 Carey Rd
Victoria, BC V8Z 6T8
Tel #: 250-384-1499 Fax #:250-384-1201
Email: Jason.R.Clarke@worleyparsons.com
Project ID: 09185 - CRD - Sediment

ANALYSES REQUESTED

- [X] Invoice WorleyParsons
- [X] Report WorleyParsons
- [X] Digital WorleyParsons
- [X] PDF WorleyParsons
- [ ] Invoice Client care of WorleyParson

SAMPLE DESCRIPTION/ID	Maxxam ID	Date & Time Sampled (D/M/Y)	Particle Size	TOC, TC, TN	Total P, Metals	PAHs, Phthalates	Org. Chlorine Pesticides	Chorinated Phenolics	PBDEs	PCBs	Nonyphenol & ethoxolates	Pharm and Pers Care	Mar. Amphipod & Polychate	Mar Polychate Bioaccumulat	Comments	Sample Type	No. of Containers
M2300ESE - Composite		Marinesed Sept 28/11 13:30	X	X	X	X	X	X	X						BQ9605	Sediment	
M1400ESE - Composite		16:00	X	X	X	X	X	X	X	X	X	X	X	X	BQ9606	Sediment	
M1600SE - Composite		12:20	X	X	X	X	X	X	X						BQ9607	Sediment	
M500SE - Composite		11:30	X	X	X										BQ9608	Sediment	
															X	Sediment	
															N 29 Sept 2011	Sediment	
																Sediment	
																Sediment	
																Sediment	
																Sediment	
																Sediment	

PLEASE FILL IN ALL THE REQUIRED AREAS BELOW

TAT (Turnaround Time)
- [X] STD
- [ ] RUSH (2-DAY)
- [ ] RUSH (1-DAY)
- [ ] RUSH (Same Day)
- [ ] Hydrocarbon Screening

DATE Required:
TIME Required:

Regulatory Guideline
- [ ] CSR
- [ ] CCME
- [ ] Other (specify)
- [ ] Other (specify)
- [ ] Special Detection Limits / Contaminant Type:

Reporting Format
- [X] AutoFax
- [X] AutoEmail
- [X]

Mailing Address: If different than above
peter.howland@worleyparsons.com
brian.lynch@worleyparsons.com

LABORATORY USE ONLY
Received by: MICHELLE VAN SCHAYCK
Date: 2011/09/29 Time: 08:30
Comment(s):
Work Order Number: 13 6 12
Temperature: 10.10.0 / 9.10.9 / 6.6.6
Laboratory prepared Containers: [ ] Yes [ ] No
Custody Seal in Tact on Cooler: [ ] Yes [ ] No
Due Date:

Sampled by: Brian Lynch
Name (print):
Date: Sept 28/11

Relinquished by:
Name (print):
Date:

Date:
Time:

White: PSC Yellow: Mail Pink: Receiver Golden Rod: Customer Copy

WorleyParsons
resources & energy

Maxxam
Suite 1104 South Wing, 4464 Markam Street
Victoria BC
Tel: (250) 385 6112, Fax: (250) 382 6364

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

WorleyParsons Canada Ltd.
Suite 100 - 3795 Carey Road
Victoria BC, V8Z 6T8
Tel: (250) 384 1499, Fax: (250) 384 1201

B192596 COC#:

Client: WorleyParsons Canada Ltd.
Project Manager: Jason Clarke
Address: #100 - 3795 Carey Rd
Victoria, BC V8Z 6T8
Tel #: 250-384-1499 Fax #:250-384-1201
Email: Jason.R.Clarke@worleyparsons.com
Project ID: 09185

ANALYSES REQUESTED

- [x] Invoice WorleyParsons
- [x] Report WorleyParsons
- [x] Digital WorleyParsons
- [x] PDF WorleyParsons
- [ ] Invoice Client care of WorleyParson

SAMPLE DESCRIPTION/ID	Maxxam ID	Date & Time Sampled (D/M/Y)	Fecal Coliform	AVS and SEM	VOCs inc BTEX	Comments	Sample Type	No. of Containers
M2300ESE - Grab	marinesed	Sept 28/11 13:10	X	X	X	BQ9609	Sediment	
M1400ESE - Grab	↓	14:30	X	X	X	BQ9610	Sediment	
M1600SE - Grab		12:00	X	X	X	BQ9611	Sediment	
M500SE - Grab		11:15	X	X		BQ9612	Sediment	
							Sediment	
							Sediment	
							Sediment	
							Sediment	
							Sediment	
							Sediment	
							Sediment	

PLEASE FILL IN ALL THE REQUIRED AREAS BELOW

TAT (Turnaround Time)
- [x] STD
- [ ] RUSH (2-DAY)
- [ ] RUSH (1-DAY)
- [ ] RUSH (Same Day)
- [ ] Hydrocarbon Screening

DATE Required:
TIME Required:

Regulatory Guideline
- [ ] CSR
- [ ] CCME
- [ ] Other (specify)
- [ ] Other (specify)
- [ ] Special Detection Limits / Contaminant Type

Reporting Format
- [x] AutoFax
- [x] AutoEmail
- [x]

Mailing Address: If different than above
peter.howland@worleyparsons.com
brian.lynch@worleyparsons.com

Sampled by: Brian Lynch
Name (print):
Date: 9/28/11

Relinquished by:
Name (print):
Date:

LABORATORY USE ONLY
Received by: MICHELLE VON SCHILLING
Date: 2011/09/29 Time: 08:50
Comment(s):
Work Order Number:
Temperature:
Laboratory prepared Containers: [ ] Yes [ ] No
Custody Seal in Tact on Cooler: [ ] Yes [ ] No
Due Date:
Date:
Time:

White: PSC Yellow: Mail Pink: Receiver Golden Rod: Customer Copy

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37863	***Date:*** 01-Nov-2011
Analysis Type: Polybrominated Diphenylether	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520

Samples:

L16976-5	BQ9605-07R
L16976-6	BQ9606-07R
L16976-7	BQ9607-07R

Blank: WG37863-101

Reference or Spike: WG37863-102

Duplicate:

Comments:

1- Data are not blank corrected
2- A disturbance of the mass ion used to monitor instrument performance (lock-mass) was observed in client samples near the retention time corresponding to the labeled BDE-154 surrogate standard. Test dilutions to minimize this interference have proven that this disturbance does not affect target quantification and the affected targets have been flagged with a 'G'.

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
BQ9605-07R
Sample Collection:
28-Sep-2011

Form 1A

BROMINATED DIPHENYLETHER CONGENER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16976-5
Matrix:	SOLID	**Sample Size:**	10.3 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 16:18:58	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 10**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg/g (dry weight basis)	**% Moisture:**	42.0

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,4-DiBDE	7			6.19	0.171 (S)	0.53	0.926
2,4'-DiBDE	8	8 + 11	C	3.04	0.127 (S)	0.53	0.959
2,6-DiBDE	10		ND		0.205 (S)		
3,3'-DiBDE	11	8 + 11	C8				
3,4-DiBDE	12	12 + 13	C	0.220	0.106 (S)	0.57	0.978
3,4'-DiBDE	13	12 + 13	C12				
4,4'-DiBDE	15			1.71	0.097 (Q)	0.54	1.001
2,2',4-TriBDE	17	17 + 25	C	11.6	0.323 (S)	0.95	0.972
2,3',4-TriBDE	25	17 + 25	C17				
2,4,4'-TriBDE	28	28 + 33	C	5.44	0.272 (S)	1.06	1.000
2,4,6-TriBDE	30		ND		0.375 (S)		
2,4',6-TriBDE	32		ND		0.291 (S)		
2',3,4-TriBDE	33	28 + 33	C28				
3,3',4-TriBDE	35		ND		0.214 (S)		
3,4,4'-TriBDE	37			0.260	0.196 (S)	1.17	1.038
2,2',4,4'-TeBDE	47			80.5	0.097 (Q)	0.68	1.001
2,2',4,5'-TeBDE	49			9.68	0.097 (Q)	0.63	0.975
2,2',4,6'-TeBDE	51			1.31	0.097 (Q)	0.64	0.967
2,3',4,4'-TeBDE	66			3.45	0.097 (Q)	0.74	1.022
2,3',4',6-TeBDE	71			1.00	0.097 (Q)	0.75	0.981
2,4,4',6-TeBDE	75			0.217	0.097 (Q)	0.71	0.961
3,3',4,4'-TeBDE	77		ND		0.097 (Q)		
3,3',4,5'-TeBDE	79		NDR	0.390	0.097 (Q)	0.43	1.014
2,2',3,4,4'-PeBDE	85			1.78	0.300 (S)	1.14	0.992
2,2',4,4',5-PeBDE	99			53.9	0.201 (S)	1.00	1.000
2,2',4,4',6-PeBDE	100			17.0	0.143 (S)	1.00	1.001
2,3,3',4,4'-PeBDE	105		ND		0.387 (S)		

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,3,4,5,6-PeBDE	116		ND		0.554 (S)		
2,3',4,4',6-PeBDE	119	119 + 120	C	0.476	0.335 (S)	1.15	1.011
2,3',4,5,5'-PeBDE	120	119 + 120	C119				
3,3',4,4',5-PeBDE	126		ND		0.178 (S)		
2,2',3,3',4,4'-HxBDE	128		ND		1.91 (S)		
2,2',3,4,4',5'-HxBDE	138	138 + 166	C	0.486	0.330 (S)	0.74	1.045
2,2',3,4,4',6'-HxBDE	140			0.331	0.201 (S)	0.67	1.022
2,2',4,4',5,5'-HxBDE	153			6.43	0.166 (S)	0.76	1.000
2,2',4,4',5,6'-HxBDE	154		G	6.17	0.167 (S)	0.78	1.000
2,2',4,4',6,6'-HxBDE	155			1.23	0.150 (S)	0.87	0.981
2,3,4,4',5,6-HxBDE	166	138 + 166	C138				
2,2',3,4,4',5,6-HpBDE	181		ND		0.489 (S)		
2,2',3,4,4',5',6-HpBDE	183			2.65	0.241 (S)	1.16	1.000
2,3,3',4,4',5,6-HpBDE	190		ND		0.858 (S)		
2,2',3,4,4',5,5',6-OcBDE	203			7.11	2.32 (S)	0.89	1.012
2,2',3,3',4,4',5,5',6-NoBDE	206			40.9	1.23 (S)	1.18	1.115
2,2',3,3',4,4',5,6,6'-NoBDE	207			57.3	1.01 (S)	0.97	1.099
2,2',3,3',4,5,5',6,6'-NoBDE	208		NDR	45.3	1.20 (S)	1.36	1.091
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			584	12.7 (S)	0.83	1.000

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; G = lock mass interference present; C = co-eluting congener.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16141A.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_L16976-5_Form1A_BE11_332S10_SJ1376726.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
BQ9605-07R
Sample Collection:
28-Sep-2011

Form 2

BROMINATED DIPHENYLETHER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16976-5
Matrix:	SOLID	**Sample Size:**	10.3 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 16:18:58	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 10**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg absolute	**% Moisture:**	42.0

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Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	SPIKE CONC.	CONC. FOUND	R(%) [3]	ION ABUND. RATIO	RRT
13C12-4,4'-DiBDE	15L			2000	1730	86.7	0.52	0.665
13C12-2,4,4'-TriBDE	28L			2000	1080	53.9	1.03	0.831
13C12-2,2',4,4'-TeBDE	47L			2000	1590	79.4	1.57	0.987
13C12-3,3',4,4'-TeBDE	77L			2000	1890	94.4	1.55	1.042
13C12-2,2',4,4',5-PeBDE	99L			1980	1370	69.0	1.03	1.133
13C12-2,2',4,4',6-PeBDE	100L			2000	1210	60.6	1.04	1.100
13C12-3,3',4,4',5-PeBDE	126L			2000	1920	96.0	1.03	1.199
13C12-2,2',4,4',5,5'-HxBDE	153L			2000	1830	91.6	1.34	0.880
13C12-2,2',4,4',5,6'-HxBDE	154L		G	2000	1200	60.0	1.38	0.850
13C12-2,2',3,4,4',5',6-HpBDE	183L			2000	1590	79.3	1.05	0.966
13C12-2,2',3,3',4,4',6,6'-OcBDE	197L			2000	1590	79.6	0.83	1.063
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			20000	12100	60.5	1.26	1.080
CLEANUP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			2000	1790	89.5	1.42	1.013

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report; G = lock mass interference present.
(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16682.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_L16976-5_Form2_BE11_332S10_SJ1376726.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
BQ9606-07R
Sample Collection:
28-Sep-2011

Form 1A

BROMINATED DIPHENYLETHER CONGENER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16976-6
Matrix:	SOLID	**Sample Size:**	10.5 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 17:17:04	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 11**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg/g (dry weight basis)	**% Moisture:**	38.8

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,4-DiBDE	7			5.11	0.219 (S)	0.51	0.925
2,4'-DiBDE	8	8 + 11	C	2.92	0.163 (S)	0.50	0.958
2,6-DiBDE	10		ND		0.262 (S)		
3,3'-DiBDE	11	8 + 11	C8				
3,4-DiBDE	12	12 + 13	C	0.228	0.136 (S)	0.53	0.979
3,4'-DiBDE	13	12 + 13	C12				
4,4'-DiBDE	15			1.69	0.118 (S)	0.50	1.001
2,2',4-TriBDE	17	17 + 25	C	12.6	0.295 (S)	0.97	0.972
2,3',4-TriBDE	25	17 + 25	C17				
2,4,4'-TriBDE	28	28 + 33	C	5.45	0.250 (S)	0.98	1.000
2,4,6-TriBDE	30		ND		0.343 (S)		
2,4',6-TriBDE	32		ND		0.266 (S)		
2',3,4-TriBDE	33	28 + 33	C28				
3,3',4-TriBDE	35		ND		0.196 (S)		
3,4,4'-TriBDE	37			0.235	0.180 (S)	1.12	1.038
2,2',4,4'-TeBDE	47			91.1	0.096 (Q)	0.70	1.001
2,2',4,5'-TeBDE	49			10.6	0.096 (Q)	0.69	0.975
2,2',4,6'-TeBDE	51			1.52	0.096 (Q)	0.79	0.967
2,3',4,4'-TeBDE	66			3.14	0.096 (Q)	0.72	1.021
2,3',4',6-TeBDE	71			0.860	0.096 (Q)	0.66	0.980
2,4,4',6-TeBDE	75		NDR	0.182	0.096 (Q)	0.47	0.962
3,3',4,4'-TeBDE	77		ND		0.096 (Q)		
3,3',4,5'-TeBDE	79		NDR	0.512	0.096 (Q)	0.97	1.012
2,2',3,4,4'-PeBDE	85			2.77	0.306 (S)	0.98	0.992
2,2',4,4',5-PeBDE	99			65.1	0.205 (S)	1.02	1.001
2,2',4,4',6-PeBDE	100			18.3	0.143 (S)	1.01	1.001
2,3,3',4,4'-PeBDE	105		ND		0.394 (S)		

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,3,4,5,6-PeBDE	116		ND		0.563 (S)		
2,3',4,4',6-PeBDE	119	119 + 120	C NDR	0.604	0.341 (S)	1.71	1.011
2,3',4,5,5'-PeBDE	120	119 + 120	C119				
3,3',4,4',5-PeBDE	126		ND		0.183 (S)		
2,2',3,3',4,4'-HxBDE	128		ND		1.46 (S)		
2,2',3,4,4',5'-HxBDE	138	138 + 166	C	0.789	0.342 (S)	0.75	1.045
2,2',3,4,4',6'-HxBDE	140			0.309	0.209 (S)	0.74	1.021
2,2',4,4',5,5'-HxBDE	153			6.75	0.171 (S)	0.74	1.000
2,2',4,4',5,6'-HxBDE	154		G	6.76	0.175 (S)	0.79	1.001
2,2',4,4',6,6'-HxBDE	155			1.20	0.155 (S)	0.81	0.981
2,3,4,4',5,6-HxBDE	166	138 + 166	C138				
2,2',3,4,4',5,6-HpBDE	181		ND		0.334 (S)		
2,2',3,4,4',5',6-HpBDE	183		NDR	2.73	0.165 (S)	0.71	1.000
2,3,3',4,4',5,6-HpBDE	190		ND		0.586 (S)		
2,2',3,4,4',5,5',6-OcBDE	203			5.80	2.13 (S)	0.75	1.011
2,2',3,3',4,4',5,5',6-NoBDE	206		NDR	29.2	1.69 (S)	1.30	1.115
2,2',3,3',4,4',5,6,6'-NoBDE	207			51.6	1.38 (S)	0.99	1.099
2,2',3,3',4,5,5',6,6'-NoBDE	208			37.8	1.64 (S)	1.06	1.091
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			578	14.1 (S)	0.85	1.000

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; G = lock mass interference present; C = co-eluting congener.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

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Report Filename: 1614_PBDPE_1614LS_L16976-6_Form1A_BE11_332S11_SJ1376728.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
BQ9606-07R
Sample Collection:
28-Sep-2011

Form 2

BROMINATED DIPHENYLETHER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16976-6
Matrix:	SOLID	**Sample Size:**	10.5 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 17:17:04	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 11**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg absolute	**% Moisture:**	38.8

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Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	SPIKE CONC.	CONC. FOUND	R(%) [3]	ION ABUND. RATIO	RRT
13C12-4,4'-DiBDE	15L			2000	1590	79.6	0.53	0.665
13C12-2,4,4'-TriBDE	28L			2000	1010	50.4	1.03	0.832
13C12-2,2',4,4'-TeBDE	47L			2000	1540	77.2	1.53	0.988
13C12-3,3',4,4'-TeBDE	77L			2000	1880	94.1	1.55	1.042
13C12-2,2',4,4',5-PeBDE	99L			1980	1380	69.9	1.04	1.133
13C12-2,2',4,4',6-PeBDE	100L			2000	1240	62.1	1.02	1.100
13C12-3,3',4,4',5-PeBDE	126L			2000	2060	103	1.04	1.199
13C12-2,2',4,4',5,5'-HxBDE	153L			2000	1740	86.9	1.36	0.880
13C12-2,2',4,4',5,6'-HxBDE	154L		G	2000	1070	53.6	1.39	0.850
13C12-2,2',3,4,4',5',6-HpBDE	183L			2000	1510	75.6	1.02	0.966
13C12-2,2',3,3',4,4',6,6'-OcBDE	197L			2000	1400	69.9	0.83	1.063
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			20000	11600	58.1	1.23	1.080
CLEANUP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			2000	1830	91.3	1.39	1.013

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report; G = lock mass interference present.
(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

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Report Filename: 1614_PBDPE_1614LS_L16976-6_Form2_BE11_332S11_SJ1376728.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
BQ9607-07R
Sample Collection:
28-Sep-2011

Form 1A

BROMINATED DIPHENYLETHER CONGENER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16976-7
Matrix:	SOLID	**Sample Size:**	10.6 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 18:15:17	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 12**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg/g (dry weight basis)	**% Moisture:**	35.6

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Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,4-DiBDE	7			5.18	0.102 (S)	0.49	0.926
2,4'-DiBDE	8	8 + 11	C	3.46	0.095 (Q)	0.53	0.959
2,6-DiBDE	10		NDR	0.127	0.122 (S)	0.94	0.863
3,3'-DiBDE	11	8 + 11	C8				
3,4-DiBDE	12	12 + 13	C	0.262	0.095 (Q)	0.47	0.978
3,4'-DiBDE	13	12 + 13	C12				
4,4'-DiBDE	15			1.97	0.095 (Q)	0.52	1.001
2,2',4-TriBDE	17	17 + 25	C	11.9	0.181 (S)	1.03	0.972
2,3',4-TriBDE	25	17 + 25	C17				
2,4,4'-TriBDE	28	28 + 33	C	5.44	0.153 (S)	1.04	1.000
2,4,6-TriBDE	30		ND		0.210 (S)		
2,4',6-TriBDE	32		ND		0.163 (S)		
2',3,4-TriBDE	33	28 + 33	C28				
3,3',4-TriBDE	35		ND		0.120 (S)		
3,4,4'-TriBDE	37			0.235	0.110 (S)	1.13	1.038
2,2',4,4'-TeBDE	47			80.3	0.095 (Q)	0.68	1.001
2,2',4,5'-TeBDE	49			9.50	0.095 (Q)	0.68	0.975
2,2',4,6'-TeBDE	51			1.26	0.095 (Q)	0.73	0.967
2,3',4,4'-TeBDE	66		NDR	2.31	0.095 (Q)	0.86	1.022
2,3',4',6-TeBDE	71			0.923	0.095 (Q)	0.73	0.980
2,4,4',6-TeBDE	75		NDR	0.209	0.095 (Q)	1.00	0.962
3,3',4,4'-TeBDE	77		ND		0.095 (Q)		
3,3',4,5'-TeBDE	79		ND		0.095 (Q)		
2,2',3,4,4'-PeBDE	85			1.77	0.135 (S)	1.08	0.992
2,2',4,4',5-PeBDE	99			52.4	0.095 (Q)	1.02	1.000
2,2',4,4',6-PeBDE	100			16.5	0.095 (Q)	1.05	1.001
2,3,3',4,4'-PeBDE	105		ND		0.173 (S)		

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,3,4,5,6-PeBDE	116		NDR	0.357	0.248 (S)	1.65	1.010
2,3',4,4',6-PeBDE	119	119 + 120	C	0.438	0.150 (S)	1.07	1.011
2,3',4,5,5'-PeBDE	120	119 + 120	C119				
3,3',4,4',5-PeBDE	126		ND		0.095 (Q)		
2,2',3,3',4,4'-HxBDE	128		ND		1.18 (S)		
2,2',3,4,4',5'-HxBDE	138	138 + 166	C NDR	0.701	0.284 (S)	0.56	1.045
2,2',3,4,4',6'-HxBDE	140		NDR	0.288	0.174 (S)	1.56	1.022
2,2',4,4',5,5'-HxBDE	153			6.13	0.149 (S)	0.75	1.000
2,2',4,4',5,6'-HxBDE	154		G	6.70	0.138 (S)	0.74	1.001
2,2',4,4',6,6'-HxBDE	155			1.13	0.129 (S)	0.84	0.981
2,3,4,4',5,6-HxBDE	166	138 + 166	C138				
2,2',3,4,4',5,6-HpBDE	181		ND		0.267 (S)		
2,2',3,4,4',5',6-HpBDE	183			2.36	0.131 (S)	1.18	1.000
2,3,3',4,4',5,6-HpBDE	190		NDR	0.691	0.468 (S)	0.76	1.053
2,2',3,4,4',5,5',6-OcBDE	203			5.91	1.84 (S)	0.86	1.011
2,2',3,3',4,4',5,5',6-NoBDE	206			33.2	1.54 (S)	1.09	1.115
2,2',3,3',4,4',5,6,6'-NoBDE	207			54.1	1.26 (S)	1.13	1.099
2,2',3,3',4,5,5',6,6'-NoBDE	208			35.9	1.50 (S)	1.00	1.091
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			533	12.8 (S)	0.82	1.000

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; G = lock mass interference present; C = co-eluting congener.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

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Signed: _____Kirsten Anderson_____

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Report Filename: 1614_PBDPE_1614LS_L16976-7_Form1A_BE11_332S12_SJ1376730.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
BQ9607-07R
Sample Collection:
28-Sep-2011

Form 2

BROMINATED DIPHENYLETHER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16976-7
Matrix:	SOLID	**Sample Size:**	10.6 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 18:15:17	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 12**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg absolute	**% Moisture:**	35.6

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LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	SPIKE CONC.	CONC. FOUND	R(%) [3]	ION ABUND. RATIO	RRT
13C12-4,4'-DiBDE	15L			2000	1710	85.4	0.52	0.665
13C12-2,4,4'-TriBDE	28L			2000	1070	53.5	1.04	0.831
13C12-2,2',4,4'-TeBDE	47L			2000	1650	82.7	1.58	0.987
13C12-3,3',4,4'-TeBDE	77L			2000	2140	107	1.54	1.042
13C12-2,2',4,4',5-PeBDE	99L			1980	1330	67.4	1.02	1.133
13C12-2,2',4,4',6-PeBDE	100L			2000	1280	64.2	1.02	1.100
13C12-3,3',4,4',5-PeBDE	126L			2000	2050	102	1.05	1.199
13C12-2,2',4,4',5,5'-HxBDE	153L			2000	1860	92.8	1.39	0.880
13C12-2,2',4,4',5,6'-HxBDE	154L		G	2000	1260	62.8	1.41	0.851
13C12-2,2',3,4,4',5',6-HpBDE	183L			2000	1650	82.5	1.03	0.966
13C12-2,2',3,3',4,4',6,6'-OcBDE	197L			2000	1490	74.3	0.81	1.063
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			20000	10500	52.3	1.20	1.080
CLEANUP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			2000	1900	95.0	1.35	1.013

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report; G = lock mass interference present.
(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

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Report Filename: 1614_PBDPE_1614LS_L16976-7_Form2_BE11_332S12_SJ1376730.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 1A

BROMINATED DIPHENYLETHER CONGENER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37863-101
Matrix:	SOLID	**Sample Size:**	10.0 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 11:28:10	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 5**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1

Concentration Units: pg/g

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,4-DiBDE	7		ND		0.225 (S)		
2,4'-DiBDE	8	8 + 11	C ND		0.167 (S)		
2,6-DiBDE	10		ND		0.269 (S)		
3,3'-DiBDE	11	8 + 11	C8				
3,4-DiBDE	12	12 + 13	C ND		0.139 (S)		
3,4'-DiBDE	13	12 + 13	C12				
4,4'-DiBDE	15		ND		0.121 (S)		
2,2',4-TriBDE	17	17 + 25	C ND		0.207 (S)		
2,3',4-TriBDE	25	17 + 25	C17				
2,4,4'-TriBDE	28	28 + 33	C ND		0.175 (S)		
2,4,6-TriBDE	30		ND		0.241 (S)		
2,4',6-TriBDE	32		ND		0.187 (S)		
2',3,4-TriBDE	33	28 + 33	C28				
3,3',4-TriBDE	35		ND		0.137 (S)		
3,4,4'-TriBDE	37		ND		0.126 (S)		
2,2',4,4'-TeBDE	47			2.77	0.100 (Q)	0.72	1.001
2,2',4,5'-TeBDE	49			0.206	0.100 (Q)	0.80	0.975
2,2',4,6'-TeBDE	51		ND		0.100 (Q)		
2,3',4,4'-TeBDE	66		NDR	0.156	0.100 (Q)	0.93	1.022
2,3',4',6-TeBDE	71		ND		0.100 (Q)		
2,4,4',6-TeBDE	75		ND		0.100 (Q)		
3,3',4,4'-TeBDE	77		ND		0.100 (Q)		
3,3',4,5'-TeBDE	79		ND		0.100 (Q)		
2,2',3,4,4'-PeBDE	85		ND		0.172 (S)		
2,2',4,4',5-PeBDE	99		NDR	2.29	0.117 (S)	1.23	1.001
2,2',4,4',6-PeBDE	100			0.432	0.100 (Q)	1.05	1.001
2,3,3',4,4'-PeBDE	105		ND		0.222 (S)		

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,3,4,5,6-PeBDE	116		ND		0.318 (S)		
2,3',4,4',6-PeBDE	119	119 + 120	C ND		0.192 (S)		
2,3',4,5,5'-PeBDE	120	119 + 120	C119				
3,3',4,4',5-PeBDE	126		ND		0.111 (S)		
2,2',3,3',4,4'-HxBDE	128		ND		0.317 (S)		
2,2',3,4,4',5'-HxBDE	138	138 + 166	C ND		0.264 (S)		
2,2',3,4,4',6'-HxBDE	140		ND		0.161 (S)		
2,2',4,4',5,5'-HxBDE	153			0.276	0.181 (S)	0.67	1.000
2,2',4,4',5,6'-HxBDE	154			0.213	0.100 (S)	0.78	1.001
2,2',4,4',6,6'-HxBDE	155		ND		0.120 (S)		
2,3,4,4',5,6-HxBDE	166	138 + 166	C138				
2,2',3,4,4',5,6-HpBDE	181		ND		0.100 (Q)		
2,2',3,4,4',5',6-HpBDE	183			0.261	0.100 (Q)	1.09	1.000
2,3,3',4,4',5,6-HpBDE	190		ND		0.100 (Q)		
2,2',3,4,4',5,5',6-OcBDE	203		NDR	0.387	0.100 (Q)	0.48	1.011
2,2',3,3',4,4',5,5',6-NoBDE	206		ND		1.32 (S)		
2,2',3,3',4,4',5,6,6'-NoBDE	207		NDR	1.92	1.08 (S)	1.94	1.099
2,2',3,3',4,5,5',6,6'-NoBDE	208		ND		1.29 (S)		
2,2',3,3',4,4',5,5',6,6'-DeBDE	209		ND		23.0 (S)		

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; C = co-eluting congener.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16141A.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_WG37863-101_Form1A_BE11_332S5_SJ1376715.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 2

BROMINATED DIPHENYLETHER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37863-101
Matrix:	SOLID	**Sample Size:**	10.0 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 11:28:10	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 5**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	SPIKE CONC.	CONC. FOUND	R(%) [3]	ION ABUND. RATIO	RRT
13C12-4,4'-DiBDE	15L			2000	1410	70.6	0.52	0.665
13C12-2,4,4'-TriBDE	28L			2000	977	48.8	1.05	0.832
13C12-2,2',4,4'-TeBDE	47L			2000	1430	71.6	1.53	0.987
13C12-3,3',4,4'-TeBDE	77L			2000	1650	82.5	1.56	1.042
13C12-2,2',4,4',5-PeBDE	99L			1980	1190	59.9	1.05	1.132
13C12-2,2',4,4',6-PeBDE	100L			2000	1120	56.0	1.04	1.100
13C12-3,3',4,4',5-PeBDE	126L			2000	1670	83.4	1.08	1.198
13C12-2,2',4,4',5,5'-HxBDE	153L			2000	1440	72.2	1.39	0.881
13C12-2,2',4,4',5,6'-HxBDE	154L			2000	1420	70.9	1.41	0.851
13C12-2,2',3,4,4',5',6-HpBDE	183L			2000	1390	69.3	1.06	0.966
13C12-2,2',3,3',4,4',6,6'-OcBDE	197L			2000	1310	65.4	0.81	1.063
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			20000	6980	34.9	1.24	1.080
CLEANUP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			2000	1590	79.5	1.43	1.013

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report.
(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16682.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_WG37863-101_Form2_BE11_332S5_SJ1376715.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 8A

BROMINATED DIPHENYLETHER ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37863-102
Matrix:	SOLID	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 08:33:51	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**OPR Data Filename:**	**BE11_332 S: 2**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1

CONCENTRATIONS REPORTED ARE CONCENTRATIONS IN EXTRACT, BASED ON A 20 uL EXTRACT VOLUME.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	ION ABUND. RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS [2] (ng/mL)	% RECOVERY
2,4,4'-TriBDE	28	28 + 33	C	1.04	97.4	91.4	48.7 - 146	93.8
2',3,4-TriBDE	33	28 + 33	C28					
2,2',4,4'-TeBDE	47			0.70	50.0	48.5	25.0 - 75.0	96.9
2,2',4,4',5-PeBDE	99			1.05	50.0	46.9	25.0 - 75.0	93.8
2,2',4,4',6-PeBDE	100			1.05	50.0	46.6	25.0 - 75.0	93.3
2,2',4,4',5,5'-HxBDE	153			0.78	50.0	44.8	25.0 - 75.0	89.5
2,2',4,4',5,6'-HxBDE	154			0.78	50.0	44.2	25.0 - 75.0	88.4
2,2',3,4,4',5',6-HpBDE	183			1.00	50.0	48.8	25.0 - 75.0	97.5
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			0.83	500	422	200 - 1000	84.3

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(2) Contract-required limits for OPR as specified in Table 6, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: Form16688A.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_WG37863-102_Form8A_SJ1376736.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 8B

BROMINATED DIPHENYLETHER ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37863-102
Matrix:	SOLID	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 08:33:51	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**OPR Data Filename:**	**BE11_332 S: 2**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1

CONCENTRATIONS REPORTED ARE CONCENTRATIONS IN EXTRACT, BASED ON A 20 uL EXTRACT VOLUME.

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	ION ABUND. RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS [3] (ng/mL)	% RECOVERY
13C12-2,4,4'-TriBDE	28L			1.02	100	54.7	30.0 - 140	54.7
13C12-2,2',4,4'-TeBDE	47L			1.56	100	85.2	30.0 - 140	85.2
13C12-2,2',4,4',5-PeBDE	99L			1.03	99.0	74.7	29.7 - 139	75.5
13C12-2,2',4,4',6-PeBDE	100L			1.05	100	66.1	30.0 - 140	66.1
13C12-2,2',4,4',5,5'-HxBDE	153L			1.41	100	84.5	30.0 - 140	84.5
13C12-2,2',4,4',5,6'-HxBDE	154L			1.38	100	77.5	30.0 - 140	77.5
13C12-2,2',3,4,4',5',6-HpBDE	183L			1.05	100	81.9	30.0 - 140	81.9
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			1.24	1000	519	200 - 2000	51.9
CLEANUP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			1.39	100	88.2	40.0 - 125	88.2

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report.
(3) Contract-required limits for OPR as specified in Table 6, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: 1614_PBDPE_1614LS_WG37863-102_Form8B_SJ1376736.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 3A

BROMINATED DIPHENYLETHER INITIAL CALIBRATION RELATIVE RESPONSES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 21-Jul-2011

Instrument ID: HR GC/MS

GC Column ID: DB5HT

CS0 Data Filename: N/A

CS1 Data Filename: BE11_255A S: 8

CS2 Data Filename: BE11_255A S: 7

CS3 Data Filename: BE11_255A S: 4

CS4 Data Filename: BE11_255A S: 3

CS5 Data Filename: BE11_255A S: 2

CS6 Data Filename: N/A

				RELATIVE RESPONSE (RR)								
COMPOUND	**IUPAC NO.**	**CO-ELUTIONS**	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**MEAN RR**	**CV[2] (%RSD)**
2,4,4'-TriBDE	28	28 + 33	C		0.96	0.98	0.94	0.95	0.95		0.96	1.54
2',3,4-TriBDE	33	28 + 33	C28									
2,2',4,4'-TeBDE	47				1.38	1.25	1.23	1.26	1.28		1.28	4.72
2,2',4,4',5-PeBDE	99				1.25	1.17	1.17	1.16	1.17		1.18	3.04
2,2',4,4',6-PeBDE	100				1.23	1.18	1.18	1.19	1.22		1.20	1.82
2,2',4,4',5,5'-HxBDE	153				1.25	1.11	1.15	1.18	1.15		1.17	4.35
2,2',4,4',5,6'-HxBDE	154				1.44	1.35	1.35	1.37	1.35		1.37	2.80
2,2',3,4,4',5',6-HpBDE	183				1.20	1.00	1.12	1.12	1.13		1.12	6.43
2,2',3,3',4,4',5,5',6,6'-DeBDE	209				1.72	1.23	1.45	1.33	1.23		1.39	14.6

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(2) For contract CV specifications, see Section 10.4.4, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16683A.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1; Report Filename: 1614_PBDPE_21-Jul-2011_BE11__Form3A_GS43149.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 3B

BROMINATED DIPHENYLETHER INITIAL CALIBRATION RELATIVE RESPONSES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 21-Jul-2011

Instrument ID: HR GC/MS

GC Column ID: DB5HT

CS0 Data Filename: N/A

CS1 Data Filename: BE11_255A S: 8

CS2 Data Filename: BE11_255A S: 7

CS3 Data Filename: BE11_255A S: 4

CS4 Data Filename: BE11_255A S: 3

CS5 Data Filename: BE11_255A S: 2

CS6 Data Filename: N/A

				RELATIVE RESPONSE (RR)								
COMPOUND	**IUPAC NO.** [1]	**CO-ELUTIONS**	**LAB FLAG**[2]	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**MEAN RR**	**CV**[3] **(%RSD)**
13C12-2,4,4'-TriBDE	28L				2.70	2.58	2.69	2.76	3.03		2.75	6.14
13C12-2,2',4,4'-TeBDE	47L				0.94	0.95	0.97	1.07	1.19		1.02	10.5
13C12-2,2',4,4',5-PeBDE	99L				1.38	1.37	1.47	1.65	1.99		1.57	16.6
13C12-2,2',4,4',6-PeBDE	100L				2.20	2.21	2.28	2.46	2.79		2.39	10.4
13C12-2,2',4,4',5,5'-HxBDE	153L				2.19	2.09	2.11	2.50	3.31		2.44	21.0
13C12-2,2',4,4',5,6'-HxBDE	154L				3.20	3.05	3.05	3.46	4.24		3.40	14.7
13C12-2,2',3,4,4',5',6-HpBDE	183L				1.96	1.85	1.90	2.24	2.92		2.17	20.5
CLEAN-UP STANDARD												
13C12-2,2',3,4,4',6-HxBDE	139L				2.73	2.59	2.57	2.61	2.57		2.61	2.64

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(3) For contract CV specifications, see Section 10.5.6, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16683B.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_21-Jul-2011_BE11__Form3B_GS43149.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 3C

BROMINATED DIPHENYLETHER INITIAL CALIBRATION ION ABUNDANCE RATIOS

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 21-Jul-2011

Instrument ID: HR GC/MS

GC Column ID: DB5HT

CS0 Data Filename: N/A

CS1 Data Filename: BE11_255A S: 8

CS2 Data Filename: BE11_255A S: 7

CS3 Data Filename: BE11_255A S: 4

CS4 Data Filename: BE11_255A S: 3

CS5 Data Filename: BE11_255A S: 2

CS6 Data Filename: N/A

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG[1]	M/Z's FORMING RATIO [2]	ION ABUNDANCE RATIO CS0	CS1	CS2	CS3	CS4	CS5	CS6	QC LIMITS [2]
2,4,4'-TriBDE	28	28 + 33	C	**M+2/M+4**		1.05	1.05	1.00	1.04	1.03		0.88-1.18
2',3,4-TriBDE	33	28 + 33	C28									
2,2',4,4'-TeBDE	47			**M+2/M+4**		0.80	0.71	0.69	0.71	0.70		0.60-0.81
2,2',4,4',5-PeBDE	99			**M+4/M+6**		1.06	1.04	1.04	1.04	1.04		0.88-1.18
2,2',4,4',6-PeBDE	100			**M+4/M+6**		1.09	1.08	1.04	1.03	1.04		0.88-1.18
2,2',4,4',5,5'-HxBDE	153			**M+4/M+6**		0.81	0.79	0.77	0.77	0.78		0.65-0.89
2,2',4,4',5,6'-HxBDE	154			**M+4/M+6**		0.71	0.79	0.77	0.77	0.78		0.65-0.89
2,2',3,4,4',5',6-HpBDE	183			**M+6/M+8**		0.96	1.10	1.04	1.03	1.03		0.88-1.18
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			**M+8/M+10**		0.84	0.73	0.86	0.85	0.85		0.73-0.99

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(2) See Table 8 Method 1614 for m/z specifications and ion abundance ratio control limits; QC Limits apply to CS2 to CS5 only.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16683C.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_21-Jul-2011_BE11__Form3C_GS43149.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 3D

BROMINATED DIPHENYLETHER INITIAL CALIBRATION ION ABUNDANCE RATIOS

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 21-Jul-2011

Instrument ID: HR GC/MS

GC Column ID: DB5HT

CS0 Data Filename: N/A

CS1 Data Filename: BE11_255A S: 8

CS2 Data Filename: BE11_255A S: 7

CS3 Data Filename: BE11_255A S: 4

CS4 Data Filename: BE11_255A S: 3

CS5 Data Filename: BE11_255A S: 2

CS6 Data Filename: N/A

LABELED COMPOUND	IUPAC NO.[1]	CO-ELUTIONS	LAB FLAG[2]	M/Z's FORMING RATIO [3]	ION ABUNDANCE RATIO CS0	CS1	CS2	CS3	CS4	CS5	CS6	QC LIMITS [3]
13C12-2,4,4'-TriBDE	28L			**M+2/M+4**		1.04	1.07	1.03	1.07	1.07		0.88-1.18
13C12-2,2',4,4'-TeBDE	47L			**M+4/M+6**		1.61	1.61	1.56	1.55	1.61		1.31-1.77
13C12-2,2',4,4',5-PeBDE	99L			**M+4/M+6**		1.07	1.04	1.04	1.04	1.04		0.88-1.18
13C12-2,2',4,4',6-PeBDE	100L			**M+4/M+6**		1.06	1.05	1.06	1.05	1.05		0.88-1.18
13C12-2,2',4,4',5,5'-HxBDE	153L			**M+6/M+8**		1.39	1.43	1.38	1.38	1.43		1.16-1.58
13C12-2,2',4,4',5,6'-HxBDE	154L			**M+6/M+8**		1.38	1.41	1.41	1.39	1.43		1.16-1.58
13C12-2,2',3,4,4',5',6-HpBDE	183L			**M+6/M+8**		1.03	1.04	1.02	1.05	1.06		0.88-1.18
CLEAN-UP STANDARD												
13C12-2,2',3,4,4',6-HxBDE	139L			**M+6/M+8**		1.38	1.38	1.40	1.37	1.37		1.16-1.58

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(3) See Table 8 Method 1614 for m/z specifications and ion abundance ratio control limits.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16683D.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_21-Jul-2011_BE11__Form3D_GS43149.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 4A

BROMINATED DIPHENYLETHER CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**VER Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	MZ's FORMING RATIO [2]	ION ABUND. RATIO	QC LIMITS [3]	CONC. FOUND (ng/mL)	CONC. RANGE [4] (ng/mL)
2,4,4'-TriBDE	28	28 + 33	C	**M+2/M+4**	1.03	0.88-1.18	92.0	68.2 - 127
2',3,4-TriBDE	33	28 + 33	C28					
2,2',4,4'-TeBDE	47			**M+2/M+4**	0.68	0.60-0.81	47.2	35.0 - 65.0
2,2',4,4',5-PeBDE	99			**M+4/M+6**	1.05	0.88-1.18	45.6	35.0 - 65.0
2,2',4,4',6-PeBDE	100			**M+4/M+6**	1.03	0.88-1.18	46.0	35.0 - 65.0
2,2',4,4',5,5'-HxBDE	153			**M+4/M+6**	0.77	0.65-0.89	44.6	35.0 - 65.0
2,2',4,4',5,6'-HxBDE	154			**M+4/M+6**	0.78	0.65-0.89	45.0	35.0 - 65.0
2,2',3,4,4',5',6-HpBDE	183			**M+6/M+8**	1.03	0.88-1.18	48.1	35.0 - 65.0
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			**M+8/M+10**	0.87	0.73-0.99	423	250 - 1000

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(2) See Table 8, Method 1614, for m/z specifications.
(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1614.
(4) Contract-required concentration range as specified in Table 6, Method 1614, under VER.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Thong Do_____

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AXYS METHOD MLA-033 Rev 06

Form 4B
BROMINATED DIPHENYLETHER CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**VER Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	MZ's FORMING RATIO [3]	ION ABUND. RATIO	QC LIMITS [4]	CONC. FOUND (ng/mL)	CONC. RANGE [5] (ng/mL)
13C12-2,4,4'-TriBDE	28L			**M+2/M+4**	1.02	0.88-1.18	60.3	50.0 - 150
13C12-2,2',4,4'-TeBDE	47L			**M+4/M+6**	1.57	1.31-1.77	88.0	50.0 - 150
13C12-2,2',4,4',5-PeBDE	99L			**M+4/M+6**	1.03	0.88-1.18	72.3	49.5 - 149
13C12-2,2',4,4',6-PeBDE	100L			**M+4/M+6**	1.05	0.88-1.18	65.9	50.0 - 150
13C12-2,2',4,4',5,5'-HxBDE	153L			**M+6/M+8**	1.37	1.16-1.58	81.0	50.0 - 150
13C12-2,2',4,4',5,6'-HxBDE	154L			**M+6/M+8**	1.36	1.16-1.58	74.9	50.0 - 150
13C12-2,2',3,4,4',5',6-HpBDE	183L			**M+6/M+8**	1.07	0.88-1.18	81.5	50.0 - 150
CLEAN-UP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			**M+6/M+8**	1.39	1.16-1.58	83.6	60.0 - 130

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(3) See Table 8, Method 1614, for m/z specifications.
(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1614.
(5) Contract-required concentration range as specified in Table 6, Method 1614, under VER.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Thong Do_____

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AXYS METHOD MLA-033 Rev 06

Form 6A
BROMINATED DIPHENYLETHER RELATIVE RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**VER Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	RETENTION TIME REFERENCE	IUPAC NO. [2]	RRT	RRT QC LIMITS [3]
2,4,4'-TriBDE	28	28 + 33	C	13C12-2,4,4'-TriBDE	28L	1.0000	0.9985-1.0022
2',3,4-TriBDE	33	28 + 33	C28				
2,2',4,4'-TeBDE	47			13C12-2,2',4,4'-TeBDE	47L	1.0012	0.9988-1.0019
2,2',4,4',5-PeBDE	99			13C12-2,2',4,4',5-PeBDE	99L	1.0005	0.9989-1.0016
2,2',4,4',6-PeBDE	100			13C12-2,2',4,4',6-PeBDE	100L	1.0000	0.9989-1.0017
2,2',4,4',5,5'-HxBDE	153			13C12-2,2',4,4',5,5'-HxBDE	153L	1.0005	0.9990-1.0015
2,2',4,4',5,6'-HxBDE	154			13C12-2,2',4,4',5,6'-HxBDE	154L	1.0005	0.9990-1.0015
2,2',3,4,4',5',6-HpBDE	183			13C12-2,2',3,4,4',5',6-HpBDE	183L	1.0004	0.9991-1.0013
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L	1.0003	0.9993-1.0010

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(2) Suffix "L" indicates labeled compound
(3) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1614.

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Signed: _____Thong Do_____

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AXYS METHOD MLA-033 Rev 06

Form 6B
BROMINATED DIPHENYLETHER RELATIVE RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**VER Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	RETENTION TIME REFERENCE	IUPAC NO. [1]	RRT	RRT QC LIMITS [3]
13C12-2,4,4'-TriBDE	28L			13C12-3,3',4,5'-TeBDE	79L	0.8315	0.8223-0.8407
13C12-2,2',4,4'-TeBDE	47L			13C12-3,3',4,5'-TeBDE	79L	0.9871	0.9810-0.9933
13C12-2,2',4,4',5-PeBDE	99L			13C12-3,3',4,5'-TeBDE	79L	1.1330	1.1238-1.1422
13C12-2,2',4,4',6-PeBDE	100L			13C12-3,3',4,5'-TeBDE	79L	1.1005	1.0913-1.1097
13C12-2,2',4,4',5,5'-HxBDE	153L			13C12-2,2',3,4,4',5,5'-HpBDE	180L	0.8809	0.8745-0.8873
13C12-2,2',4,4',5,6'-HxBDE	154L			13C12-2,2',3,4,4',5,5'-HpBDE	180L	0.8506	0.8442-0.8570
13C12-2,2',3,4,4',5',6-HpBDE	183L			13C12-2,2',3,4,4',5,5'-HpBDE	180L	0.9658	0.9616-0.9701
CLEANUP STANDARD							
13C12-2,2',3,4,4',6-HxBDE	139L			13C12-2,2',4,4',5,5'-HxBDE	153L	1.0121	1.0073-1.0170

(1) Suffix "L" indicates labeled compound
(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(3) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Thong Do_____

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Report Filename: 1614_PBDPE_BE11_332S1__Form6B_SJ1376734.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 3A
BROMINATED DIPHENYLETHER INITIAL CALIBRATION RELATIVE RESPONSES, ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**CAL Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	RRF	MZ's FORMING RATIO [2]	ION ABUND. RATIO	RATIO QC LIMITS [3]	RRT	RRT QC LIMITS
2,4-DiBDE	7			0.54	**M/M+2**	0.51	0.43-0.59	0.928	0.914 - 0.942
2,4'-DiBDE	8	8 + 11	C	0.73	**M/M+2**	0.51	0.43-0.59	0.957	0.947 - 0.966
2,6-DiBDE	10			0.45	**M/M+2**	0.52	0.43-0.59	0.862	0.843 - 0.880
3,3'-DiBDE	11	8 + 11	C8						
3,4-DiBDE	12	12 + 13	C	0.88	**M/M+2**	0.51	0.43-0.59	0.977	0.968 - 0.986
3,4'-DiBDE	13	12 + 13	C12						
4,4'-DiBDE	15			1.00	**M/M+2**	0.52	0.43-0.59	1.001	0.998 - 1.003
2,2',4-TriBDE	17	17 + 25	C	0.81	**M+2/M+4**	1.03	0.88-1.18	0.975	0.968 - 0.982
2,3',4-TriBDE	25	17 + 25	C17						
2,4,6-TriBDE	30			0.70	**M+2/M+4**	1.01	0.88-1.18	0.894	0.879 - 0.909
2,4',6-TriBDE	32			0.90	**M+2/M+4**	1.03	0.88-1.18	0.952	0.945 - 0.959
3,3',4-TriBDE	35			1.22	**M+2/M+4**	1.02	0.88-1.18	1.018	1.010 - 1.025
3,4,4'-TriBDE	37			1.33	**M+2/M+4**	1.02	0.88-1.18	1.038	1.031 - 1.046
2,2',4,5'-TeBDE	49			0.83	**M+2/M+4**	0.70	0.60-0.81	0.975	0.969 - 0.981
2,2',4,6'-TeBDE	51			1.23	**M+2/M+4**	0.69	0.60-0.81	0.967	0.961 - 0.973
2,3',4,4'-TeBDE	66			0.73	**M+2/M+4**	0.70	0.60-0.81	1.022	1.016 - 1.029
2,3',4',6-TeBDE	71			0.89	**M+2/M+4**	0.69	0.60-0.81	0.981	0.975 - 0.987
2,4,4',6-TeBDE	75			0.94	**M+2/M+4**	0.71	0.60-0.81	0.962	0.956 - 0.968
3,3',4,4'-TeBDE	77			1.29	**M+2/M+4**	0.68	0.60-0.81	1.000	0.999 - 1.002
3,3',4,5'-TeBDE	79			1.12	**M+2/M+4**	0.71	0.60-0.81	1.014	1.007 - 1.020
2,2',3,4,4'-PeBDE	85			0.68	**M+4/M+6**	1.03	0.88-1.18	0.992	0.987 - 0.997
2,3,3',4,4'-PeBDE	105			0.53	**M+4/M+6**	1.04	0.88-1.18	1.009	1.004 - 1.014
2,3,4,5,6-PeBDE	116			0.37	**M+4/M+6**	1.02	0.88-1.18	1.009	1.003 - 1.014
2,3',4,4',6-PeBDE	119	119 + 120	C	0.61	**M+4/M+6**	1.04	0.88-1.18	1.011	1.005 - 1.016
2,3',4,5,5'-PeBDE	120	119 + 120	C119						
3,3',4,4',5-PeBDE	126			1.19	**M+4/M+6**	1.05	0.88-1.18	1.001	0.999 - 1.002
2,2',3,3',4,4'-HxBDE	128			0.63	**M+4/M+6**	0.76	0.65-0.89	1.090	1.082 - 1.097
2,2',3,4,4',5'-HxBDE	138	138 + 166	C	0.64	**M+4/M+6**	0.78	0.65-0.89	1.045	1.040 - 1.050
2,2',3,4,4',6'-HxBDE	140			1.04	**M+4/M+6**	0.77	0.65-0.89	1.021	1.016 - 1.026
2,2',4,4',6,6'-HxBDE	155			1.41	**M+4/M+6**	0.76	0.65-0.89	0.981	0.976 - 0.986
2,3,4,4',5,6-HxBDE	166	138 + 166	C138						
2,2',3,4,4',5,6-HpBDE	181			0.55	**M+6/M+8**	1.01	0.88-1.18	1.045	1.041 - 1.050
2,3,3',4,4',5,6-HpBDE	190			0.31	**M+6/M+8**	1.02	0.88-1.18	1.052	1.047 - 1.056
2,2',3,3',4,4',6,6'-OcBDE	197	197 + 204	C	0.86	**M+6/M+8**	0.81	0.70-0.94	0.999	0.997 - 1.001
2,2',3,4,4',5,5',6-OcBDE	203			0.62	**M+6/M+8**	0.81	0.70-0.94	1.011	1.007 - 1.015
2,2',3,4,4',5,6,6'-OcBDE	204	197 + 204	C197						
2,3,3',4,4',5,5',6-OcBDE	205			0.31	**M+6/M+8**	0.82	0.70-0.94	1.033	1.029 - 1.037
2,2',3,3',4,4',5,5',6-NoBDE	206			0.24	**M+8/M+10**	1.09	0.88-1.18	1.114	1.108 - 1.120
2,2',3,3',4,4',5,6,6'-NoBDE	207			0.29	**M+8/M+10**	1.03	0.88-1.18	1.099	1.093 - 1.105
2,2',3,3',4,5,5',6,6'-NoBDE	208			0.24	**M+8/M+10**	1.03	0.88-1.18	1.091	1.085 - 1.097

(1) Where applicable, custom lab flags have been used on this report.
(2) See Table 8, Method 1614, for m/z specifications.
(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Thong Do_____

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Report Filename: 1614_PBDPE_BE11_332S1__Form346A_SJ1376764_GS43149.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 3B

BROMINATED DIPHENYLETHER INITIAL CALIBRATION RELATIVE RESPONSES, ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**CAL Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	RRF	MZ's FORMING RATIO [3]	ION ABUND. RATIO	RATIO QC LIMITS [4]	RRT	RRT QC LIMITS
13C12-4,4'-DiBDE	15L			2.86	**M/M+2**	0.52	0.43-0.59	0.665	0.653 - 0.677
13C12-2,4,4'-TriBDE	28L			1.66	**M+2/M+4**	1.02	0.88-1.18	0.831	0.822 - 0.841
13C12-2,2',4,4'-TeBDE	47L			0.90	**M+4/M+6**	1.57	1.31-1.77	0.987	0.981 - 0.993
13C12-3,3',4,4'-TeBDE	77L			0.94	**M+4/M+6**	1.58	1.31-1.77	1.042	1.036 - 1.048
13C12-2,2',4,4',5-PeBDE	99L			1.15	**M+4/M+6**	1.03	0.88-1.18	1.133	1.124 - 1.142
13C12-2,2',4,4',6-PeBDE	100L			1.57	**M+4/M+6**	1.05	0.88-1.18	1.100	1.091 - 1.110
13C12-3,3',4,4',5-PeBDE	126L			1.29	**M+4/M+6**	1.03	0.88-1.18	1.199	1.189 - 1.208
13C12-2,2',4,4',5,5'-HxBDE	153L			1.98	**M+6/M+8**	1.37	1.16-1.58	0.881	0.874 - 0.887
13C12-2,2',4,4',5,6'-HxBDE	154L			2.55	**M+6/M+8**	1.36	1.16-1.58	0.851	0.844 - 0.857
13C12-2,2',3,4,4',5',6-HpBDE	183L			1.77	**M+6/M+8**	1.07	0.88-1.18	0.966	0.962 - 0.970
13C12-2,2',3,3',4,4',6,6'-OcBDE	197L			1.52	**M+6/M+8**	0.85	0.70-0.94	1.063	1.057 - 1.070
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			0.39	**M+10/M+12**	1.25	1.05-1.41	1.080	1.075 - 1.085
ADDITIONAL STANDARD									
13C12-2,2',3,4,4',5'-HxBDE	138L			0.68	**M+6/M+8**	1.42	1.16-1.58	1.044	1.039 - 1.048

(1) Suffix "L" indicates labeled compound
(2) Where applicable, custom lab flags have been used on this report.
(3) See Table 8, Method 1614, for m/z specifications.
(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

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Report Filename: 1614_PBDPE_BE11_332S1__Form346B_SJ1376764_GS43149.html; Workgroup: WG37863; Design ID: 1677]

AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
1,2,3,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD	1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF			1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls												
PCB 1 2-Chlorobiphenyl	7	7								7	7	
PCB 3 4-Chlorobiphenyl	7	7								7	7	
PCB 4 2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5 2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15 4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18 2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19 2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31 2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37 3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44 2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52 2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54 2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66 2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77 3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81 3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87 2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

AXYS Analytical Services Ltd.

Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

AXYS Analytical Services Ltd.

Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

Your Project #: B192596
Your C.O.C. #: na

Attention: Debbie Nordbruget
Maxxam Analytics
Vancouver Island Tech. Park
1104 - 4464 Markham St
Victoria, BC
CANADA V8Z 7X8

Report Date: 2011/10/19

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1F3730
Received: 2011/10/04, 09:20

Sample Matrix: Soil
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Miscellaneous Inorganics Test (1)	4	N/A	2011/10/11		
Moisture	3	N/A	2011/10/07	CAM SOP-00445	McKeague 2nd ed 1978
OC Pesticides (Selected) & PCB (2)	3	2011/10/06	2011/10/09	CAM SOP-00307	SW846 8081, 8082
Total Carbon in Soil	4	N/A	2011/10/05	CAM SOP-00468	Leco Manual
Total Organic Carbon in Soil	4	N/A	2011/10/07	CAM SOP-00468	LECO Combustion

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Sample(s) analyzed using methodologies that have not been subjected to Maxxam's standard validation process for the submitted matrix and is not an accredited method. Analysis performed with client consent, however results should be viewed with discretion
(2) Chlordane (Total) = Alpha Chlordane + Gamma Chlordane

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

HEATHER JASUMANI, Campobello Customer Service
Email: Heather.Jasumani@maxxamanalytics.com
Phone# (905) 817-5700

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B1F3730
Report Date: 2011/10/19

Maxxam Analytics
Client Project #: B192596

RESULTS OF ANALYSES OF SOIL

Maxxam ID		LD2474	LD2475	LD2476		
Sampling Date		2011/09/28	2011/09/28	2011/09/28		
COC Number		na	na	na		
	Units	**BQ9605-05R/M2300ESE-CO**	**BQ9606-02R/M1400ESE-CO**	**BQ9607-02R/M1600ESE-COM**	**RDL**	**QC Batch**
Inorganics						
Total Carbon (C)	mg/kg	8500	9400	8900	500	2637685
Miscellaneous Inorganics	N/A	0.08	0.07	0.05	0.05	2643402
Moisture	%	41	42	36	1	2641508
Total Organic Carbon	mg/kg	6200	6400	5300	500	2639063

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		LD2477		
Sampling Date		2011/09/28		
COC Number		na		
	Units	**BQ9608-02R/M500ESE-COMP**	**RDL**	**QC Batch**
Inorganics				
Total Carbon (C)	mg/kg	16000	500	2637685
Miscellaneous Inorganics	N/A	0.06	0.05	2643402
Total Organic Carbon	mg/kg	7000	500	2639063

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1F3730
Report Date: 2011/10/19

Maxxam Analytics
Client Project #: B192596

ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		LD2474	LD2475	LD2476		
Sampling Date		2011/09/28	2011/09/28	2011/09/28		
COC Number		na	na	na		
	Units	**BQ9605-05R/M2300ESE-CO**	**BQ9606-02R/M1400ESE-CO**	**BQ9607-02R/M1600ESE-COM**	**RDL**	**QC Batch**
Pesticides & Herbicides						
Aroclor 1262	ug/g	ND	ND	ND	0.03	2640100
Aroclor 1268	ug/g	ND	ND	ND	0.03	2640100
Aldrin	ug/g	ND	ND	ND	0.004	2640100
alpha-BHC	ug/g	ND	ND	ND	0.004	2640100
beta-BHC	ug/g	ND	ND	ND	0.004	2640100
delta-BHC	ug/g	ND	ND	ND	0.004	2640100
a-Chlordane	ug/g	ND	ND	ND	0.004	2640100
g-Chlordane	ug/g	ND	ND	ND	0.004	2640100
Chlordane (Total)	ug/g	ND	ND	ND	0.004	2640100
o,p-DDD	ug/g	ND	ND	ND	0.004	2640100
p,p-DDD	ug/g	ND	ND	ND	0.004	2640100
o,p-DDD + p,p-DDD	ug/g	ND	ND	ND	0.004	2640100
o,p-DDE	ug/g	ND	ND	ND	0.004	2640100
p,p-DDE	ug/g	ND	ND	ND	0.004	2640100
o,p-DDE + p,p-DDE	ug/g	ND	ND	ND	0.004	2640100
o,p-DDT	ug/g	ND	ND	ND	0.004	2640100
p,p-DDT	ug/g	ND	ND	ND	0.004	2640100
o,p-DDT + p,p-DDT	ug/g	ND	ND	ND	0.004	2640100
DDT+ Metabolites	ug/g	ND	ND	ND	0.004	2640100
Dieldrin	ug/g	ND	ND	ND	0.004	2640100
Endosulfan I (alpha)	ug/g	ND	ND	ND	0.004	2640100
Endosulfan II	ug/g	ND	ND	ND	0.004	2640100
Endosulfan sulfate	ug/g	ND	ND	ND	0.004	2640100
Total Endosulfan	ug/g	ND	ND	ND	0.004	2640100
Endrin	ug/g	ND	ND	ND	0.004	2640100
Endrin aldehyde	ug/g	ND	ND	ND	0.004	2640100
Endrin ketone	ug/g	ND	ND	ND	0.004	2640100
Heptachlor	ug/g	ND	ND	ND	0.004	2640100
Heptachlor epoxide	ug/g	ND	ND	ND	0.004	2640100
Hexachlorobenzene	ug/g	ND	ND	ND	0.004	2640100
Lindane	ug/g	ND	ND	ND	0.004	2640100
Methoxychlor	ug/g	ND	ND	ND	0.01	2640100

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B1F3730
Report Date: 2011/10/19

Maxxam Analytics
Client Project #: B192596

ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		LD2474	LD2475	LD2476		
Sampling Date		2011/09/28	2011/09/28	2011/09/28		
COC Number		na	na	na		
	Units	**BQ9605-05R/M2300ESE-CO**	**BQ9606-02R/M1400ESE-CO**	**BQ9607-02R/M1600ESE-COM**	**RDL**	**QC Batch**
Mirex	ug/g	ND	ND	ND	0.004	2640100
Octachlorostyrene	ug/g	ND	ND	ND	0.004	2640100
Total PCB	ug/g	ND	ND	ND	0.06	2640100
Aroclor 1016	ug/g	ND	ND	ND	0.03	2640100
Aroclor 1221	ug/g	ND	ND	ND	0.06	2640100
Aroclor 1232	ug/g	ND	ND	ND	0.03	2640100
Aroclor 1242	ug/g	ND	ND	ND	0.03	2640100
Aroclor 1248	ug/g	ND	ND	ND	0.03	2640100
Aroclor 1254	ug/g	ND	ND	ND	0.03	2640100
Aroclor 1260	ug/g	ND	ND	ND	0.03	2640100
Toxaphene	ug/g	ND	ND	ND	0.2	2640100
Surrogate Recovery (%)						
2,4,5,6-Tetrachloro-m-xylene	%	92	91	99		2640100
Decachlorobiphenyl	%	95	90	94		2640100

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B1F3730
Report Date: 2011/10/19

Maxxam Analytics
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GENERAL COMMENTS

OC Pesticide Analysis: Detection limits were adjusted for high moisture content..

Miscellaneous inorganics = total nitrogen by LECO furnace, units in %

Results relate only to the items tested.

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Maxxam Analytics
Attention: Debbie Nordbruget
Client Project #: B192596
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: MB1F3730

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2637685	OK	QC Standard	Total Carbon (C)	2011/10/05		89	%	80 - 120
		Method Blank	Total Carbon (C)	2011/10/05	ND, RDL=500		mg/kg	
		RPD	Total Carbon (C)	2011/10/05	6.4		%	35
2639063	OK	QC Standard	Total Organic Carbon	2011/10/07		105	%	80 - 120
		Method Blank	Total Organic Carbon	2011/10/07	ND, RDL=500		mg/kg	
		RPD	Total Organic Carbon	2011/10/07	11.9		%	35
2640100	DH	Matrix Spike	2,4,5,6-Tetrachloro-m-xylene	2011/10/09		89	%	30 - 130
			Decachlorobiphenyl	2011/10/09		89	%	30 - 130
			Aldrin	2011/10/09		94	%	30 - 130
			alpha-BHC	2011/10/09		103	%	30 - 130
			beta-BHC	2011/10/09		101	%	30 - 130
			delta-BHC	2011/10/09		101	%	30 - 130
			a-Chlordane	2011/10/09		92	%	30 - 130
			g-Chlordane	2011/10/09		122	%	30 - 130
			o,p-DDD	2011/10/09		88	%	30 - 130
			p,p-DDD	2011/10/09		95	%	30 - 130
			o,p-DDE	2011/10/09		127	%	30 - 130
			p,p-DDE	2011/10/09		104	%	30 - 130
			o,p-DDT	2011/10/09		106	%	30 - 130
			p,p-DDT	2011/10/09		100	%	30 - 130
			Dieldrin	2011/10/09		93	%	30 - 130
			Endosulfan I (alpha)	2011/10/09		104	%	30 - 130
			Endosulfan II	2011/10/09		92	%	30 - 130
			Endosulfan sulfate	2011/10/09		91	%	30 - 130
			Endrin	2011/10/09		94	%	30 - 130
			Endrin aldehyde	2011/10/09		72	%	30 - 130
			Endrin ketone	2011/10/09		91	%	30 - 130
			Heptachlor	2011/10/09		95	%	30 - 130
			Heptachlor epoxide	2011/10/09		90	%	30 - 130
			Hexachlorobenzene	2011/10/09		90	%	30 - 130
			Lindane	2011/10/09		93	%	30 - 130
			Methoxychlor	2011/10/09		94	%	30 - 130
			Mirex	2011/10/09		77	%	30 - 130
			Octachlorostyrene	2011/10/09		88	%	30 - 130
		Spiked Blank	2,4,5,6-Tetrachloro-m-xylene	2011/10/09		73	%	30 - 130
			Decachlorobiphenyl	2011/10/09		89	%	30 - 130
			Aldrin	2011/10/09		91	%	30 - 130
			alpha-BHC	2011/10/09		86	%	30 - 130
			beta-BHC	2011/10/09		90	%	30 - 130
			delta-BHC	2011/10/09		94	%	30 - 130
			a-Chlordane	2011/10/09		96	%	30 - 130
			g-Chlordane	2011/10/09		99	%	30 - 130
			o,p-DDD	2011/10/09		95	%	30 - 130
			p,p-DDD	2011/10/09		101	%	30 - 130
			o,p-DDE	2011/10/09		94	%	30 - 130
			p,p-DDE	2011/10/09		96	%	30 - 130
			o,p-DDT	2011/10/09		90	%	30 - 130
			p,p-DDT	2011/10/09		86	%	30 - 130
			Dieldrin	2011/10/09		109	%	30 - 130
			Endosulfan I (alpha)	2011/10/09		109	%	30 - 130
			Endosulfan II	2011/10/09		101	%	30 - 130
			Endosulfan sulfate	2011/10/09		105	%	30 - 130
			Endrin	2011/10/09		91	%	30 - 130
			Endrin aldehyde	2011/10/09		71	%	30 - 130
			Endrin ketone	2011/10/09		97	%	30 - 130

Maxxam Analytics
Attention: Debbie Nordbruget
Client Project #: B192596
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB1F3730

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2640100	DH	Spiked Blank	Heptachlor	2011/10/09		82	%	30 - 130
			Heptachlor epoxide	2011/10/09		93	%	30 - 130
			Hexachlorobenzene	2011/10/09		75	%	30 - 130
			Lindane	2011/10/09		87	%	30 - 130
			Methoxychlor	2011/10/09		82	%	30 - 130
			Mirex	2011/10/09		87	%	30 - 130
			Octachlorostyrene	2011/10/09		98	%	30 - 130
		RPD	Total PCB	2011/10/09	NC		%	50
			Aroclor 1242	2011/10/09	NC		%	50
			Toxaphene	2011/10/09	NC		%	50
		Method Blank	2,4,5,6-Tetrachloro-m-xylene	2011/10/09		72	%	30 - 130
			Decachlorobiphenyl	2011/10/09		85	%	30 - 130
			Aroclor 1262	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1268	2011/10/09	ND, RDL=0.02		ug/g	
			Aldrin	2011/10/09	ND, RDL=0.002		ug/g	
			alpha-BHC	2011/10/09	ND, RDL=0.002		ug/g	
			beta-BHC	2011/10/09	ND, RDL=0.002		ug/g	
			delta-BHC	2011/10/09	ND, RDL=0.002		ug/g	
			a-Chlordane	2011/10/09	ND, RDL=0.002		ug/g	
			g-Chlordane	2011/10/09	ND, RDL=0.002		ug/g	
			Chlordane (Total)	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDD	2011/10/09	ND, RDL=0.002		ug/g	
			p,p-DDD	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDD + p,p-DDD	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDE	2011/10/09	ND, RDL=0.002		ug/g	
			p,p-DDE	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDE + p,p-DDE	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDT	2011/10/09	ND, RDL=0.002		ug/g	
			p,p-DDT	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDT + p,p-DDT	2011/10/09	ND, RDL=0.002		ug/g	
			DDT+ Metabolites	2011/10/09	ND, RDL=0.002		ug/g	
			Dieldrin	2011/10/09	ND, RDL=0.002		ug/g	
			Endosulfan I (alpha)	2011/10/09	ND, RDL=0.002		ug/g	
			Endosulfan II	2011/10/09	ND, RDL=0.002		ug/g	
			Endosulfan sulfate	2011/10/09	ND, RDL=0.002		ug/g	
			Total Endosulfan	2011/10/09	ND, RDL=0.002		ug/g	
			Endrin	2011/10/09	ND, RDL=0.002		ug/g	
			Endrin aldehyde	2011/10/09	ND, RDL=0.002		ug/g	
			Endrin ketone	2011/10/09	ND, RDL=0.002		ug/g	
			Heptachlor	2011/10/09	ND, RDL=0.002		ug/g	
			Heptachlor epoxide	2011/10/09	ND, RDL=0.002		ug/g	
			Hexachlorobenzene	2011/10/09	ND, RDL=0.002		ug/g	
			Lindane	2011/10/09	ND, RDL=0.002		ug/g	
			Methoxychlor	2011/10/09	ND, RDL=0.005		ug/g	
			Mirex	2011/10/09	ND, RDL=0.002		ug/g	
			Octachlorostyrene	2011/10/09	ND, RDL=0.002		ug/g	
			Total PCB	2011/10/09	ND, RDL=0.03		ug/g	
			Aroclor 1016	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1221	2011/10/09	ND, RDL=0.03		ug/g	
			Aroclor 1232	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1242	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1248	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1254	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1260	2011/10/09	ND, RDL=0.02		ug/g	
			Toxaphene	2011/10/09	ND, RDL=0.08		ug/g	

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Analytics
Attention: Debbie Nordbruget
Client Project #: B192596
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB1F3730

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2640100	DH	RPD	Aroclor 1262	2011/10/09	NC		%	50
			Aroclor 1268	2011/10/09	NC		%	50
			Aldrin	2011/10/09	NC		%	50
			alpha-BHC	2011/10/09	NC		%	50
			beta-BHC	2011/10/09	NC		%	50
			delta-BHC	2011/10/09	NC		%	50
			a-Chlordane	2011/10/09	NC		%	50
			g-Chlordane	2011/10/09	NC		%	50
			Chlordane (Total)	2011/10/09	NC		%	50
			o,p-DDD	2011/10/09	NC		%	50
			p,p-DDD	2011/10/09	NC		%	50
			o,p-DDD + p,p-DDD	2011/10/09	NC		%	50
			o,p-DDE	2011/10/09	NC		%	50
			p,p-DDE	2011/10/09	NC		%	50
			o,p-DDE + p,p-DDE	2011/10/09	NC		%	50
			o,p-DDT	2011/10/09	NC		%	50
			p,p-DDT	2011/10/09	NC		%	50
			o,p-DDT + p,p-DDT	2011/10/09	NC		%	50
			DDT+ Metabolites	2011/10/09	NC		%	50
			Dieldrin	2011/10/09	NC		%	50
			Endosulfan I (alpha)	2011/10/09	NC		%	50
			Endosulfan II	2011/10/09	NC		%	50
			Endosulfan sulfate	2011/10/09	NC		%	50
			Total Endosulfan	2011/10/09	NC		%	50
			Endrin	2011/10/09	NC		%	50
			Endrin aldehyde	2011/10/09	NC		%	50
			Endrin ketone	2011/10/09	NC		%	50
			Heptachlor	2011/10/09	NC		%	50
			Heptachlor epoxide	2011/10/09	NC		%	50
			Hexachlorobenzene	2011/10/09	NC		%	50
			Lindane	2011/10/09	NC		%	50
			Methoxychlor	2011/10/09	NC		%	50
			Mirex	2011/10/09	NC		%	50
			Octachlorostyrene	2011/10/09	NC		%	50
			Aroclor 1016	2011/10/09	NC		%	50
			Aroclor 1221	2011/10/09	NC		%	50
			Aroclor 1232	2011/10/09	NC		%	50
			Aroclor 1248	2011/10/09	NC		%	50
			Aroclor 1254	2011/10/09	NC		%	50
			Aroclor 1260	2011/10/09	NC		%	50
2641508	PHM	RPD	Moisture	2011/10/07	3.0		%	20
2643402	OK	QC Standard	Miscellaneous Inorganics	2011/10/11		91	%	N/A
		Method Blank	Miscellaneous Inorganics	2011/10/11	ND, RDL=0.05		N/A	
		RPD	Miscellaneous Inorganics	2011/10/11	NC		%	N/A

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B1F3730

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

CHARLES ANCKER, B.Sc., M.Sc., C.Chem, Senior Analyst

CRISTINA CARRIERE, Scientific Services

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37864	***Date:*** 24-Nov-2011
Analysis Type: Alkylphenols	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520 ***Samples:*** L16977-5 BQ9606-09R	***Blank:*** WG37864-101
	Reference or Spike: WG37864-102
	Duplicate:

Comments:

1. Data are not blank corrected.

AXYS METHOD MLA-004 Rev 07

Form 1A
ANALYSIS REPORT

CLIENT SAMPLE NO.
BQ9606-09R
Sample Collection:
28-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16977-5
Matrix:	SOLID	**Sample Size:**	5.25 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	BRACKETING CAL
Extraction Date:	06-Oct-2011	**Instrument ID:**	LR GC/MS
Analysis Date:	11-Oct-2011 **Time:** 19:31:00	**GC Column ID:**	RTX5
Extract Volume (uL):	500	**Sample Data Filename:**	**AP1H2111.D**
Injection Volume (uL):	2.0	**Blank Data Filename:**	AP1H2105.D
Dilution Factor:	N/A	**Opening Cal. Data Filename:**	AP1H2102.D
		Closing Cal. Data Filename:	AP1H2114.D
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	40.9

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	CAS NO.	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
4-Nonylphenols			10.1	2.76 (S)		
4-Nonylphenol monoethoxylates		ND		6.64 (S)		
4-Nonylphenol diethoxylates		ND		8.60 (S)		
Octylphenol			0.629	0.568 (S)	0.04	0.904

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

For Axys Internal Use Only [XSL Template: Pest1A.xsl; Created: 24-Nov-2011 14:14:18; Application: XMLTransformer-1.12.1;
Report Filename: AP_ALKYLPHENOLS_AP_L16977-5_Form1A_AP1H2111.D_SJ1384479.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 2

ANALYSIS REPORT

CLIENT SAMPLE NO.
BQ9606-09R
Sample Collection:
28-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16977-5
Matrix:	SOLID	**Sample Size:**	5.25 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	BRACKETING CAL
Extraction Date:	06-Oct-2011	**Instrument ID:**	LR GC/MS
Analysis Date:	11-Oct-2011 **Time:** 19:31:00	**GC Column ID:**	RTX5
Extract Volume (uL):	500	**Sample Data Filename:**	**AP1H2111.D**
Injection Volume (uL):	2.0	**Blank Data Filename:**	AP1H2105.D
Dilution Factor:	N/A	**Opening Cal. Data Filename:** **Closing Cal. Data Filename:**	AP1H2102.D AP1H2114.D
Concentration Units:	ng absolute	**% Moisture:**	40.9

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	ION ABUND. RATIO	RRT
13C6-4-n-Nonylphenol		1000	521	52.1	0.12	0.869
13C6-NP2EO		5000	5320	106	0.15	1.316

(1) Where applicable, custom lab flags have been used on this report.
(2) R% = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

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Report Filename: AP_ALKYLPHENOLS_AP_L16977-5_Form2_AP1H2111.D_SJ1384479.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 1A

ANALYSIS REPORT

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37864-101
Matrix:	SOLID	**Sample Size:**	5.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	BRACKETING CAL
Extraction Date:	06-Oct-2011	**Instrument ID:**	LR GC/MS
Analysis Date:	11-Oct-2011 **Time:** 15:59:00	**GC Column ID:**	RTX5
Extract Volume (uL):	500	**Sample Data Filename:**	**AP1H2105.D**
Injection Volume (uL):	2.0	**Blank Data Filename:**	AP1H2105.D
Dilution Factor:	N/A	**Opening Cal. Data Filename:**	AP1H2102.D
		Closing Cal. Data Filename:	AP1H2114.D
Concentration Units:	ng/g		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	CAS NO.	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
4-Nonylphenols		ND		1.09 (S)		
4-Nonylphenol monoethoxylates		ND		1.33 (S)		
4-Nonylphenol diethoxylates		ND		4.06 (S)		
Octylphenol		ND		0.345 (S)		

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

For Axys Internal Use Only [XSL Template: Pest1A.xsl; Created: 24-Nov-2011 14:14:18; Application: XMLTransformer-1.12.1;
Report Filename: AP_ALKYLPHENOLS_AP_WG37864-101_Form1A_AP1H2105.D_SJ1384298.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 2

ANALYSIS REPORT

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37864-101
Matrix:	SOLID	**Sample Size:**	5.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	BRACKETING CAL
Extraction Date:	06-Oct-2011	**Instrument ID:**	LR GC/MS
Analysis Date:	11-Oct-2011 **Time:** 15:59:00	**GC Column ID:**	RTX5
Extract Volume (uL):	500	**Sample Data Filename:**	**AP1H2105.D**
Injection Volume (uL):	2.0	**Blank Data Filename:**	AP1H2105.D
Dilution Factor:	N/A	**Opening Cal. Data Filename:**	AP1H2102.D
		Closing Cal. Data Filename:	AP1H2114.D
Concentration Units:	ng absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	ION ABUND. RATIO	RRT
13C6-4-n-Nonylphenol		1000	836	83.6	0.11	0.870
13C6-NP2EO		5000	2410	48.1	0.15	1.316

(1) Where applicable, custom lab flags have been used on this report.
(2) R% = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

For Axys Internal Use Only [XSL Template: Pest2.xsl; Created: 24-Nov-2011 14:14:18; Application: XMLTransformer-1.12.1;
Report Filename: AP_ALKYLPHENOLS_AP_WG37864-101_Form2_AP1H2105.D_SJ1384298.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 8A
ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**OPR Data Filename:**	**AP1H2103.D**
Matrix:	SOLID	**Lab Sample I.D.:**	WG37864-102
Extraction Date:	06-Oct-2011	**Analysis Date:**	11-Oct-2011 **Time:** 14:48:00

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON 100 uL EXTRACT.

COMPOUND	CAS NO.	LAB FLAG [1]	ION ABUND. RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY
4-Nonylphenols				20000	20600	103
4-Nonylphenol monoethoxylates				100000	89000	88.9
4-Nonylphenol diethoxylates				199000	184000	92.7
Octylphenol			0.04	20100	19600	97.5

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: Pest8ARS.xsl; Created: 24-Nov-2011 14:14:18; Application: XMLTransformer-1.12.1;
Report Filename: AP_ALKYLPHENOLS_AP_WG37864-102_Form8A_SJ1384297.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 8B
ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**OPR Data Filename:**	**AP1H2103.D**
Matrix:	SOLID	**Lab Sample I.D.:**	WG37864-102
Extraction Date:	06-Oct-2011	**Analysis Date:**	11-Oct-2011 **Time:** 14:48:00

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON 100 uL EXTRACT.

LABELED COMPOUND	CAS NO.	LAB FLAG [1]	ION ABUND. RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY
13C6-4-n-Nonylphenol			0.11	10000	10000	100
13C6-NP2EO			0.15	50000	43900	87.9

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: Pest8BRS.xsl; Created: 24-Nov-2011 14:14:18; Application: XMLTransformer-1.12.1;
Report Filename: AP_ALKYLPHENOLS_AP_WG37864-102_Form8B_SJ1384297.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 4C
BRACKETING CALIBRATION RELATIVE RESPONSES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: BRACKETING CAL

Instrument ID:	LR GC/MS	**GC Column ID:**	RTX5
OPENING CAL Data Filename:	AP1H2102.D	**Analysis Date:**	11-Oct-2011 **Time:** 14:13:00
CLOSING CAL Data Filename:	AP1H2114.D	**Analysis Date:**	11-Oct-2011 **Time:** 21:17:00

COMPOUND	CAS NO.	LAB FLAG [1]	RELATIVE RESPONSE (RR)		MEAN RR	RPD [2]
			OPENING CAL	CLOSING CAL		
4-Nonylphenols			0.635	0.624	0.630	1.75
4-Nonylphenol monoethoxylates			0.369	0.364	0.367	1.36
4-Nonylphenol diethoxylates			1.45	1.43	1.44	0.972
Octylphenol			1.04	1.03	1.03	0.971

(1) Where applicable, custom lab flags have been used on this report; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration.
(2) QC limits are < 40% RPD.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____

For Axys Internal Use Only [XSL Template: Pest4C.xsl; Created: 24-Nov-2011 14:14:18; Application: XMLTransformer-1.12.1;
Report Filename: REDUCED-SPECS_ALKYLPHENOLS_GS43397__Form4C_GS43397.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 4D
BRACKETING CALIBRATION RELATIVE RESPONSES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: BRACKETING CAL

Instrument ID:	LR GC/MS	**GC Column ID:**	RTX5
OPENING CAL Data Filename:	AP1H2102.D	**Analysis Date:**	11-Oct-2011 **Time:** 14:13:00
CLOSING CAL Data Filename:	AP1H2114.D	**Analysis Date:**	11-Oct-2011 **Time:** 21:17:00

COMPOUND	CAS NO.	LAB FLAG [1]	RELATIVE RESPONSE (RR) OPENING CAL	RELATIVE RESPONSE (RR) CLOSING CAL	MEAN RR	RPD [2]
13C6-NP2EO		NDR	0.0620	0.0620	0.0620	0
13C6-4-n-Nonylphenol			0.318	0.324	0.321	1.87

(1) Where applicable, custom lab flags have been used on this report; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration.
(2) QC limits are < 40% RPD.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____

For Axys Internal Use Only [XSL Template: Pest4D.xsl; Created: 24-Nov-2011 14:14:18; Application: XMLTransformer-1.12.1;
Report Filename: REDUCED-SPECS_ALKYLPHENOLS_GS43397__Form4D_GS43397.html; Workgroup: WG37864; Design ID: 659]

AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
1,2,3,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD	1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF			1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls												
PCB 1 2-Chlorobiphenyl	7	7								7	7	
PCB 3 4-Chlorobiphenyl	7	7								7	7	
PCB 4 2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5 2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15 4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18 2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19 2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31 2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37 3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44 2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52 2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54 2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66 2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77 3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81 3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87 2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

AXYS Analytical Services Ltd.

Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

AXYS Analytical Services Ltd.

Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37878	***Date:*** 22-Nov-2011
Analysis Type: (AC2) Pharmaceutical & Personal Care Products	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520

Samples:

L16978-1	BQ5956-10R
L16978-2	BR3044-10R
L16978-3	BR3045-10R
L16978-4	BR3046-10R
L16978-5	BQ9606-10R

Blank: WG37878-101

Reference or Spike: WG37878-102

Duplicate:

Comments:

1. Data are not blank corrected.

AXYS METHOD MLA-075 Rev 3

Form 3A
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 17-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QB1K_191 S: 7
CS1 Data Filename: QB1K_191 S: 8
CS2 Data Filename: QB1K_191 S: 9
CS3 Data Filename: QB1K_191 S: 10
CS4 Data Filename: QB1K_191 S: 11
CS5 Data Filename: QB1K_191 S: 12
CS6 Data Filename: N/A
CS7 Data Filename: N/A
CS8 Data Filename: N/A

COMPOUND	LAB FLAG [1]	PERCENT RECOVERY (%) CS0	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8
Anhydrochlortetracycline [ACTC]		122	73.4	111	85.4	109	99.1			
Anhydrotetracycline [ATC]		119	72.6	101	96.8	114	96.5			
Chlortetracycline [CTC]		135	79.4	89.2	77.9	120	98.2			
Demeclocycline		107	92.5	81.5	106	118	94.6			
Doxycycline		109	79.7	102	97.8	116	95.5			
4-Epianhydrochlortetracycline [EACTC]		102	65.5	129	94.0	114	94.8			
4-Epianhydrotetracycline [EATC]		79.1	84.4	112	117	116	91.5			
4-Epichlortetracycline [ECTC]		109	78.7	89.0	117	111	94.9			
4-Epioxytetracycline [EOTC]		112	89.7	107	94.4	94.8	102			
4-Epitetracycline [ETC]		125	84.6	104	96.1	85.7	105			
Isochlortetracycline [ICTC]		96.7	78.3	107	111	114	93.8			
Minocycline		124	82.7	77.7	107	112	97.1			
Oxytetracycline [OTC]		110	75.8	93.9	111	115	94.3			
Tetracycline [TC]		114	76.6	92.0	115	106	96.9			

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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Report Filename: GENERIC-SPECS_PPC_LC_17-Oct-2011_QB1K__Form3A_GS43273.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3B
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 17-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QB1K_191 S: 7
CS1 Data Filename: QB1K_191 S: 8
CS2 Data Filename: QB1K_191 S: 9
CS3 Data Filename: QB1K_191 S: 10
CS4 Data Filename: QB1K_191 S: 11
CS5 Data Filename: QB1K_191 S: 12
CS6 Data Filename: N/A
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERIES (%)								
LABELED COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
D6-Thiabendazole		129	135	72.2	89.9	77.3	96.8			

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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Report Filename: GENERIC-SPECS_PPC_LC_17-Oct-2011_QB1K__Form3B_GS43273.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3C
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 17-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QB1K_191 S: 7
CS1 Data Filename: QB1K_191 S: 8
CS2 Data Filename: QB1K_191 S: 9
CS3 Data Filename: QB1K_191 S: 10
CS4 Data Filename: QB1K_191 S: 11
CS5 Data Filename: QB1K_191 S: 12
CS6 Data Filename: N/A
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
Anhydrochlortetracycline [ACTC]		20:53	20:49	20:51	20:49	20:48	20:50				20:50
Anhydrotetracycline [ATC]		16:41	16:41	16:40	16:40	16:39	16:40				16:40
Chlortetracycline [CTC]		12:05	12:02	12:05	12:07	12:05	12:02				12:04
Demeclocycline		9:44	9:43	9:46	9:51	9:44	9:44				9:45
Doxycycline		14:41	14:37	14:37	14:38	14:41	14:40				14:39
4-Epianhydrochlortetracycline [EACTC]		19:08	19:11	19:08	19:08	19:08	19:12				19:09
4-Epianhydrotetracycline [EATC]		15:24	15:25	15:24	15:25	15:26	15:25				15:25
4-Epichlortetracycline [ECTC]		10:08	10:00	10:02	10:03	10:02	10:03				10:03
4-Epioxytetracycline [EOTC]		6:58	6:39	6:45	6:39	6:45	6:42				6:45
4-Epitetracycline [ETC]		6:20	5:52	6:08	6:02	6:07	6:08				6:06
Isochlortetracycline [ICTC]		10:08	10:10	10:10	10:08	10:11	10:07				10:09
Minocycline		3:29	3:27	3:41	3:40	3:36	3:46				3:37
Oxytetracycline [OTC]		7:22	7:27	7:19	7:24	7:24	7:22				7:23
Tetracycline [TC]		7:54	8:00	7:52	7:56	7:59	7:57				7:56

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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AXYS METHOD MLA-075 Rev 3

Form 3D
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 17-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QB1K_191 S: 7
CS1 Data Filename: QB1K_191 S: 8
CS2 Data Filename: QB1K_191 S: 9
CS3 Data Filename: QB1K_191 S: 10
CS4 Data Filename: QB1K_191 S: 11
CS5 Data Filename: QB1K_191 S: 12
CS6 Data Filename: N/A
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
LABELED COMPOUND	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
D6-Thiabendazole		5:12	5:14	5:14	5:12	5:11	5:08				5:12

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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Report Filename: GENERIC-SPECS_PPC_LC_17-Oct-2011_QB1K__Form3D_GS43273.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4A
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	17-Oct-2011	**VER Data Filename:**	QB1K_191 S: 16
Instrument ID:	LC MS/MS	**Analysis Date:**	18-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	00:09:12

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Anhydrochlortetracycline [ACTC]		20:46	250	187	75.0
Anhydrotetracycline [ATC]		16:41	250	169	67.7
Chlortetracycline [CTC]		12:05	100	73.1	73.1
Demeclocycline		9:46	250	193	77.2
Doxycycline		14:38	100	72.6	72.6
4-Epianhydrochlortetracycline [EACTC]		19:09	1000	818	81.8
4-Epianhydrotetracycline [EATC]		15:25	250	208	83.1
4-Epichlortetracycline [ECTC]		10:03	250	183	73.2
4-Epioxytetracycline [EOTC]		6:44	100	84.0	84.0
4-Epitetracycline [ETC]		6:04	100	84.5	84.5
Isochlortetracycline [ICTC]		10:15	100	93.0	93.0
Minocycline		3:40	1000	774	77.4
Oxytetracycline [OTC]		7:27	100	79.5	79.5
Tetracycline [TC]		8:02	100	79.1	79.1

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form4A.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QB1K_191S16__Form4A_SJ1382974.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4B
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	17-Oct-2011	**VER Data Filename:**	QB1K_191 S: 16
Instrument ID:	LC MS/MS	**Analysis Date:**	18-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	00:09:12

LABELED COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
D6-Thiabendazole		5:14	100	110	110

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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Report Filename: GENERIC-SPECS_PPC_LC_QB1K_191S16__Form4B_SJ1382974.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 04:45:59	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 25**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	33.0

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This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		14.6 (L)	
Anhydrotetracycline [ATC]	ND		14.6 (L)	
Chlortetracycline [CTC]	ND		5.85 (L)	
Demeclocycline	ND		14.6 (L)	
Doxycycline	ND		5.85 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		58.5 (L)	
4-Epianhydrotetracycline [EATC]	ND		14.6 (L)	
4-Epichlortetracycline [ECTC]	ND		14.6 (L)	
4-Epioxytetracycline [EOTC]	ND		5.85 (L)	
4-Epitetracycline [ETC]	ND		5.85 (L)	
Isochlortetracycline [ICTC]	ND		5.85 (L)	
Minocycline	ND		58.5 (L)	
Oxytetracycline [OTC]	ND		5.85 (L)	
Tetracycline [TC]	ND		5.85 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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Report Filename: LC_PPC_LC_PPC075_CYC_L16978-1_Form1A_QB1K_191S25_SJ1382979.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 04:45:59	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 25**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute	**% Moisture:**	33.0

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This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	85.3	85.3	5:19

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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Report Filename: LC_PPC_LC_PPC075_CYC_L16978-1_Form2_QB1K_191S25_SJ1382979.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 05:16:37	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 26**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	37.6

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This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		14.4 (L)	
Anhydrotetracycline [ATC]	ND		14.4 (L)	
Chlortetracycline [CTC]	ND		5.76 (L)	
Demeclocycline	ND		14.4 (L)	
Doxycycline	ND		5.76 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		57.6 (L)	
4-Epianhydrotetracycline [EATC]	ND		14.4 (L)	
4-Epichlortetracycline [ECTC]	ND		14.4 (L)	
4-Epioxytetracycline [EOTC]	ND		5.76 (L)	
4-Epitetracycline [ETC]	ND		5.76 (L)	
Isochlortetracycline [ICTC]	ND		5.76 (L)	
Minocycline	ND		57.6 (L)	
Oxytetracycline [OTC]	ND		5.76 (L)	
Tetracycline [TC]	ND		5.76 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-2_Form1A_QB1K_191S26_SJ1382980.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 05:16:37	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 26**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	77.1	77.1	5:16

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-2_Form2_QB1K_191S26_SJ1382980.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 05:47:22	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 27**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		13.7 (L)	
Anhydrotetracycline [ATC]	ND		18.2 (S)	
Chlortetracycline [CTC]	ND		5.47 (L)	
Demeclocycline	ND		13.7 (L)	
Doxycycline	ND		5.47 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		54.7 (L)	
4-Epianhydrotetracycline [EATC]	ND		13.7 (L)	
4-Epichlortetracycline [ECTC]	ND		13.7 (L)	
4-Epioxytetracycline [EOTC]	ND		5.47 (L)	
4-Epitetracycline [ETC]	ND		5.47 (L)	
Isochlortetracycline [ICTC]	ND		5.47 (L)	
Minocycline	ND		54.7 (L)	
Oxytetracycline [OTC]	ND		5.47 (L)	
Tetracycline [TC]	ND		5.47 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-3_Form1A_QB1K_191S27_SJ1382981.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 05:47:22	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 27**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	88.7	88.7	5:14

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-3_Form2_QB1K_191S27_SJ1382981.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 06:18:10	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 28**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		14.6 (L)	
Anhydrotetracycline [ATC]	ND		20.2 (S)	
Chlortetracycline [CTC]	ND		5.86 (L)	
Demeclocycline	ND		14.6 (L)	
Doxycycline	ND		5.86 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		58.6 (L)	
4-Epianhydrotetracycline [EATC]	ND		23.6 (S)	
4-Epichlortetracycline [ECTC]	ND		14.6 (L)	
4-Epioxytetracycline [EOTC]	ND		5.86 (L)	
4-Epitetracycline [ETC]	ND		5.86 (L)	
Isochlortetracycline [ICTC]	ND		5.86 (L)	
Minocycline	ND		58.6 (L)	
Oxytetracycline [OTC]	ND		5.86 (L)	
Tetracycline [TC]	ND		5.86 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-4_Form1A_QB1K_191S28_SJ1382982.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 06:18:10	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 28**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	87.9	87.9	5:11

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-4_Form2_QB1K_191S28_SJ1382982.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 06:48:56	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 29**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		14.0 (L)	
Anhydrotetracycline [ATC]	ND		14.0 (L)	
Chlortetracycline [CTC]	ND		5.64 (S)	
Demeclocycline	ND		14.0 (L)	
Doxycycline	ND		5.60 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		56.0 (L)	
4-Epianhydrotetracycline [EATC]	ND		14.0 (L)	
4-Epichlortetracycline [ECTC]	ND		14.0 (L)	
4-Epioxytetracycline [EOTC]	ND		5.60 (L)	
4-Epitetracycline [ETC]	ND		5.60 (L)	
Isochlortetracycline [ICTC]	ND		5.60 (L)	
Minocycline	ND		56.0 (L)	
Oxytetracycline [OTC]	ND		5.60 (L)	
Tetracycline [TC]	ND		5.60 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 15-Nov-2011 14:40:56; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-5_Form1A_QB1K_191S29_SJ1382983.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 06:48:56	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 29**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	97.5	97.5	5:14

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 15-Nov-2011 14:40:56; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-5_Form2_QB1K_191S29_SJ1382983.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 03:44:24	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 23**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		15.7 (S)	
Anhydrotetracycline [ATC]	ND		16.6 (S)	
Chlortetracycline [CTC]	ND		6.00 (L)	
Demeclocycline	ND		15.0 (L)	
Doxycycline	ND		6.00 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		60.0 (L)	
4-Epianhydrotetracycline [EATC]	ND		16.4 (S)	
4-Epichlortetracycline [ECTC]	ND		15.0 (L)	
4-Epioxytetracycline [EOTC]	ND		6.00 (L)	
4-Epitetracycline [ETC]	ND		6.00 (L)	
Isochlortetracycline [ICTC]	ND		6.00 (L)	
Minocycline	ND		60.0 (L)	
Oxytetracycline [OTC]	ND		6.00 (L)	
Tetracycline [TC]	ND		6.00 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_WG37878-101_Form1A_QB1K_191S23_SJ1382991.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 03:44:24	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 23**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	45.6	45.6	5:17

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_WG37878-101_Form2_QB1K_191S23_SJ1382991.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8A

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102
Matrix:	SOLID	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 01:41:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QB1K_191 S: 19**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
Anhydrochlortetracycline [ACTC]		250	56.7	22.7	20:51
Anhydrotetracycline [ATC]		250	80.0	32.0	16:40
Chlortetracycline [CTC]		100	92.7	92.7	12:05
Demeclocycline		250	162	64.9	9:49
Doxycycline		100	53.9	53.9	14:41
4-Epianhydrochlortetracycline [EACTC]		1000	92.7	9.3	19:11
4-Epianhydrotetracycline [EATC]		250	84.3	33.7	15:24
4-Epichlortetracycline [ECTC]		250	177	70.9	10:02
4-Epioxytetracycline [EOTC]		100	81.9	81.9	6:52
4-Epitetracycline [ETC]		100	105	105	6:00
Isochlortetracycline [ICTC]		100	74.9	74.9	10:15
Minocycline		1000	99.2	9.9	3:43
Oxytetracycline [OTC]		100	102	102	7:30
Tetracycline [TC]		100	87.7	87.7	7:56

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: LC_PPC_LC_PPC075_CYC_WG37878-102_Form8A_SJ1382987.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8B

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102
Matrix:	SOLID	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 01:41:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QB1K_191 S: 19**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
D6-Thiabendazole		100	69.5	69.5	5:19

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Henry Huang_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: LC_PPC_LC_PPC075_CYC_WG37878-102_Form8B_SJ1382987.html; Workgroup: WG37878; Design ID: 1482]

AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
1,2,3,6,7,8-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD		1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF				1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls													
PCB 1	2-Chlorobiphenyl	7	7								7	7	
PCB 3	4-Chlorobiphenyl	7	7								7	7	
PCB 4	2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5	2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15	4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18	2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19	2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31	2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37	3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81	3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

AXYS Analytical Services Ltd.

Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

AXYS Analytical Services Ltd.

Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37878	***Date:*** 17-Nov-2011
Analysis Type: (AN3) Pharmaceutical & Personal Care Products	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520

Samples:

L16978-1	BQ5956-10R
L16978-2	BR3044-10R
L16978-3	BR3045-10R
L16978-4	BR3046-10R
L16978-5	BQ9606-10R

Blank: WG37878-101

Reference or Spike: WG37878-102

Duplicate:

Comments:

1. Data are not blank corrected.
2. In the OPR (AXYS ID: WG37878-102), Hydrochlorothiazide recovered at 24%; below the lower limit of 45%. At this level, this target is deemed not quantifiable in client samples and is flagged 'NQ'.

AXYS METHOD MLA-075 Rev 3

Form 3A
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QF1K_189 S: 7
CS1 Data Filename: QF1K_189 S: 8
CS2 Data Filename: QF1K_189 S: 9
CS3 Data Filename: QF1K_189 S: 10
CS4 Data Filename: QF1K_189 S: 11
CS5 Data Filename: QF1K_189 S: 12
CS6 Data Filename: QF1K_189 S: 13
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERY (%)								
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
Bisphenol A		117	95.7	88.4	96.2	96.8	109	97.4		
Furosemide		119	95.4	84.3	127	80.9	89.1	105		
Gemfibrozil		106	99.9	99.4	105	92.9	95.5	102		
Glipizide		97.4	88.6	99.3	117	95.1	104	98.6		
Glyburide		99.4	90.5	101	119	88.6	101			
Hydrochlorothiazide		127	92.0	76.1	105					
2-Hydroxy-ibuprofen		82.5	117	95.0	111	94.4	101			
Ibuprofen		73.1	110	101	116	98.8	103	98.7		
Naproxen		118	76.3	73.7	135	99.1	98.1			
Triclocarban		96.6	95.2	99.8	108	107	90.3	102		
Triclosan		92.4	91.0	105	119	86.1	109	97.7		
Warfarin		70.1	95.4	104	118	107	110	95.7		

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Andrew Porat_____

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Report Filename: GENERIC-SPECS_PPC_LC_15-Oct-2011_QF1K__Form3A_GS43296.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3B
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QF1K_189 S: 7

CS1 Data Filename: QF1K_189 S: 8

CS2 Data Filename: QF1K_189 S: 9

CS3 Data Filename: QF1K_189 S: 10

CS4 Data Filename: QF1K_189 S: 11

CS5 Data Filename: QF1K_189 S: 12

CS6 Data Filename: QF1K_189 S: 13

CS7 Data Filename: N/A

CS8 Data Filename: N/A

		PERCENT RECOVERIES (%)								
LABELED COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
D6-Bisphenol A		72.9	103	108	125	107	96.4	87.9		
D6-Gemfibrozil		91.9	97.1	105	108	108	110	79.9		
D11-Glipizide		90.5	97.2	110	93.3	106	111	91.7		
D3-Glyburide		80.7	88.9	94.3	95.7	102	118	120		
13C3-Ibuprofen		88.5	80.7	106	106	115	114	89.8		
13C-D3-Naproxen		84.8	95.5	119	84.6	109	125	81.5		
13C6-Triclocarban		109	115	116	107	79.2	74.4			
13C12-Triclosan		111	123	114	104	89.6	58.7			
D5-Warfarin		101	100	118	102	97.0	81.2			

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
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Report Filename: GENERIC-SPECS_PPC_LC_15-Oct-2011_QF1K__Form3B_GS43296.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3C
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QF1K_189 S: 7
CS1 Data Filename: QF1K_189 S: 8
CS2 Data Filename: QF1K_189 S: 9
CS3 Data Filename: QF1K_189 S: 10
CS4 Data Filename: QF1K_189 S: 11
CS5 Data Filename: QF1K_189 S: 12
CS6 Data Filename: QF1K_189 S: 13
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
Bisphenol A		6:24	6:33	6:27	6:30	6:27	6:27	6:33			6:29
Furosemide		2:58	3:06	3:03	3:03	3:01	3:03	3:01			3:02
Gemfibrozil		9:13	9:15	9:15	9:15	9:15	9:15	9:15			9:15
Glipizide		6:27	6:30	6:24	6:27	6:24	6:27	6:27			6:27
Glyburide		8:14	8:19	8:14	8:14	8:14	8:14				8:15
Hydrochlorothiazide		2:17	2:12	2:12	2:12						2:13
2-Hydroxy-ibuprofen		3:52	4:00	3:52	3:52	3:52	3:55				3:54
Ibuprofen		8:19	8:19	8:19	8:19	8:19	8:19	8:19			8:19
Naproxen		6:27	6:33	6:27	6:30	6:30	6:30				6:30
Triclocarban		9:23	9:23	9:21	9:21	9:21	9:19	9:21			9:21
Triclosan		9:30	9:30	9:32	9:30	9:30	9:32	9:32			9:31
Warfarin		6:52	6:54	6:49	6:52	6:52	6:52	6:52			6:52

(1) Where applicable, custom lab flags have been used on this report.

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AXYS METHOD MLA-075 Rev 3

Form 3D
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QF1K_189 S: 7
CS1 Data Filename: QF1K_189 S: 8
CS2 Data Filename: QF1K_189 S: 9
CS3 Data Filename: QF1K_189 S: 10
CS4 Data Filename: QF1K_189 S: 11
CS5 Data Filename: QF1K_189 S: 12
CS6 Data Filename: QF1K_189 S: 13
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES								
LABELED COMPOUND	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
D6-Bisphenol A		6:27	6:30	6:22	6:24	6:27	6:24	6:24			6:25
D6-Gemfibrozil		9:13	9:15	9:13	9:13	9:13	9:13	9:13			9:13
D11-Glipizide		6:24	6:27	6:22	6:22	6:22	6:27	6:24			6:24
D3-Glyburide		8:14	8:14	8:14	8:14	8:14	8:14	8:14			8:14
13C3-Ibuprofen		8:19	8:19	8:19	8:19	8:19	8:19	8:19			8:19
13C-D3-Naproxen		6:27	6:30	6:27	6:27	6:24	6:27	6:24			6:27
13C6-Triclocarban		9:19	9:23	9:21	9:21	9:17	9:21				9:20
13C12-Triclosan		9:30	9:32	9:32	9:30	9:32	9:32				9:31
D5-Warfarin		6:49	6:52	6:46	6:49	6:49	6:46				6:49

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
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Report Filename: GENERIC-SPECS_PPC_LC_15-Oct-2011_QF1K__Form3D_GS43296.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4A
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	15-Oct-2011	**VER Data Filename:**	QF1K_189 S: 17
Instrument ID:	LC MS/MS	**Analysis Date:**	15-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	19:07:25

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Bisphenol A		6:30	4000	4960	124
Furosemide		3:01	2000	1990	99.3
Gemfibrozil		9:15	75.0	87.0	116
Glipizide		6:27	300	310	103
Glyburide		8:14	150	156	104
Hydrochlorothiazide		2:09	1000	798	79.8
2-Hydroxy-ibuprofen		3:55	4000	4140	104
Ibuprofen		8:19	750	879	117
Naproxen		6:27	150	184	123
Triclocarban		9:23	150	169	113
Triclosan		9:32	3000	3660	122
Warfarin		6:52	75.0	86.8	116

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4A.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1; Report Filename: GENERIC-SPECS_PPC_LC_QF1K_189S17__Form4A_SJ1380979.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4B
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	15-Oct-2011	**VER Data Filename:**	QF1K_189 S: 17
Instrument ID:	LC MS/MS	**Analysis Date:**	15-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	19:07:25

LABELED COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
D6-Bisphenol A		6:22	20000	17500	87.5
D6-Gemfibrozil		9:15	100	88.7	88.7
D11-Glipizide		6:24	400	467	117
D3-Glyburide		8:14	400	383	95.7
13C3-Ibuprofen		8:19	400	416	104
13C-D3-Naproxen		6:27	300	312	104
13C6-Triclocarban		9:23	50.0	52.9	106
13C12-Triclosan		9:34	400	375	93.7
D5-Warfarin		6:49	100	108	108

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4B.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QF1K_189S17__Form4B_SJ1380979.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4A
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	15-Oct-2011	**VER Data Filename:**	QF1K_189 S: 46
Instrument ID:	LC MS/MS	**Analysis Date:**	17-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	10:47:31

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Bisphenol A		6:30	4000	4020	100
Furosemide		3:09	2000	1980	99.1
Gemfibrozil		9:15	75.0	82.8	110
Glipizide		6:30	300	300	100
Glyburide		8:14	150	170	113
Hydrochlorothiazide		2:12	1000	924	92.4
2-Hydroxy-ibuprofen		4:00	4000	5820	145
Ibuprofen		8:19	750	983	131
Naproxen		6:33	150	168	112
Triclocarban		9:21	150	174	116
Triclosan		9:32	3000	2800	93.5
Warfarin		6:52	75.0	87.5	117

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4A.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1; Report Filename: GENERIC-SPECS_PPC_LC_QF1K_189S46__Form4A_SJ1381002.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4B
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	15-Oct-2011	**VER Data Filename:**	QF1K_189 S: 46
Instrument ID:	LC MS/MS	**Analysis Date:**	17-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	10:47:31

LABELED COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
D6-Bisphenol A		6:27	20000	22800	114
D6-Gemfibrozil		9:13	100	76.5	76.5
D11-Glipizide		6:24	400	503	126
D3-Glyburide		8:14	400	386	96.6
13C3-Ibuprofen		8:19	400	395	98.8
13C-D3-Naproxen		6:30	300	327	109
13C6-Triclocarban		9:21	50.0	58.8	118
13C12-Triclosan		9:30	400	418	104
D5-Warfarin		6:52	100	139	139

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4B.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QF1K_189S46__Form4B_SJ1381002.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 23:43:44	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 31**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Bisphenol A	ND		487 (L)	
Furosemide	ND		39.0 (L)	
Gemfibrozil	ND		1.46 (L)	
Glipizide	ND		5.85 (L)	
Glyburide	ND		2.92 (L)	
Hydrochlorothiazide	NQ			
2-Hydroxy-ibuprofen	ND		78.0 (L)	
Ibuprofen	ND		14.6 (L)	
Naproxen	ND		2.92 (L)	
Triclocarban	ND		2.92 (L)	
Triclosan	ND		58.5 (L)	
Warfarin	ND		1.46 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-1_Form1A_QF1K_189S31_SJ1380994.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 23:43:44	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 31**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng absolute	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Bisphenol A		20000	24500	122	6:27
D6-Gemfibrozil		100	87.7	87.7	9:13
D11-Glipizide		400	462	116	6:24
D3-Glyburide		400	388	96.9	8:09
13C3-Ibuprofen		400	356	89.0	8:19
13C-D3-Naproxen		300	294	98.1	6:27
13C6-Triclocarban		50.0	30.7	61.4	9:23
13C12-Triclosan		400	303	75.8	9:30
D5-Warfarin		100	126	126	6:49

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-1_Form2_QF1K_189S31_SJ1380994.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 00:03:35	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 32**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Bisphenol A	ND		480 (L)	
Furosemide	ND		38.4 (L)	
Gemfibrozil	ND		1.44 (L)	
Glipizide	ND		5.76 (L)	
Glyburide	ND		2.88 (L)	
Hydrochlorothiazide	NQ			
2-Hydroxy-ibuprofen	ND		76.8 (L)	
Ibuprofen	ND		14.4 (L)	
Naproxen	ND		2.88 (L)	
Triclocarban		4.37	2.88 (L)	9:21
Triclosan	ND		57.6 (L)	
Warfarin	ND		1.44 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-2_Form1A_QF1K_189S32_SJ1380995.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 00:03:35	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 32**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng absolute	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Bisphenol A		20000	25200	126	6:24
D6-Gemfibrozil		100	88.4	88.4	9:13
D11-Glipizide		400	467	117	6:24
D3-Glyburide		400	432	108	8:14
13C3-Ibuprofen		400	369	92.2	8:19
13C-D3-Naproxen		300	314	105	6:27
13C6-Triclocarban		50.0	46.9	93.8	9:21
13C12-Triclosan		400	337	84.2	9:30
D5-Warfarin		100	124	124	6:49

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-2_Form2_QF1K_189S32_SJ1380995.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 00:23:18	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 33**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Bisphenol A	ND		456 (L)	
Furosemide	ND		36.5 (L)	
Gemfibrozil	ND		1.37 (L)	
Glipizide	ND		5.47 (L)	
Glyburide	ND		2.73 (L)	
Hydrochlorothiazide	NQ			
2-Hydroxy-ibuprofen	ND		72.9 (L)	
Ibuprofen	ND		13.7 (L)	
Naproxen	ND		2.73 (L)	
Triclocarban		3.39	2.73 (L)	9:21
Triclosan	ND		54.7 (L)	
Warfarin	ND		1.37 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-3_Form1A_QF1K_189S33_SJ1380996.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 00:23:18	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 33**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng absolute	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Bisphenol A		20000	26000	130	6:22
D6-Gemfibrozil		100	100	100	9:13
D11-Glipizide		400	549	137	6:19
D3-Glyburide		400	446	112	8:14
13C3-Ibuprofen		400	455	114	8:19
13C-D3-Naproxen		300	323	108	6:22
13C6-Triclocarban		50.0	44.2	88.3	9:21
13C12-Triclosan		400	439	110	9:27
D5-Warfarin		100	129	129	6:46

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-3_Form2_QF1K_189S33_SJ1380996.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4 i
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	17-Oct-2011 **Time:** 12:26:09	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 51**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 46
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Bisphenol A	ND		488 (L)	
Furosemide	ND		39.1 (L)	
Gemfibrozil	ND		1.46 (L)	
Glipizide	ND		5.86 (L)	
Glyburide	ND		2.93 (L)	
Hydrochlorothiazide	NQ			
2-Hydroxy-ibuprofen	ND		78.1 (L)	
Ibuprofen	ND		14.6 (L)	
Naproxen	ND		2.93 (L)	
Triclocarban		4.16	2.93 (L)	9:19
Triclosan	ND		58.6 (L)	
Warfarin	ND		1.46 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-4_Form1A_QF1K_189S51_SJ1381007.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4 i
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	17-Oct-2011 **Time:** 12:26:09	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 51**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 46
Concentration Units:	ng absolute	**% Moisture:**	38.3

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This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Bisphenol A		20000	18400	92.0	6:27
D6-Gemfibrozil		100	87.8	87.8	9:13
D11-Glipizide		400	490	122	6:24
D3-Glyburide		400	386	96.5	8:14
13C3-Ibuprofen		400	476	119	8:19
13C-D3-Naproxen		300	294	98.0	6:27
13C6-Triclocarban		50.0	35.4	70.7	9:21
13C12-Triclosan		400	382	95.4	9:30
D5-Warfarin		100	141	141	6:49

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-4_Form2_QF1K_189S51_SJ1381007.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 01:02:46	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 35**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Bisphenol A	ND		467 (L)	
Furosemide	ND		37.3 (L)	
Gemfibrozil	ND		1.40 (L)	
Glipizide	ND		5.60 (L)	
Glyburide	ND		2.80 (L)	
Hydrochlorothiazide	NQ			
2-Hydroxy-ibuprofen	ND		74.7 (L)	
Ibuprofen	ND		14.0 (L)	
Naproxen	ND		2.80 (L)	
Triclocarban		3.90	2.80 (L)	9:23
Triclosan	ND		56.0 (L)	
Warfarin	ND		1.40 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_AEN_L16978-5_Form1A_QF1K_189S35_SJ1380998.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 01:02:46	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 35**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng absolute	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Bisphenol A		20000	22500	112	6:27
D6-Gemfibrozil		100	96.3	96.3	9:13
D11-Glipizide		400	470	117	6:22
D3-Glyburide		400	419	105	8:14
13C3-Ibuprofen		400	393	98.2	8:19
13C-D3-Naproxen		300	281	93.6	6:24
13C6-Triclocarban		50.0	36.9	73.8	9:23
13C12-Triclosan		400	385	96.2	9:32
D5-Warfarin		100	124	124	6:46

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_AEN_L16978-5_Form2_QF1K_189S35_SJ1380998.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 23:24:00	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 30**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng/g		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Bisphenol A	ND		500 (L)	
Furosemide	ND		40.0 (L)	
Gemfibrozil	ND		1.50 (L)	
Glipizide	ND		6.00 (L)	
Glyburide	ND		3.00 (L)	
Hydrochlorothiazide	NQ			
2-Hydroxy-ibuprofen	ND		80.0 (L)	
Ibuprofen	ND		15.0 (L)	
Naproxen	ND		3.00 (L)	
Triclocarban	ND		3.00 (L)	
Triclosan	ND		60.0 (L)	
Warfarin	ND		1.50 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_AEN_WG37878-101_Form1A_QF1K_189S30_SJ1380992.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 23:24:00	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 30**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Bisphenol A		20000	21200	106	6:27
D6-Gemfibrozil		100	90.5	90.5	9:13
D11-Glipizide		400	458	115	6:22
D3-Glyburide		400	347	86.8	8:14
13C3-Ibuprofen		400	422	105	8:19
13C-D3-Naproxen		300	281	93.6	6:27
13C6-Triclocarban		50.0	25.7	51.3	9:23
13C12-Triclosan		400	328	82.1	9:30
D5-Warfarin		100	112	112	6:49

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_AEN_WG37878-101_Form2_QF1K_189S30_SJ1380992.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8A

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102
Matrix:	SOLID	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 20:26:28	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QF1K_189 S: 21**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
Bisphenol A		4010	3500	87.1	6:27
Furosemide		2000	1320	66.2	3:01
Gemfibrozil		75.0	79.2	106	9:15
Glipizide		300	286	95.5	6:27
Glyburide		150	147	97.9	8:14
Hydrochlorothiazide	NQ				
2-Hydroxy-ibuprofen		4010	4620	115	3:52
Ibuprofen		750	825	110	8:19
Naproxen		150	166	111	6:30
Triclocarban		150	155	103	9:23
Triclosan		3000	2580	85.9	9:30
Warfarin		75.0	86.9	116	6:52

(1) Where applicable, custom lab flags have been used on this report; NQ = data not quantifiable.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: FC-Form8A.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_WG37878-102_Form8A_SJ1380981.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8B

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102
Matrix:	SOLID	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 20:26:28	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QF1K_189 S: 21**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
D6-Bisphenol A		20000	22000	110	6:24
D6-Gemfibrozil		100	91.8	91.8	9:13
D11-Glipizide		400	401	100	6:24
D3-Glyburide		400	382	95.5	8:14
13C3-Ibuprofen		400	349	87.3	8:19
13C-D3-Naproxen		300	309	103	6:27
13C6-Triclocarban		50.0	18.2	36.4	9:21
13C12-Triclosan		400	312	77.9	9:32
D5-Warfarin		100	90.3	90.3	6:46

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: LC_PPC_LC_PPC075_AEN_WG37878-102_Form8B_SJ1380981.html; Workgroup: WG37878; Design ID: 1482]

AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
1,2,3,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD	1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF			1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls												
PCB 1 2-Chlorobiphenyl	7	7								7	7	
PCB 3 4-Chlorobiphenyl	7	7								7	7	
PCB 4 2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5 2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15 4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18 2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19 2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31 2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37 3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44 2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52 2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54 2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66 2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77 3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81 3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87 2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

AXYS Analytical Services Ltd.

Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

AXYS Analytical Services Ltd.

Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37878	***Date:*** 16-Nov-2011
Analysis Type: (AP1) Pharmaceutical & Personal Care Products	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520

Samples:

L16978-1	BQ5956-10R
L16978-2	BR3044-10R
L16978-3	BR3045-10R
L16978-4	BR3046-10R
L16978-5	BQ9606-10R

Blank: WG37878-101

Reference or Spike: WG37878-102

Duplicate:

Comments:

1. Data are not blank corrected. Oxolinic Acid and Sarafloxacin were detected in the Lab Blank (AXYS ID: WG37878-101) at levels slightly above their respective reporting limits. These targets were not detected in client samples; data are not considered affected.
2. At least 5 calibration points were used in quantification of the initial calibration (QA1J_152 S: 5 to S: 11) for all the analytes. The lowest level calibration standard CS0 for Clinafloxacin and Digoxigenin, were excluded from the initial calibration as results for these analytes did not meet method specifications. As a result, the CS1 level of the calibration was used as detection qualifier for these analytes in samples.
3. In the OPR (AXYS ID: WG37878-102), Azithromycin, Diphenhydramine and Ofloxacin were observed outside the method specifications and are flagged with an 'N' on reports. Data may be considered similarly affected.
4. In the OPR (AXYS ID: WG37878-102) 13C2-15N-Acetaminophan, 13C3-Caffeine and 13C2-Erythromycin-H_2O were observed above method specifications. Target analytes quantified by these surrogates were observed within method control limits. Data are not considered affected by these variances.
5. The recovery of several surrogates in client samples BQ5956-10R, BR3044-10R, BR3046-10R and BQ9606-10R (AXYS ID: L16978-1, -2, -4, -5) recovered above the upper control limit, these compounds are flagged with a 'V'. Targets were not detected in all client samples in this batch, and data are considered not significantly affected by this variance. Percent surrogate recoveries are used as general method performance indicator only.
6. In the Lab Blank (AXYS ID: WG37878-101),13C3-N15-Ciprofloxacin did not meet the method criteria; this compound is flagged with a 'V'. In all client samples, this surrogate was not recovered. All associated analytes are deemed not quantifiable and are flagged 'NQ' on reports.

AXYS METHOD MLA-075 Rev 3

Form 3A
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 12-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QA1J_152 S: 5
CS1 Data Filename: QA1J_152 S: 6
CS2 Data Filename: QA1J_152 S: 7
CS3 Data Filename: QA1J_152 S: 8
CS4 Data Filename: QA1J_152 S: 9
CS5 Data Filename: QA1J_152 S: 10
CS6 Data Filename: QA1J_152 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERY (%)								
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
Acetaminophen		107	99.2	101	88.4	104	100	100		
Azithromycin		119	91.7	91.2	99.6	97.5	101			
Caffeine		86.1	92.9	110	96.2	109	107	98.1		
Carbadox		96.6	97.7	114	89.5	102				
Carbamazepine		130	103	91.0	96.7	87.4	89.1	103		
Cefotaxime		140	79.0	88.2	89.1	104				
Ciprofloxacin		96.8	85.6	88.2	103	123	107	97.6		
Clarithromycin		85.5	97.7	114	98.6	106	98.4			
Clinafloxacin			135	86.3	81.7	94.8	103			
Cloxacillin		77.6	89.1	114	115	108	96.8			
Dehydronifedipine		135	84.8	84.8	92.2	103				
Diphenhydramine		101	92.7	97.0	109	100	99.3			
Diltiazem		117	86.0	93.0	105	99.7	99.9			
Digoxin		124	97.1	85.8	102	88.0	103			
Digoxigenin			116	94.3	92.9	94.6	102			
Enrofloxacin		111	98.8	94.3	89.7	105	103	99.4		
Erythromycin-H2O		108	72.6	110	95.5	109	107	98.3		
Flumequine		63.4	87.5	108	122	117	104	98.1		
Fluoxetine		135	110	96.1	77.2	89.6	88.1	103		
Lincomycin		131	92.2	89.0	91.3	93.9	102			
Lomefloxacin		93.0	95.4	104	99.0	108	101	99.4		
Miconazole		131	87.8	87.9	94.4	97.5	101			
Norfloxacin		89.0	81.3	98.7	115	122	93.4			
Norgestimate		134	89.6	78.7	95.1	103				
Ofloxacin		86.3	93.5	111	98.2	114	96.4			
Ormetoprim		68.9	92.9	113	118	111	95.7			
Oxacillin		109	101	112	111	84.9	77.0	105		
Oxolinic Acid		138	75.9	87.7	96.5	102				
Penicillin G		128	101	103	92.6	90.1	80.3	105		
Penicillin V		110	74.2	97.6	114	108	97.2			
Roxithromycin		91.6	103	114	90.9	99.8	101			
Sarafloxacin		87.4	97.9	106	97.4	115	96.4			
Sulfachloropyridazine		81.1	104	111	95.4	112	97.1	100		
Sulfadiazine		106	103	103	85.0	103	100			
Sulfadimethoxine		126	93.2	90.5	85.5	105				

COMPOUND	LAB FLAG [1]	PERCENT RECOVERY (%) CS0	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8
Sulfamerazine		115	99.0	105	81.6	97.8	102			
Sulfamethazine		111	88.4	112	85.6	103	100	100		
Sulfamethizole		131	104	93.7	73.0	95.4	103			
Sulfamethoxazole		123	87.9	100	87.9	100	101	100		
Sulfanilamide		111	105	116	74.1	101	90.6	102		
Sulfathiazole		120	96.6	94.9	83.7	105				
Thiabendazole		111	103	108	81.6	92.8	104	99.7		
Trimethoprim		123	89.3	101	89.2	101	95.9	101		
Tylosin		69.6	98.2	110	106	113	105	98.3		
Virginiamycin		121	96.4	88.0	96.5	96.8	101			
1,7-Dimethylxanthine		128	97.6	95.4	78.4	98.1	102			

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

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AXYS METHOD MLA-075 Rev 3

Form 3B
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 12-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QA1J_152 S: 5
CS1 Data Filename: QA1J_152 S: 6
CS2 Data Filename: QA1J_152 S: 7
CS3 Data Filename: QA1J_152 S: 8
CS4 Data Filename: QA1J_152 S: 9
CS5 Data Filename: QA1J_152 S: 10
CS6 Data Filename: QA1J_152 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERIES (%)								
LABELED COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
13C2-15N-Acetaminophen		96.8	94.2	90.4	95.3	94.1	112	117		
13C3-Caffeine		100	97.4	91.6	102	96.9	114	97.4		
13C3-N15-Ciprofloxacin		91.4	82.5	86.4	101	96.0	119	124		
13C2-Erythromycin-H2O		88.8	87.1	80.7	107	91.1	109	136		
D5-Fluoxetine		103	92.6	89.1	108	99.3	116	91.8		
13C6-Sulfamethazine		96.5	90.5	82.5	97.2	94.1	116	123		
13C6-Sulfamethoxazole		104	99.2	93.2	104	94.5	104	101		
D6-Thiabendazole		110	102	95.2	115	95.4	81.9			
13C3-Trimethoprim		107	105	95.8	89.4	95.6	110	96.9		

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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AXYS METHOD MLA-075 Rev 3

Form 3C
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 12-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QA1J_152 S: 5
CS1 Data Filename: QA1J_152 S: 6
CS2 Data Filename: QA1J_152 S: 7
CS3 Data Filename: QA1J_152 S: 8
CS4 Data Filename: QA1J_152 S: 9
CS5 Data Filename: QA1J_152 S: 10
CS6 Data Filename: QA1J_152 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
Acetaminophen		4:30	4:28	4:37	4:37	4:29	4:34	4:25			4:31
Azithromycin		13:26	13:26	13:26	13:26	13:26	13:26				13:26
Caffeine		9:19	9:19	9:19	9:19	9:19	9:19	9:19			9:19
Carbadox		10:32	10:32	10:32	10:32	10:32					10:32
Carbamazepine		15:23	15:23	15:23	15:23	15:23	15:23	15:23			15:23
Cefotaxime		10:05	10:05	10:05	10:05	10:05					10:05
Ciprofloxacin		10:48	10:48	10:48	10:48	10:48	10:48	10:48			10:48
Clarithromycin		17:28	17:24	17:24	17:24	17:24	17:24				17:25
Clinafloxacin			12:00	12:00	12:00	12:00	12:00				12:00
Cloxacillin		16:45	16:41	16:41	16:41	16:41	16:41				16:42
Dehydronifedipine		16:35	16:31	16:31	16:31	16:31					16:32
Diphenhydramine		14:24	14:24	14:24	14:24	14:24	14:24				14:24
Diltiazem		15:09	15:09	15:09	15:09	15:09	15:09				15:09
Digoxin		16:35	16:35	16:39	16:35	16:39	16:35				16:36
Digoxigenin			12:43	12:43	12:43	12:41	12:41				12:42
Enrofloxacin		11:13	11:13	11:13	11:13	11:13	11:13	11:13			11:13
Erythromycin-H2O		17:33	16:45	16:45	16:45	16:45	16:45	16:45			16:52
Flumequine		15:09	15:12	15:12	15:09	15:09	15:09	15:09			15:10
Fluoxetine		16:50	16:50	16:50	16:50	16:50	16:50	16:50			16:50
Lincomycin		9:19	9:19	9:19	9:19	9:19	9:19				9:19
Lomefloxacin		11:05	11:05	11:05	11:05	11:05	11:05	11:05			11:05
Miconazole		20:51	20:49	20:49	20:51	20:51	20:49				20:50
Norfloxacin		10:35	10:35	10:35	10:35	10:35	10:35				10:35
Norgestimate		21:48	21:43	21:43	21:43	21:43					21:44
Ofloxacin		10:32	10:32	10:32	10:32	10:32	10:29				10:32
Ormetoprim		10:29	10:29	10:29	10:29	10:29	10:29				10:29
Oxacillin		16:09	16:09	16:09	16:09	16:09	16:09	16:09			16:09
Oxolinic Acid		13:07	13:07	13:07	13:07	13:07					13:07
Penicillin G		14:21	14:21	14:21	14:21	14:21	14:21	14:18			14:21
Penicillin V		15:12	15:09	15:12	15:09	15:09	15:09				15:10
Roxithromycin		17:37	17:37	17:37	17:37	17:37	17:37				17:37
Sarafloxacin		11:46	11:48	11:48	11:48	11:48	11:48				11:48
Sulfachloropyridazine		10:55	10:55	10:58	10:58	10:58	10:55	10:55			10:56
Sulfadiazine		6:17	6:22	6:18	6:19	6:19	6:19				6:19
Sulfadimethoxine		13:16	13:16	13:16	13:16	13:16					13:16

COMPOUND	LAB FLAG [1]	RETENTION TIMES CS0	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8	MEAN RT
Sulfamerazine		8:51	8:54	8:54	8:54	8:51	8:51				8:53
Sulfamethazine		10:15	10:12	10:12	10:12	10:12	10:12	10:12			10:12
Sulfamethizole		10:05	10:05	10:05	10:05	10:05	10:05				10:05
Sulfamethoxazole		11:22	11:20	11:20	11:20	11:20	11:20	11:20			11:20
Sulfanilamide		2:09	2:09	2:09	2:09	2:09	2:08	2:08			2:09
Sulfathiazole		8:03	8:00	8:03	8:03	8:03					8:02
Thiabendazole		10:42	10:42	10:42	10:42	10:42	10:42	10:42			10:42
Trimethoprim		9:53	9:53	9:53	9:53	9:53	9:53	9:53			9:53
Tylosin		16:18	16:18	16:18	16:18	16:18	16:18	16:18			16:18
Virginiamycin		17:20	17:20	17:20	17:20	17:20	17:20				17:20
1,7-Dimethylxanthine		6:49	7:08	7:08	7:09	7:06	7:06				7:04

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

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Report Filename: GENERIC-SPECS_PPC_LC_12-Oct-2011_QA1J__Form3C_GS43289.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3D
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 12-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QA1J_152 S: 5
CS1 Data Filename: QA1J_152 S: 6
CS2 Data Filename: QA1J_152 S: 7
CS3 Data Filename: QA1J_152 S: 8
CS4 Data Filename: QA1J_152 S: 9
CS5 Data Filename: QA1J_152 S: 10
CS6 Data Filename: QA1J_152 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES								
LABELED COMPOUND	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
13C2-15N-Acetaminophen		4:27	4:37	4:29	4:30	4:33	4:33	4:23			4:30
13C3-Caffeine		9:19	9:19	9:19	9:19	9:19	9:19	9:19			9:19
13C3-N15-Ciprofloxacin		10:48	10:48	10:48	10:48	10:48	10:48	10:48			10:48
13C2-Erythromycin-H2O		16:45	16:45	16:45	16:45	16:45	16:45	16:45			16:45
D5-Fluoxetine		16:50	16:45	16:45	16:45	16:45	16:45	16:45			16:46
13C6-Sulfamethazine		10:12	10:12	10:12	10:12	10:12	10:12	10:12			10:12
13C6-Sulfamethoxazole		11:20	11:20	11:20	11:20	11:20	11:20	11:20			11:20
D6-Thiabendazole		10:35	10:35	10:35	10:35	10:35	10:35				10:35
13C3-Trimethoprim		9:53	9:53	9:53	9:53	9:53	9:53	9:53			9:53

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: GENERIC-SPECS_PPC_LC_12-Oct-2011_QA1J__Form3D_GS43289.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4A
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	12-Oct-2011	**VER Data Filename:**	QA1J_152 S: 13
Instrument ID:	LC MS/MS	**Analysis Date:**	12-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	23:03:27

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Acetaminophen		4:25	750	667	88.9
Azithromycin		13:26	75.0	57.1	76.1
Caffeine		9:19	750	710	94.6
Carbadox		10:32	75.0	54.2	72.3
Carbamazepine		15:23	75.0	52.1	69.5
Cefotaxime		10:05	186	128	68.8
Ciprofloxacin		10:48	300	324	108
Clarithromycin		17:24	75.0	71.5	95.4
Clinafloxacin		12:00	300	235	78.5
Cloxacillin		16:41	150	136	91.0
Dehydronifedipine		16:31	30.0	23.9	79.8
Diphenhydramine		14:24	30.0	23.6	78.5
Diltiazem		15:09	15.0	12.2	81.3
Digoxin		16:35	300	242	80.7
Digoxigenin		12:41	300	220	73.5
Enrofloxacin		11:13	150	132	88.1
Erythromycin-H2O		16:45	15.0	14.3	95.0
Flumequine		15:09	75.0	70.1	93.4
Fluoxetine		16:50	75.0	59.1	78.7
Lincomycin		9:19	150	113	75.6
Lomefloxacin		11:05	150	127	84.8
Miconazole		20:49	75.0	56.9	75.9
Norfloxacin		10:35	750	934	125
Norgestimate		21:42	150	120	80.0
Ofloxacin		10:32	75.0	72.3	96.4
Ormetoprim		10:29	30.0	28.5	94.9
Oxacillin		16:09	150	123	81.8
Oxolinic Acid		13:07	30.0	23.2	77.2
Penicillin G		14:21	150	130	86.5
Penicillin V		15:09	150	147	98.1
Roxithromycin		17:37	15.0	12.5	83.5
Sarafloxacin		11:48	750	651	86.8
Sulfachloropyridazine		10:55	75.0	70.5	93.9
Sulfadiazine		6:17	75.0	64.1	85.4
Sulfadimethoxine		13:13	15.0	14.7	98.1

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Sulfamerazine		8:51	30.0	24.2	80.6
Sulfamethazine		10:12	30.0	25.9	86.2
Sulfamethizole		10:05	30.0	23.5	78.3
Sulfamethoxazole		11:18	30.0	26.3	87.8
Sulfanilamide		2:08	750	629	83.8
Sulfathiazole		8:03	75.0	70.2	93.6
Thiabendazole		10:42	75.0	67.4	89.8
Trimethoprim		9:53	75.0	64.6	86.2
Tylosin		16:18	300	291	97.0
Virginiamycin		17:20	150	115	76.6
1,7-Dimethylxanthine		7:05	3000	2540	84.5

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4A.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QA1J_152S13__Form4A_SJ1369825.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4B
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	12-Oct-2011	**VER Data Filename:**	QA1J_152 S: 13
Instrument ID:	LC MS/MS	**Analysis Date:**	12-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	23:03:27

LABELED COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
13C2-15N-Acetaminophen		4:33	200	278	139
13C3-Caffeine		9:19	300	350	117
13C3-N15-Ciprofloxacin		10:48	400	570	142
13C2-Erythromycin-H2O		16:45	100	118	118
D5-Fluoxetine		16:45	100	126	126
13C6-Sulfamethazine		10:12	100	116	116
13C6-Sulfamethoxazole		11:18	100	113	113
D6-Thiabendazole		10:35	100	117	117
13C3-Trimethoprim		9:53	100	130	130

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4B.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QA1J_152S13__Form4B_SJ1369825.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 04:22:02	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 22**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Acetaminophen	ND		14.6 (L)	
Azithromycin	ND		1.46 (L)	
Caffeine	ND		14.6 (L)	
Carbadox	ND		1.46 (L)	
Carbamazepine	ND		1.46 (L)	
Cefotaxime	ND		4.19 (S)	
Ciprofloxacin	NQ			
Clarithromycin	ND		1.46 (L)	
Clinafloxacin	NQ			
Cloxacillin	ND		2.92 (L)	
Dehydronifedipine	ND		0.585 (L)	
Diphenhydramine	ND		0.585 (L)	
Diltiazem	ND		0.292 (L)	
Digoxin	ND		5.85 (L)	
Digoxigenin	ND		21.1 (S)	
Enrofloxacin	NQ			
Erythromycin-H2O	ND		0.292 (L)	
Flumequine	ND		1.46 (L)	
Fluoxetine	ND		1.46 (L)	
Lincomycin	ND		2.92 (L)	
Lomefloxacin	NQ			
Miconazole	ND		1.46 (L)	
Norfloxacin	NQ			
Norgestimate	ND		4.31 (S)	
Ofloxacin	NQ			
Ormetoprim	ND		0.585 (L)	
Oxacillin	ND		2.92 (L)	
Oxolinic Acid	ND		0.585 (L)	
Penicillin G	ND		2.92 (L)	

This page is part of a total report that contains information necessary for accreditation compliance.
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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Penicillin V	ND		2.92 (L)	
Roxithromycin	ND		0.292 (L)	
Sarafloxacin	NQ			
Sulfachloropyridazine	ND		1.46 (L)	
Sulfadiazine	ND		1.46 (L)	
Sulfadimethoxine	ND		0.292 (L)	
Sulfamerazine	ND		0.585 (L)	
Sulfamethazine	ND		0.585 (L)	
Sulfamethizole	ND		0.585 (L)	
Sulfamethoxazole	ND		0.585 (L)	
Sulfanilamide	ND		14.6 (L)	
Sulfathiazole	ND		1.46 (L)	
Thiabendazole	ND		1.46 (L)	
Trimethoprim	ND		1.46 (L)	
Tylosin	ND		5.85 (L)	
Virginiamycin	ND		2.92 (L)	
1,7-Dimethylxanthine [3]	ND		58.5 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with Theophylline, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-1_Form1A_QA1J_152S22_SJ1369838.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 04:22:02	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 22**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng absolute	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
13C2-15N-Acetaminophen	V	200	439	219	4:23
13C3-Caffeine		300	342	114	9:19
13C3-N15-Ciprofloxacin	NQ				
13C2-Erythromycin-H2O		100	91.7	91.7	16:45
D5-Fluoxetine		100	43.9	43.9	16:45
13C6-Sulfamethazine		100	131	131	10:12
13C6-Sulfamethoxazole		100	112	112	11:18
D6-Thiabendazole		100	104	104	10:35
13C3-Trimethoprim		100	118	118	9:53

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits; NQ = data not quantifiable.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-1_Form2_QA1J_152S22_SJ1369838.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 04:57:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 23**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Acetaminophen	ND		14.4 (L)	
Azithromycin	ND		1.44 (L)	
Caffeine	ND		14.4 (L)	
Carbadox	ND		1.44 (L)	
Carbamazepine	ND		1.44 (L)	
Cefotaxime	ND		3.59 (S)	
Ciprofloxacin	NQ			
Clarithromycin	ND		1.44 (L)	
Clinafloxacin	NQ			
Cloxacillin	ND		2.88 (L)	
Dehydronifedipine	ND		0.576 (L)	
Diphenhydramine	ND		0.576 (L)	
Diltiazem	ND		0.288 (L)	
Digoxin	ND		5.76 (L)	
Digoxigenin	ND		21.7 (S)	
Enrofloxacin	NQ			
Erythromycin-H2O	ND		0.288 (L)	
Flumequine	ND		1.44 (L)	
Fluoxetine	ND		1.44 (L)	
Lincomycin	ND		2.88 (L)	
Lomefloxacin	NQ			
Miconazole		1.47	1.44 (L)	20:49
Norfloxacin	NQ			
Norgestimate	ND		3.89 (S)	
Ofloxacin	NQ			
Ormetoprim	ND		0.576 (L)	
Oxacillin	ND		2.88 (L)	
Oxolinic Acid	ND		0.576 (L)	
Penicillin G	ND		2.88 (L)	

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Penicillin V	ND		2.88 (L)	
Roxithromycin	ND		0.288 (L)	
Sarafloxacin	NQ			
Sulfachloropyridazine	ND		1.44 (L)	
Sulfadiazine	ND		1.44 (L)	
Sulfadimethoxine	ND		0.288 (L)	
Sulfamerazine	ND		0.576 (L)	
Sulfamethazine	ND		0.576 (L)	
Sulfamethizole	ND		0.576 (L)	
Sulfamethoxazole	ND		0.576 (L)	
Sulfanilamide	ND		14.4 (L)	
Sulfathiazole	ND		1.44 (L)	
Thiabendazole	ND		1.44 (L)	
Trimethoprim	ND		1.44 (L)	
Tylosin	ND		5.76 (L)	
Virginiamycin	ND		2.88 (L)	
1,7-Dimethylxanthine [3]	ND		57.6 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with Theophylline, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-2_Form1A_QA1J_152S23_SJ1369839.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 04:57:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 23**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng absolute	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
13C2-15N-Acetaminophen	V	200	413	206	4:20
13C3-Caffeine		300	396	132	9:19
13C3-N15-Ciprofloxacin	NQ				
13C2-Erythromycin-H2O	V	100	139	139	16:45
D5-Fluoxetine	V	100	182	182	16:45
13C6-Sulfamethazine		100	117	117	10:12
13C6-Sulfamethoxazole		100	105	105	11:18
D6-Thiabendazole		100	105	105	10:35
13C3-Trimethoprim	V	100	144	144	9:53

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits; NQ = data not quantifiable.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-2_Form2_QA1J_152S23_SJ1369839.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 05:32:48	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 24**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Acetaminophen	ND		13.7 (L)	
Azithromycin	ND		1.37 (L)	
Caffeine	ND		13.7 (L)	
Carbadox	ND		1.37 (L)	
Carbamazepine	ND		1.37 (L)	
Cefotaxime	ND		3.59 (S)	
Ciprofloxacin	NQ			
Clarithromycin	ND		1.37 (L)	
Clinafloxacin	NQ			
Cloxacillin	ND		2.73 (L)	
Dehydronifedipine	ND		0.547 (L)	
Diphenhydramine	ND		0.547 (L)	
Diltiazem	ND		0.273 (L)	
Digoxin	ND		5.47 (L)	
Digoxigenin	ND		18.2 (L)	
Enrofloxacin	NQ			
Erythromycin-H2O	ND		0.273 (L)	
Flumequine	ND		1.37 (L)	
Fluoxetine	ND		1.37 (L)	
Lincomycin	ND		2.73 (L)	
Lomefloxacin	NQ			
Miconazole	ND		1.37 (L)	
Norfloxacin	NQ			
Norgestimate	ND		4.00 (S)	
Ofloxacin	NQ			
Ormetoprim	ND		0.547 (L)	
Oxacillin	ND		2.73 (L)	
Oxolinic Acid	ND		0.547 (L)	
Penicillin G	ND		2.73 (L)	

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Penicillin V	ND		2.73 (L)	
Roxithromycin	ND		0.273 (L)	
Sarafloxacin	NQ			
Sulfachloropyridazine	ND		1.37 (L)	
Sulfadiazine	ND		1.37 (L)	
Sulfadimethoxine	ND		0.273 (L)	
Sulfamerazine	ND		0.547 (L)	
Sulfamethazine	ND		0.547 (L)	
Sulfamethizole	ND		0.547 (L)	
Sulfamethoxazole	ND		0.547 (L)	
Sulfanilamide	ND		13.7 (L)	
Sulfathiazole	ND		1.37 (L)	
Thiabendazole	ND		1.37 (L)	
Trimethoprim	ND		1.37 (L)	
Tylosin	ND		5.47 (L)	
Virginiamycin	ND		2.73 (L)	
1,7-Dimethylxanthine [3]	ND		54.7 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with Theophylline, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-3_Form1A_QA1J_152S24_SJ1369840.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 05:32:48	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 24**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng absolute	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
13C2-15N-Acetaminophen		200	238	119	4:21
13C3-Caffeine		300	366	122	9:19
13C3-N15-Ciprofloxacin	NQ				
13C2-Erythromycin-H2O		100	123	123	16:45
D5-Fluoxetine		100	136	136	16:45
13C6-Sulfamethazine		100	124	124	10:12
13C6-Sulfamethoxazole		100	111	111	11:18
D6-Thiabendazole		100	115	115	10:35
13C3-Trimethoprim		100	132	132	9:53

(1) Where applicable, custom lab flags have been used on this report; NQ = data not quantifiable.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-3_Form2_QA1J_152S24_SJ1369840.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 06:08:11	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 25**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Acetaminophen	ND		14.6 (L)	
Azithromycin	ND		1.46 (L)	
Caffeine	ND		14.6 (L)	
Carbadox	ND		1.46 (L)	
Carbamazepine		2.22	1.46 (L)	15:20
Cefotaxime	ND		3.95 (S)	
Ciprofloxacin	NQ			
Clarithromycin	ND		1.46 (L)	
Clinafloxacin	NQ			
Cloxacillin	ND		2.93 (L)	
Dehydronifedipine	ND		0.586 (L)	
Diphenhydramine	ND		0.586 (L)	
Diltiazem	ND		0.293 (L)	
Digoxin	ND		5.86 (L)	
Digoxigenin	ND		25.7 (S)	
Enrofloxacin	NQ			
Erythromycin-H2O	ND		0.293 (L)	
Flumequine	ND		1.46 (L)	
Fluoxetine	ND		1.48 (S)	
Lincomycin	ND		2.93 (L)	
Lomefloxacin	NQ			
Miconazole	ND		1.46 (L)	
Norfloxacin	NQ			
Norgestimate	ND		4.09 (S)	
Ofloxacin	NQ			
Ormetoprim	ND		0.586 (L)	
Oxacillin	ND		2.93 (L)	
Oxolinic Acid	ND		0.586 (L)	
Penicillin G	ND		2.93 (L)	

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Penicillin V	ND		2.93 (L)	
Roxithromycin	ND		0.293 (L)	
Sarafloxacin	NQ			
Sulfachloropyridazine	ND		1.46 (L)	
Sulfadiazine	ND		1.46 (L)	
Sulfadimethoxine	ND		0.293 (L)	
Sulfamerazine	ND		0.586 (L)	
Sulfamethazine	ND		0.586 (L)	
Sulfamethizole	ND		0.586 (L)	
Sulfamethoxazole	ND		0.586 (L)	
Sulfanilamide	ND		14.6 (L)	
Sulfathiazole	ND		1.46 (L)	
Thiabendazole	ND		1.46 (L)	
Trimethoprim	ND		1.46 (L)	
Tylosin	ND		5.86 (L)	
Virginiamycin	ND		2.93 (L)	
1,7-Dimethylxanthine [3]	ND		58.6 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with Theophylline, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-4_Form1A_QA1J_152S25_SJ1369841.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 06:08:11	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 25**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng absolute	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
13C2-15N-Acetaminophen	V	200	419	210	4:25
13C3-Caffeine		300	376	125	9:19
13C3-N15-Ciprofloxacin	NQ				
13C2-Erythromycin-H2O		100	116	116	16:45
D5-Fluoxetine		100	47.6	47.6	16:45
13C6-Sulfamethazine		100	125	125	10:12
13C6-Sulfamethoxazole		100	113	113	11:18
D6-Thiabendazole		100	107	107	10:35
13C3-Trimethoprim		100	125	125	9:53

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits; NQ = data not quantifiable.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-4_Form2_QA1J_152S25_SJ1369841.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 06:43:34	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 26**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Acetaminophen	ND		14.0 (L)	
Azithromycin	ND		1.40 (L)	
Caffeine	ND		14.0 (L)	
Carbadox	ND		1.40 (L)	
Carbamazepine		1.49	1.40 (L)	15:20
Cefotaxime	ND		3.88 (S)	
Ciprofloxacin	NQ			
Clarithromycin	ND		1.40 (L)	
Clinafloxacin	NQ			
Cloxacillin	ND		2.80 (L)	
Dehydronifedipine	ND		0.560 (L)	
Diphenhydramine	ND		0.560 (L)	
Diltiazem	ND		0.280 (L)	
Digoxin	ND		5.60 (L)	
Digoxigenin	ND		22.5 (S)	
Enrofloxacin	NQ			
Erythromycin-H2O	ND		0.280 (L)	
Flumequine	ND		1.40 (L)	
Fluoxetine	ND		1.40 (L)	
Lincomycin	ND		2.80 (L)	
Lomefloxacin	NQ			
Miconazole		1.56	1.40 (L)	20:49
Norfloxacin	NQ			
Norgestimate	ND		4.66 (S)	
Ofloxacin	NQ			
Ormetoprim	ND		0.560 (L)	
Oxacillin	ND		2.80 (L)	
Oxolinic Acid	ND		0.560 (L)	
Penicillin G	ND		2.80 (L)	

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Penicillin V	ND		2.80 (L)	
Roxithromycin	ND		0.280 (L)	
Sarafloxacin	NQ			
Sulfachloropyridazine	ND		1.40 (L)	
Sulfadiazine	ND		1.40 (L)	
Sulfadimethoxine	ND		0.280 (L)	
Sulfamerazine	ND		0.560 (L)	
Sulfamethazine	ND		0.560 (L)	
Sulfamethizole	ND		0.560 (L)	
Sulfamethoxazole	ND		0.560 (L)	
Sulfanilamide	ND		14.0 (L)	
Sulfathiazole	ND		1.40 (L)	
Thiabendazole	ND		1.40 (L)	
Trimethoprim	ND		1.40 (L)	
Tylosin	ND		5.60 (L)	
Virginiamycin	ND		2.80 (L)	
1,7-Dimethylxanthine [3]	ND		56.0 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with Theophylline, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-5_Form1A_QA1J_152S26_SJ1369842.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 06:43:34	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 26**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng absolute	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
13C2-15N-Acetaminophen	V	200	427	214	4:30
13C3-Caffeine		300	407	136	9:19
13C3-N15-Ciprofloxacin	NQ				
13C2-Erythromycin-H2O		100	126	126	16:45
D5-Fluoxetine		100	108	108	16:45
13C6-Sulfamethazine		100	128	128	10:12
13C6-Sulfamethoxazole		100	111	111	11:18
D6-Thiabendazole		100	108	108	10:35
13C3-Trimethoprim		100	132	132	9:53

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits; NQ = data not quantifiable.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-5_Form2_QA1J_152S26_SJ1369842.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 03:11:09	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 20**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng/g		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Acetaminophen	ND		15.0 (L)	
Azithromycin	ND		1.50 (L)	
Caffeine	ND		15.0 (L)	
Carbadox	ND		1.50 (L)	
Carbamazepine	ND		1.50 (L)	
Cefotaxime	ND		4.90 (S)	
Ciprofloxacin	ND		6.00 (L)	
Clarithromycin	ND		1.50 (L)	
Clinafloxacin	ND		79.8 (S)	
Cloxacillin	ND		3.00 (L)	
Dehydronifedipine	ND		0.600 (L)	
Diphenhydramine	ND		0.600 (L)	
Diltiazem	ND		0.300 (L)	
Digoxin	ND		6.00 (L)	
Digoxigenin	ND		33.4 (S)	
Enrofloxacin	ND		7.23 (S)	
Erythromycin-H2O	ND		0.300 (L)	
Flumequine	ND		1.50 (L)	
Fluoxetine	ND		1.50 (L)	
Lincomycin	ND		3.00 (L)	
Lomefloxacin	ND		23.3 (S)	
Miconazole	ND		1.50 (L)	
Norfloxacin	ND		15.0 (L)	
Norgestimate	ND		5.21 (S)	
Ofloxacin	ND		5.28 (S)	
Ormetoprim	ND		0.600 (L)	
Oxacillin	ND		3.00 (L)	
Oxolinic Acid		0.618	0.600 (L)	13:07
Penicillin G	ND		3.00 (L)	

This page is part of a total report that contains information necessary for accreditation compliance.
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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Penicillin V	ND		3.00 (L)	
Roxithromycin	ND		0.300 (L)	
Sarafloxacin		40.4	37.4 (S)	11:48
Sulfachloropyridazine	ND		1.50 (L)	
Sulfadiazine	ND		1.50 (L)	
Sulfadimethoxine	ND		0.300 (L)	
Sulfamerazine	ND		0.600 (L)	
Sulfamethazine	ND		0.600 (L)	
Sulfamethizole	ND		0.600 (L)	
Sulfamethoxazole	ND		0.600 (L)	
Sulfanilamide	ND		15.0 (L)	
Sulfathiazole	ND		1.50 (L)	
Thiabendazole	ND		1.50 (L)	
Trimethoprim	ND		1.50 (L)	
Tylosin	ND		6.00 (L)	
Virginiamycin	ND		3.00 (L)	
1,7-Dimethylxanthine [3]	ND		60.0 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with Theophylline, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_WG37878-101_Form1A_QA1J_152S20_SJ1369834.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 03:11:09	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 20**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
13C2-15N-Acetaminophen		200	176	88.0	4:32
13C3-Caffeine		300	245	81.7	9:19
13C3-N15-Ciprofloxacin	V	400	18.7	4.67	10:48
13C2-Erythromycin-H2O		100	67.6	67.6	16:45
D5-Fluoxetine		100	63.8	63.8	16:45
13C6-Sulfamethazine		100	57.9	57.9	10:12
13C6-Sulfamethoxazole		100	59.7	59.7	11:18
D6-Thiabendazole		100	55.9	55.9	10:35
13C3-Trimethoprim		100	55.9	55.9	9:53

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_WG37878-101_Form2_QA1J_152S20_SJ1369834.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8A

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102
Matrix:	SOLID	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 00:49:38	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QA1J_152 S: 16**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
Acetaminophen		750	667	89.0	4:27
Azithromycin	N	75.0	7.34	9.8	13:26
Caffeine		750	720	96.0	9:19
Carbadox		75.0	89.7	120	10:32
Carbamazepine		75.0	77.3	103	15:20
Cefotaxime		186	233	125	10:05
Ciprofloxacin		300	252	83.9	10:48
Clarithromycin		75.0	68.5	91.3	17:24
Clinafloxacin		300	404	135	12:00
Cloxacillin		150	171	114	16:41
Dehydronifedipine		30.0	43.4	145	16:31
Diphenhydramine	N	30.0	20.9	69.6	14:24
Diltiazem		15.0	11.5	76.5	15:09
Digoxin		300	366	122	16:35
Digoxigenin		300	348	116	12:43
Enrofloxacin		150	229	153	11:13
Erythromycin-H2O		15.0	15.1	101	16:45
Flumequine		75.0	76.1	101	15:12
Fluoxetine		75.0	49.4	65.9	16:50
Lincomycin		150	132	87.9	9:19
Lomefloxacin		150	447	298	11:05
Miconazole		75.0	43.7	58.2	20:49
Norfloxacin		750	743	99.0	10:35
Norgestimate		150	169	113	21:43
Ofloxacin	N	75.0	202	270	10:32
Ormetoprim		30.0	24.5	81.8	10:29
Oxacillin		150	117	78.1	16:09
Oxolinic Acid		30.0	28.9	96.3	13:07
Penicillin G		150	95.8	63.9	14:21
Penicillin V		150	173	116	15:09
Roxithromycin		15.0	10.9	72.7	17:37
Sarafloxacin		750	958	128	11:48
Sulfachloropyridazine		75.0	71.2	94.9	10:55
Sulfadiazine		75.0	71.7	95.6	6:17
Sulfadimethoxine		15.0	14.2	95.0	13:13

COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
Sulfamerazine		30.0	25.9	86.4	8:51
Sulfamethazine		30.0	24.9	83.1	10:12
Sulfamethizole		30.0	21.3	71.0	10:05
Sulfamethoxazole		30.0	25.6	85.5	11:18
Sulfanilamide		750	563	75.1	2:48
Sulfathiazole		75.0	56.0	74.7	8:00
Thiabendazole		75.0	68.4	91.2	10:42
Trimethoprim		75.0	64.2	85.5	9:53
Tylosin		300	309	103	16:18
Virginiamycin		150	183	122	17:20
1,7-Dimethylxanthine [2]		3000	3910	130	7:05

(1) Where applicable, custom lab flags have been used on this report; N = authentic recovery is not within method/contract control limits.
(2) Co-elutes with Theophylline, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: LC_PPC_LC_PPC075_AEP_WG37878-102_Form8A_SJ1369828.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8B

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102
Matrix:	SOLID	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 00:49:38	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QA1J_152 S: 16**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
13C2-15N-Acetaminophen	V	200	415	208	4:36
13C3-Caffeine	V	300	506	169	9:19
13C3-N15-Ciprofloxacin		400	67.0	16.8	10:45
13C2-Erythromycin-H2O	V	100	134	134	16:45
D5-Fluoxetine		100	129	129	16:45
13C6-Sulfamethazine		100	123	123	10:12
13C6-Sulfamethoxazole		100	126	126	11:18
D6-Thiabendazole		100	112	112	10:35
13C3-Trimethoprim		100	121	121	9:53

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: FC-Form8B.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_WG37878-102_Form8B_SJ1369828.html; Workgroup: WG37878; Design ID: 1482]

AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
1,2,3,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD	1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF			1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls												
PCB 1 2-Chlorobiphenyl	7	7								7	7	
PCB 3 4-Chlorobiphenyl	7	7								7	7	
PCB 4 2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5 2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15 4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18 2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19 2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31 2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37 3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44 2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52 2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54 2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66 2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77 3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81 3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87 2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

AXYS Analytical Services Ltd.

Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

AXYS Analytical Services Ltd.

Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37878	***Date:*** 21-Nov-2011
Analysis Type: (AP5) Pharmaceutical & Personal Care Products	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520

Samples:

L16978-1	BQ5956-10R
L16978-2	BR3044-10R
L16978-3	BR3045-10R
L16978-4	BR3046-10R
L16978-5	BQ9606-10R

Blank: WG37878-101

Reference or Spike: WG37878-102

Duplicate:

Comments:

1. Data are not blank corrected.
2. At least 5 calibration points were used in quantification of the initial calibration (QE1Q_073 S: 5 to S: 11) for all the analytes. The lowest level calibration standard CS0 for Benztropine and DEET were excluded from the initial calibration as results did not meet method criteria. As a result, the CS1 level calibration was used as detection qualifier for these analytes in samples.
3. In the OPR, (AXYS ID: WG37878-102) Alprazolam, 10-hydroxy-amitriptyline and Trenbolone were observed above the upper control limits. These analytes were not detected in client samples; data are not affected by these variances.
4. The recovery of d5-Norfluoxetine in samples BQ5956-10R and 'BR3046-10R (AXYS ID: L16978-1 and -4) did not meet the method criteria; this compound is flagged with a 'V'. As the isotope dilution method of quantification produces data that are recovery corrected, the slight variances from the method acceptance criteria are deemed not to affect the quantification of these analytes. Percent surrogate recoveries are used as general method performance indicator only.
5. The recovery of d6-Paroxetine in sample BQ5956-10R (AXYS ID: L16978-1) did not meet the method criteria; this compound is flagged with a 'V'. As the isotope dilution method of quantification produces data that are recovery corrected, the slight variances from the method acceptance criteria are deemed not to affect the quantification of these analytes. Percent surrogate recoveries are used as general method performance indicator only.
6. In samples BQ5956, BR3045-10R and BR3046-10R (AXYD ID: L16978-1, -3 and -4) d3-Benztropine was observed below the lower method specification. Results for Benztropine in these samples are reported for information only (indicated by an 'H' on reports).

AXYS METHOD MLA-075 Rev 3

Form 3A
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QE1Q_073 S: 5
CS1 Data Filename: QE1Q_073 S: 6
CS2 Data Filename: QE1Q_073 S: 7
CS3 Data Filename: QE1Q_073 S: 8
CS4 Data Filename: QE1Q_073 S: 9
CS5 Data Filename: QE1Q_073 S: 10
CS6 Data Filename: QE1Q_073 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERY (%)								
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
Alprazolam		113	80.1	115	94.5	97.4	98.6	101		
Amitriptyline		136	100	94.2	92.1	80.8	93.1	104		
Amlodipine		120	88.4	86.9	101	96.1	112	96.4		
Benzoylecgonine		118	91.1	101	93.1	91.2	108	98.3		
Benztropine			124	84.9	101	94.3	92.7	103		
Betamethasone		117	96.6	101	107	72.5	105	100		
Cocaine		133	82.7	97.6	99.3	86.0	100	101		
DEET			128	110	85.5	79.5	92.5	104		
Desmethyldiltiazem		102	92.0	105	108	89.4	105	99.0		
Diazepam		97.4	78.2	105	112	102	109	96.6		
Fluocinonide		112	113	107	86.3	84.0	93.7	104		
Fluticasone propionate		121	82.7	90.5	107	98.6				
Hydrocortisone		103	70.5	127	101	98.6				
10-hydroxy-amitriptyline		139	83.5	94.5	90.5	90.1	102	100		
Meprobamate		122	106	94.6	87.4	86.3	104			
Methylprednisolone		63.7	108	117	111	95.3	107	97.7		
Metoprolol		136	77.8	109	85.3	86.1	107	99.3		
Norfluoxetine		123	89.6	102	93.4	89.4	102	100		
Norverapamil		136	95.2	87.8	93.0	86.1	101	101		
Paroxetine		124	99.1	84.2	99.0	92.2	101	101		
Prednisolone		119	82.0	99.3	105	84.6	113	96.8		
Prednisone		123	111	90.7	86.7	80.7	109	99.0		
Promethazine		107	96.6	105	97.0	91.3	103	99.6		
Propoxyphene		118	87.7	94.6	107	92.0	101	100		
Propranolol		71.5	98.2	110	111	95.3	121	93.2		
Sertraline		117	98.4	94.8	96.4	87.3	108	98.6		
Simvastatin		109	96.5	98.3	88.2	96.3	117	94.9		
Theophylline		106	104	109	92.4	96.1	89.3	104		
Trenbolone		107	73.5	125	101	94.7	97.3	101		
Trenbolone acetate		117	98.4	99.2	92.6	90.2	103			
Valsartan		136	87.3	95.6	89.1	88.1	104			
Verapamil		106	98.7	101	107	88.5	98.0	101		

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: GENERIC-SPECS_PPC_LC_15-Oct-2011_QE1Q__Form3A_GS43353.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3B
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QE1Q_073 S: 5
CS1 Data Filename: QE1Q_073 S: 6
CS2 Data Filename: QE1Q_073 S: 7
CS3 Data Filename: QE1Q_073 S: 8
CS4 Data Filename: QE1Q_073 S: 9
CS5 Data Filename: QE1Q_073 S: 10
CS6 Data Filename: QE1Q_073 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERIES (%)								
LABELED COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
d5-Alprazolam		87.6	108	105	92.6	108	101	97.1		
d6-Amitriptyline		88.1	105	108	83.0	111	101	104		
d8-Benzoylecgonine		91.9	101	105	87.1	101	101	113		
d3-Benztropine		81.9	104	112	90.7	104	103	104		
d3-Cocaine		84.0	102	114	87.5	101	99.7	112		
d7-DEET		91.6	108	105	94.5	110	98.1	92.5		
d5-Diazepam		86.0	107	107	83.2	106	99.5	112		
d4-Hydrocortisone		70.7	103	114	87.9	119	108	98.1		
d2-Methylprednisolone		90.8	103	103	85.0	106	96.7	116		
d7-Metoprolol		88.2	105	111	95.1	109	92.7	99.5		
d5-Norfluoxetine		87.6	105	112	87.0	106	90.7	112		
d6-Paroxetine		93.3	104	116	93.3	104	93.2	95.8		
d4-Promethazine		83.1	102	104	86.3	113	101	111		
d5-Propoxyphene		88.4	102	111	88.8	106	96.7	106		
d7-Propranolol		92.7	99.2	113	86.7	108	94.5	106		
13C1-15N2-Theophylline		95.5	113	119	96.3	108	93.7	74.2		

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: GENERIC-SPECS_PPC_LC_15-Oct-2011_QE1Q__Form3B_GS43353.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3C
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QE1Q_073 S: 5
CS1 Data Filename: QE1Q_073 S: 6
CS2 Data Filename: QE1Q_073 S: 7
CS3 Data Filename: QE1Q_073 S: 8
CS4 Data Filename: QE1Q_073 S: 9
CS5 Data Filename: QE1Q_073 S: 10
CS6 Data Filename: QE1Q_073 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
Alprazolam		23:21	23:26	23:26	23:26	23:26	23:21	23:21			23:24
Amitriptyline		22:15	22:15	22:15	22:15	22:15	22:15	22:15			22:15
Amlodipine		23:35	23:39	23:39	23:39	23:39	23:39	23:39			23:38
Benzoylecgonine		5:31	5:24	5:31	5:38	5:27	5:31	5:31			5:30
Benztropine			22:40	22:45	22:45	22:45	22:45	22:45			22:44
Betamethasone		21:35	21:41	21:35	21:41	21:35	21:35	21:41			21:38
Cocaine		8:49	8:49	8:46	9:00	8:53	8:49	8:53			8:51
DEET			20:45	20:45	20:51	20:45	20:45	20:45			20:46
Desmethyldiltiazem		18:46	18:46	18:44	18:46	18:46	18:46	18:46			18:46
Diazepam		29:28	29:26	29:26	29:28	29:24	29:24	29:24			29:26
Fluocinonide		35:24	35:13	35:19	35:20	35:17	35:17	35:17			35:18
Fluticasone propionate		37:56	37:56	37:58	37:58	37:56					37:57
Hydrocortisone		17:51	17:42	17:42	17:51	17:42					17:46
10-hydroxy-amitriptyline		11:54	11:58	12:01	12:01	11:58	11:58	11:58			11:58
Meprobamate		11:23	11:20	11:20	11:20	11:20	11:20				11:21
Methylprednisolone		21:41	21:47	21:41	21:41	21:41	21:41	21:41			21:42
Metoprolol		8:19	8:05	8:12	8:12	8:12	8:12	8:12			8:12
Norfluoxetine		24:34	24:34	24:34	24:39	24:34	24:39	24:39			24:36
Norverapamil		20:55	20:50	20:55	20:55	20:55	20:55	20:55			20:54
Paroxetine		20:28	20:28	20:28	20:34	20:28	20:28	20:28			20:29
Prednisolone		17:42	17:44	17:39	17:37	17:39	17:39	17:37			17:40
Prednisone		16:49	16:51	16:56	16:53	16:53	16:53	16:53			16:53
Promethazine		18:37	18:37	18:37	18:39	18:37	18:39	18:39			18:38
Propoxyphene		21:41	21:41	21:41	21:47	21:41	21:41	21:47			21:43
Propranolol		14:35	14:35	14:35	14:35	14:35	14:35	14:35			14:35
Sertraline		26:04	26:06	26:06	26:09	26:06	26:06	26:04			26:06
Simvastatin		39:59	40:02	40:02	40:02	40:00	40:00	39:59			40:01
Theophylline		2:36	2:29	2:29	2:29	2:33	2:33	2:33			2:32
Trenbolone		22:31	22:36	22:31	22:31	22:31	22:31	22:31			22:32
Trenbolone acetate		37:35	37:33	37:37	37:37	37:35	37:35				37:35
Valsartan		32:11	32:14	32:18	32:16	32:14	32:11				32:14
Verapamil		21:24	21:18	21:18	21:24	21:24	21:24	21:24			21:22

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

AXYS METHOD MLA-075 Rev 3

Form 3D
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QE1Q_073 S: 5
CS1 Data Filename: QE1Q_073 S: 6
CS2 Data Filename: QE1Q_073 S: 7
CS3 Data Filename: QE1Q_073 S: 8
CS4 Data Filename: QE1Q_073 S: 9
CS5 Data Filename: QE1Q_073 S: 10
CS6 Data Filename: QE1Q_073 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES								
LABELED COMPOUND	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
d5-Alprazolam		23:08	23:08	23:08	23:12	23:12	23:12	23:08			23:10
d6-Amitriptyline		22:10	22:10	22:10	22:15	22:15	22:10	22:15			22:12
d8-Benzoylecgonine		5:21	5:14	5:27	5:24	5:21	5:17	5:17			5:20
d3-Benztropine		22:40	22:40	22:40	22:45	22:45	22:40	22:45			22:42
d3-Cocaine		8:53	8:53	8:49	8:56	8:49	8:53	8:56			8:53
d7-DEET		20:28	20:28	20:28	20:34	20:28	20:28	20:34			20:30
d5-Diazepam		29:08	29:08	29:10	29:12	29:08	29:08	29:08			29:09
d4-Hydrocortisone		17:42	17:42	17:42	17:46	17:42	17:42	17:46			17:43
d2-Methylprednisolone		21:41	21:41	21:41	21:41	21:41	21:41	21:41			21:41
d7-Metoprolol		8:08	8:08	8:05	8:05	8:08	8:05	8:01			8:06
d5-Norfluoxetine		24:34	24:30	24:34	24:34	24:34	24:34	24:34			24:33
d6-Paroxetine		20:22	20:22	20:22	20:28	20:22	20:22	20:22			20:23
d4-Promethazine		18:30	18:30	18:30	18:32	18:30	18:30	18:30			18:30
d5-Propoxyphene		21:35	21:35	21:35	21:35	21:35	21:35	21:35			21:35
d7-Propranolol		14:21	14:21	14:21	14:21	14:21	14:21	14:21			14:21
13C1-15N2-Theophylline		2:33	2:33	2:29	2:29	2:33	2:29	2:29			2:31

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form3D.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_15-Oct-2011_QE1Q__Form3D_GS43353.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4A
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	15-Oct-2011	**VER Data Filename:**	QE1Q_073 S: 14
Instrument ID:	LC MS/MS	**Analysis Date:**	15-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	20:37:26

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Alprazolam		23:26	15.0	15.1	101
Amitriptyline		22:15	15.0	13.3	88.8
Amlodipine		23:39	72.0	74.7	104
Benzoylecgonine		5:27	15.0	14.2	94.7
Benztropine		22:45	15.0	13.6	90.9
Betamethasone		21:35	75.0	72.8	97.1
Cocaine		8:56	7.50	6.74	89.8
DEET		20:45	7.50	6.70	89.3
Desmethyldiltiazem		18:46	7.50	7.99	107
Diazepam		29:24	15.0	16.1	107
Fluocinonide		35:17	300	265	88.3
Fluticasone propionate		37:58	100	108	108
Hydrocortisone		17:44	3000	3080	103
10-hydroxy-amitriptyline		12:01	7.50	7.03	93.8
Meprobamate		11:20	200	168	84.1
Methylprednisolone		21:41	200	186	93.1
Metoprolol		8:12	75.0	67.1	89.5
Norfluoxetine		24:39	75.0	70.7	94.2
Norverapamil		20:55	7.50	6.90	92.0
Paroxetine		20:28	200	190	95.2
Prednisolone		17:37	300	317	106
Prednisone		16:53	1000	901	90.1
Promethazine		18:39	20.0	19.0	95.3
Propoxyphene		21:41	15.0	14.8	98.8
Propranolol		14:35	100	111	111
Sertraline		26:06	20.0	20.3	102
Simvastatin		40:02	1000	777	77.7
Theophylline		2:29	3000	3020	101
Trenbolone		22:31	200	205	103
Trenbolone acetate		37:35	15.0	13.5	90.3
Valsartan		32:11	200	164	82.1
Verapamil		21:24	7.50	6.90	92.0

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4A.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QE1Q_073S14__Form4A_SJ1382667.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4B
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	15-Oct-2011	**VER Data Filename:**	QE1Q_073 S: 14
Instrument ID:	LC MS/MS	**Analysis Date:**	15-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	20:37:26

LABELED COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
d5-Alprazolam		23:08	40.0	37.9	94.7
d6-Amitriptyline		22:15	40.0	34.0	85.1
d8-Benzoylecgonine		5:17	40.0	34.8	86.9
d3-Benztropine		22:45	20.0	17.7	88.3
d3-Cocaine		8:53	40.0	34.8	86.9
d7-DEET		20:28	40.0	34.5	86.2
d5-Diazepam		29:10	40.0	35.1	87.9
d2-Methylprednisolone		21:41	2000	1920	96.1
d7-Metoprolol		8:05	400	364	91.0
d5-Norfluoxetine		24:34	200	184	92.2
d6-Paroxetine		20:28	100	95.0	95.0
d4-Promethazine		18:30	100	85.0	85.0
d5-Propoxyphene		21:35	60.0	53.0	88.4
d7-Propranolol		14:21	400	326	81.5
13C1-15N2-Theophylline		2:29	2000	1720	85.9
d4-Hydrocortisone		17:44	6750	6080	90.1

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4B.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QE1Q_073S14__Form4B_SJ1382667.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1 i
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 02:49:34	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 22**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Alprazolam	ND		0.292 (L)	
Amitriptyline	ND		0.431 (S)	
Amlodipine	ND		1.40 (L)	
Benzoylecgonine	ND		0.292 (L)	
Benztropine	ND H		0.975 (L)	
Betamethasone	ND		1.71 (S)	
Cocaine	ND		0.146 (L)	
DEET		1.68	0.487 (L)	20:51
Desmethyldiltiazem	ND		0.146 (L)	
Diazepam	ND		0.292 (L)	
Fluocinonide	ND		5.85 (L)	
Fluticasone propionate	ND		1.95 (L)	
Hydrocortisone	ND		58.5 (L)	
10-hydroxy-amitriptyline	ND		0.146 (L)	
Meprobamate	ND		3.90 (L)	
Methylprednisolone	ND		3.90 (L)	
Metoprolol	ND		1.56 (S)	
Norfluoxetine	ND		1.46 (L)	
Norverapamil	ND		0.146 (L)	
Paroxetine	ND		3.90 (L)	
Prednisolone	ND		5.85 (L)	
Prednisone	ND		27.3 (S)	
Promethazine	ND		0.390 (L)	
Propoxyphene	ND		0.292 (L)	
Propranolol	ND		1.95 (L)	
Sertraline	ND		0.390 (L)	
Simvastatin	ND		19.5 (L)	
Theophylline [3]	ND		58.5 (L)	
Trenbolone	ND		3.90 (L)	

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This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Trenbolone acetate	ND		0.292 (L)	
Valsartan	ND		3.90 (L)	
Verapamil	ND		0.146 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with 1,7-Dimethylxanthine, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-1_Form1A_QE1Q_073S22_SJ1382679.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1 i
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 02:49:34	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 22**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng absolute	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
d5-Alprazolam		40.0	32.8	82.0	23:17
d6-Amitriptyline		40.0	15.2	38.0	22:21
d8-Benzoylecgonine		40.0	40.0	100	5:17
d3-Benztropine	V	20.0	0.291	1.46	22:49
d3-Cocaine		40.0	21.3	53.3	9:00
d7-DEET		40.0	32.9	82.3	20:34
d5-Diazepam		40.0	41.1	103	29:15
d2-Methylprednisolone		2000	2290	114	21:47
d7-Metoprolol		400	244	60.9	8:12
d5-Norfluoxetine	V	200	34.1	17.1	24:39
d6-Paroxetine	V	100	6.35	6.35	20:34
d4-Promethazine		100	29.8	29.8	18:39
d5-Propoxyphene		60.0	33.0	55.0	21:41
d7-Propranolol		400	120	30.1	14:25
13C1-15N2-Theophylline		2000	1870	93.5	2:29
d4-Hydrocortisone		6750	6310	93.5	17:48

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-1_Form2_QE1Q_073S22_SJ1382679.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2 i
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 03:35:59	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 23**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Alprazolam	ND		0.288 (L)	
Amitriptyline	ND		0.288 (L)	
Amlodipine	ND		1.38 (L)	
Benzoylecgonine	ND		0.288 (L)	
Benztropine	ND		0.960 (L)	
Betamethasone	ND		1.44 (L)	
Cocaine	ND		0.144 (L)	
DEET		1.55	0.480 (L)	20:51
Desmethyldiltiazem	ND		0.144 (L)	
Diazepam	ND		0.288 (L)	
Fluocinonide	ND		5.76 (L)	
Fluticasone propionate	ND		1.92 (L)	
Hydrocortisone	ND		57.6 (L)	
10-hydroxy-amitriptyline	ND		0.144 (L)	
Meprobamate	ND		3.84 (L)	
Methylprednisolone	ND		3.84 (L)	
Metoprolol	ND		1.44 (L)	
Norfluoxetine	ND		1.44 (L)	
Norverapamil	ND		0.144 (L)	
Paroxetine	ND		3.84 (L)	
Prednisolone	ND		5.76 (L)	
Prednisone	ND		19.2 (L)	
Promethazine	ND		0.384 (L)	
Propoxyphene	ND		0.288 (L)	
Propranolol	ND		1.92 (L)	
Sertraline	ND		0.384 (L)	
Simvastatin	ND		19.2 (L)	
Theophylline [3]	ND		57.6 (L)	
Trenbolone	ND		3.84 (L)	

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Trenbolone acetate	ND		0.288 (L)	
Valsartan	ND		3.84 (L)	
Verapamil	ND		0.144 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with 1,7-Dimethylxanthine, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-2_Form1A_QE1Q_073S23_SJ1382680.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2 i
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 03:35:59	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 23**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng absolute	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
d5-Alprazolam		40.0	26.1	65.3	23:17
d6-Amitriptyline		40.0	31.9	79.7	22:21
d8-Benzoylecgonine		40.0	38.2	95.4	5:17
d3-Benztropine	V	20.0	3.56	17.8	22:49
d3-Cocaine		40.0	30.4	76.1	8:56
d7-DEET		40.0	29.1	72.8	20:33
d5-Diazepam		40.0	42.1	105	29:12
d2-Methylprednisolone		2000	2250	113	21:47
d7-Metoprolol		400	353	88.2	8:12
d5-Norfluoxetine		200	142	71.1	24:39
d6-Paroxetine		100	67.2	67.2	20:33
d4-Promethazine		100	55.4	55.4	18:34
d5-Propoxyphene		60.0	52.6	87.7	21:41
d7-Propranolol		400	366	91.5	14:25
13C1-15N2-Theophylline		2000	1860	93.2	2:29
d4-Hydrocortisone		6750	6610	97.9	17:44

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-2_Form2_QE1Q_073S23_SJ1382680.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3 i
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 04:22:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 24**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Alprazolam	ND		0.273 (L)	
Amitriptyline	ND		0.296 (S)	
Amlodipine	ND		1.31 (L)	
Benzoylecgonine	ND		0.273 (L)	
Benztropine	ND H		0.911 (L)	
Betamethasone	ND		1.44 (S)	
Cocaine	ND		0.137 (L)	
DEET		1.46	0.456 (L)	20:51
Desmethyldiltiazem	ND		0.137 (L)	
Diazepam	ND		0.273 (L)	
Fluocinonide	ND		5.47 (L)	
Fluticasone propionate	ND		1.82 (L)	
Hydrocortisone	ND		54.7 (L)	
10-hydroxy-amitriptyline	ND		0.137 (L)	
Meprobamate	ND		3.65 (L)	
Methylprednisolone	ND		3.65 (L)	
Metoprolol	ND		1.37 (L)	
Norfluoxetine	ND		1.37 (L)	
Norverapamil	ND		0.137 (L)	
Paroxetine	ND		3.65 (L)	
Prednisolone	ND		5.47 (L)	
Prednisone	ND		20.8 (S)	
Promethazine	ND		0.365 (L)	
Propoxyphene	ND		0.273 (L)	
Propranolol	ND		1.82 (L)	
Sertraline	ND		0.365 (L)	
Simvastatin	ND		18.2 (L)	
Theophylline [3]	ND		54.7 (L)	
Trenbolone	ND		3.65 (L)	

This page is part of a total report that contains information necessary for accreditation compliance.
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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Trenbolone acetate	ND		0.273 (L)	
Valsartan	ND		3.65 (L)	
Verapamil	ND		0.137 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with 1,7-Dimethylxanthine, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-3_Form1A_QE1Q_073S24_SJ1382681.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3 i
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 04:22:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 24**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng absolute	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
d5-Alprazolam		40.0	28.1	70.2	23:17
d6-Amitriptyline		40.0	18.9	47.2	22:21
d8-Benzoylecgonine		40.0	36.4	91.0	5:24
d3-Benztropine	V	20.0	0.900	4.50	22:49
d3-Cocaine		40.0	16.8	41.9	8:46
d7-DEET		40.0	28.8	72.0	20:34
d5-Diazepam		40.0	38.9	97.1	29:12
d2-Methylprednisolone		2000	2410	120	21:47
d7-Metoprolol		400	359	89.7	8:08
d5-Norfluoxetine		200	98.7	49.3	24:39
d6-Paroxetine		100	13.8	13.8	20:34
d4-Promethazine		100	26.2	26.2	18:37
d5-Propoxyphene		60.0	24.3	40.5	21:41
d7-Propranolol		400	290	72.5	14:25
13C1-15N2-Theophylline		2000	830	41.5	2:33
d4-Hydrocortisone		6750	6960	103	17:46

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-3_Form2_QE1Q_073S24_SJ1382681.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 05:08:59	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 25**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Alprazolam	ND		0.293 (L)	
Amitriptyline	ND		0.293 (L)	
Amlodipine	ND		1.41 (L)	
Benzoylecgonine	ND		0.293 (L)	
Benztropine	ND H		0.976 (L)	
Betamethasone	ND		1.46 (L)	
Cocaine	ND		0.146 (L)	
DEET		2.27	0.488 (L)	20:51
Desmethyldiltiazem	ND		0.146 (L)	
Diazepam	ND		0.293 (L)	
Fluocinonide	ND		5.86 (L)	
Fluticasone propionate	ND		1.95 (L)	
Hydrocortisone	ND		58.6 (L)	
10-hydroxy-amitriptyline	ND		0.158 (S)	
Meprobamate	ND		3.91 (L)	
Methylprednisolone	ND		3.91 (L)	
Metoprolol	ND		2.34 (S)	
Norfluoxetine	ND		1.46 (L)	
Norverapamil	ND		0.146 (L)	
Paroxetine	ND		3.91 (L)	
Prednisolone	ND		6.61 (S)	
Prednisone	ND		63.3 (S)	
Promethazine	ND		0.391 (L)	
Propoxyphene	ND		0.293 (L)	
Propranolol	ND		1.95 (L)	
Sertraline	ND		0.391 (L)	
Simvastatin	ND		19.5 (L)	
Theophylline [3]	ND		58.6 (L)	
Trenbolone	ND		3.91 (L)	

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Trenbolone acetate	ND		0.293 (L)	
Valsartan	ND		3.91 (L)	
Verapamil		0.152	0.146 (L)	21:18

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with 1,7-Dimethylxanthine, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-4_Form1A_QE1Q_073S25_SJ1382682.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 05:08:59	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 25**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng absolute	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
d5-Alprazolam		40.0	27.0	67.4	23:12
d6-Amitriptyline		40.0	16.6	41.5	22:21
d8-Benzoylecgonine		40.0	32.3	80.8	5:14
d3-Benztropine	V	20.0	0.661	3.30	22:49
d3-Cocaine		40.0	20.6	51.6	9:00
d7-DEET		40.0	28.4	71.0	20:34
d5-Diazepam		40.0	36.0	89.9	29:12
d2-Methylprednisolone		2000	2230	112	21:47
d7-Metoprolol		400	247	61.9	8:01
d5-Norfluoxetine	V	200	35.1	17.6	24:39
d6-Paroxetine		100	8.15	8.15	20:28
d4-Promethazine		100	37.5	37.5	18:34
d5-Propoxyphene		60.0	35.9	59.9	21:41
d7-Propranolol		400	100	25.0	14:25
13C1-15N2-Theophylline		2000	1820	90.8	2:29
d4-Hydrocortisone		6750	6010	89.0	17:46

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-4_Form2_QE1Q_073S25_SJ1382682.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 05:55:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 26**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Alprazolam	ND		0.280 (L)	
Amitriptyline		0.431	0.305 (S)	22:21
Amlodipine	ND		1.34 (L)	
Benzoylecgonine	ND		0.280 (L)	
Benztropine	ND H		0.934 (L)	
Betamethasone	ND		1.40 (L)	
Cocaine	ND		0.140 (L)	
DEET		1.64	0.467 (L)	20:51
Desmethyldiltiazem	ND		0.140 (L)	
Diazepam	ND		0.280 (L)	
Fluocinonide	ND		5.60 (L)	
Fluticasone propionate	ND		1.87 (L)	
Hydrocortisone	ND		56.0 (L)	
10-hydroxy-amitriptyline	ND		0.140 (L)	
Meprobamate	ND		3.73 (L)	
Methylprednisolone	ND		3.73 (L)	
Metoprolol	ND		1.40 (L)	
Norfluoxetine	ND		1.40 (L)	
Norverapamil	ND		0.140 (L)	
Paroxetine	ND		3.73 (L)	
Prednisolone	ND		5.60 (L)	
Prednisone	ND		31.0 (S)	
Promethazine	ND		0.373 (L)	
Propoxyphene	ND		0.280 (L)	
Propranolol	ND		1.87 (L)	
Sertraline	ND		0.373 (L)	
Simvastatin	ND		18.7 (L)	
Theophylline [3]	ND		56.0 (L)	
Trenbolone	ND		3.73 (L)	

This page is part of a total report that contains information necessary for accreditation compliance.
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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Trenbolone acetate	ND		0.280 (L)	
Valsartan	ND		3.73 (L)	
Verapamil	ND		0.140 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with 1,7-Dimethylxanthine, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-5_Form1A_QE1Q_073S26_SJ1382683.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 2

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 05:55:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 26**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng absolute	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
d5-Alprazolam		40.0	30.1	75.4	23:12
d6-Amitriptyline		40.0	22.1	55.2	22:21
d8-Benzoylecgonine		40.0	35.3	88.3	5:14
d3-Benztropine	V	20.0	1.00	5.02	22:49
d3-Cocaine		40.0	25.7	64.3	9:00
d7-DEET		40.0	26.5	66.1	20:34
d5-Diazepam		40.0	39.4	98.6	29:12
d2-Methylprednisolone		2000	2250	112	21:47
d7-Metoprolol		400	351	87.8	8:12
d5-Norfluoxetine		200	56.4	28.2	24:39
d6-Paroxetine		100	10.4	10.4	20:34
d4-Promethazine		100	41.3	41.3	18:34
d5-Propoxyphene		60.0	41.7	69.5	21:41
d7-Propranolol		400	282	70.5	14:25
13C1-15N2-Theophylline		2000	1660	82.9	2:29
d4-Hydrocortisone		6750	5750	85.2	17:44

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-5_Form2_QE1Q_073S26_SJ1382683.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101 i2
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 01:16:34	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 20**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng/g		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Alprazolam	ND		0.300 (L)	
Amitriptyline	ND		0.471 (S)	
Amlodipine	ND		1.44 (L)	
Benzoylecgonine	ND		0.300 (L)	
Benztropine	ND		1.00 (L)	
Betamethasone	ND		1.59 (S)	
Cocaine	ND		0.150 (L)	
DEET	ND		0.500 (L)	
Desmethyldiltiazem	ND		0.150 (L)	
Diazepam	ND		0.300 (L)	
Fluocinonide	ND		6.00 (L)	
Fluticasone propionate	ND		2.00 (L)	
Hydrocortisone	ND		60.0 (L)	
10-hydroxy-amitriptyline	ND		0.150 (L)	
Meprobamate	ND		4.00 (L)	
Methylprednisolone	ND		4.00 (L)	
Metoprolol	ND		1.50 (L)	
Norfluoxetine	ND		1.50 (L)	
Norverapamil	ND		0.150 (L)	
Paroxetine	ND		4.00 (L)	
Prednisolone	ND		6.84 (S)	
Prednisone	ND		43.0 (S)	
Promethazine	ND		0.400 (L)	
Propoxyphene	ND		0.300 (L)	
Propranolol	ND		2.00 (L)	
Sertraline	ND		0.400 (L)	
Simvastatin	ND		20.0 (L)	
Theophylline [3]	ND		60.0 (L)	
Trenbolone	ND		4.00 (L)	

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Trenbolone acetate	ND		0.300 (L)	
Valsartan	ND		4.00 (L)	
Verapamil	ND		0.150 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with 1,7-Dimethylxanthine, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_WG37878-101_Form1A_QE1Q_073S20_SJ1382675.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101 i2
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 01:16:34	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 20**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
d5-Alprazolam	V	40.0	14.4	36.0	23:12
d6-Amitriptyline		40.0	8.76	21.9	22:15
d8-Benzoylecgonine		40.0	19.0	47.5	5:14
d3-Benztropine		20.0	4.67	23.4	22:49
d3-Cocaine		40.0	15.7	39.2	8:56
d7-DEET		40.0	18.3	45.6	20:34
d5-Diazepam		40.0	17.8	44.5	29:12
d2-Methylprednisolone		2000	1080	54.2	21:41
d7-Metoprolol		400	188	46.9	8:12
d5-Norfluoxetine		200	59.7	29.8	24:39
d6-Paroxetine		100	9.78	9.78	20:28
d4-Promethazine		100	7.45	7.45	18:32
d5-Propoxyphene		60.0	26.7	44.5	21:41
d7-Propranolol		400	114	28.6	14:21
13C1-15N2-Theophylline		2000	834	41.7	2:29
d4-Hydrocortisone		6750	4030	59.7	17:44

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_AEPX_WG37878-101_Form2_QE1Q_073S20_SJ1382675.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8A

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102 i
Matrix:	SOLID	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 22:57:00	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QE1Q_073 S: 17**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
Alprazolam	N	15.0	19.8	132	23:26
Amitriptyline		15.0	14.6	97.6	22:15
Amlodipine		72.0	49.1	68.2	23:39
Benzoylecgonine		15.0	15.8	105	5:24
Benztropine		15.0	17.8	119	22:45
Betamethasone		75.0	176	235	21:41
Cocaine		7.50	7.10	94.7	8:42
DEET		7.50	6.84	91.2	20:45
Desmethyldiltiazem		7.50	17.8	237	18:48
Diazepam		15.0	15.5	103	29:26
Fluocinonide		300	420	140	35:15
Fluticasone propionate		100	106	106	37:58
Hydrocortisone		3000	4080	136	17:46
10-hydroxy-amitriptyline	N	7.50	9.88	132	11:58
Meprobamate		200	229	114	11:16
Methylprednisolone		200	180	90.2	21:41
Metoprolol		75.0	78.1	104	8:12
Norfluoxetine		75.0	73.5	98.1	24:39
Norverapamil		7.50	4.23	56.4	20:55
Paroxetine		200	242	121	20:34
Prednisolone		300	599	200	17:39
Prednisone		1000	1560	156	16:53
Promethazine		20.0	19.8	99.1	18:39
Propoxyphene		15.0	17.3	115	21:47
Propranolol		100	111	111	14:35
Sertraline		20.0	14.9	74.6	26:06
Simvastatin		1000	1220	122	40:02
Theophylline [2]		3000	5620	187	2:29
Trenbolone	N	200	331	165	22:31
Trenbolone acetate		15.0	22.2	148	37:35
Valsartan		200	188	94.2	32:11
Verapamil		7.50	6.25	83.3	21:24

(1) Where applicable, custom lab flags have been used on this report; N = authentic recovery is not within method/contract control limits.
(2) Co-elutes with 1,7-Dimethylxanthine, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

AXYS METHOD MLA-075 Rev 3

Form 8B

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102 i
Matrix:	SOLID	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 22:57:00	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QE1Q_073 S: 17**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
d5-Alprazolam		40.0	25.7	64.2	23:12
d6-Amitriptyline		40.0	18.3	45.8	22:15
d8-Benzoylecgonine		40.0	38.5	96.3	5:17
d3-Benztropine		20.0	10.5	52.6	22:45
d3-Cocaine		40.0	31.6	78.9	8:56
d7-DEET		40.0	31.8	79.5	20:28
d5-Diazepam		40.0	36.2	90.6	29:08
d2-Methylprednisolone		2000	2130	106	21:41
d7-Metoprolol		400	348	87.1	7:58
d5-Norfluoxetine		200	129	64.6	24:34
d6-Paroxetine		100	28.3	28.3	20:28
d4-Promethazine		100	23.6	23.6	18:32
d5-Propoxyphene		60.0	50.9	84.9	21:41
d7-Propranolol		400	220	55.0	14:21
13C1-15N2-Theophylline		2000	2080	104	2:33
d4-Hydrocortisone		6750	6690	99.1	17:44

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: LC_PPC_LC_PPC075_AEPX_WG37878-102_Form8B_SJ1382670.html; Workgroup: WG37878; Design ID: 1482]

AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
1,2,3,6,7,8-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD		1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF				1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls													
PCB 1	2-Chlorobiphenyl	7	7								7	7	
PCB 3	4-Chlorobiphenyl	7	7								7	7	
PCB 4	2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5	2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15	4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18	2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19	2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31	2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37	3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81	3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

AXYS Analytical Services Ltd.

Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

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Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37879	***Date:*** 21-Nov-2011
Analysis Type: (BP4) Pharmaceutical & Personal Care Products	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520

Samples:

L16978-1	BQ5956-10R
L16978-2	BR3044-10R
L16978-3	BR3045-10R
L16978-4	BR3046-10R
L16978-5	BQ9606-10R

Blank: WG37879-101

Reference or Spike: WG37879-102

Duplicate:

Comments:

1. Data are not blank corrected.
2. At least 6 calibration points were used in quantification of the initial calibration (QG1K_188 S: 3 to S: 9) for all analytes. The lowest level calibration standard CS0 for Amphetamine was excluded from the initial calibration as the result did not meet method acceptance criteria. As a result, the CS1 level calibration was used as detection qualifier for this analyte in samples.
3. At least 5 calibration points were used in quantification of the initial calibration (QG1K_193 S: 3 to S: 9) for all the analytes. The lowest level calibration standard CS0 for Clonidine and Oxycodone were excluded from the initial calibrations as the results did not meet method acceptance criteria. As a result, the CS1 level calibration was used as detection qualifier for these analytes in samples.
4. In the OPR (AXYS ID: WG37879-102), Hydrocodone and Ranitidine were observed below the lower method control limits. Data may be considered similarly affected.
5. An instrumental interference was observed near the expected retention time for Amphetamine in samples BR3044-10R, BR3045-10R and BR3046-10R (AXYS IDs; L16978-2, -3 and -4). This target has been flagged 'NDR' on reports to indicate it is an estimated maximum possible concentration.
6. The recovery of D4-Clonidine in the Lab Blank (AXYS ID: WG37879-101) did not meet the method criteria; this compound is flagged with a 'V'. As the isotope dilution method of quantification produces data that are recovery corrected, the slight variances from the method acceptance criteria are deemed not to affect the quantification of these analytes. Percent surrogate recoveries are used as general method performance indicator only.
7. In all client samples, D3-Cimetidine was observed below the method control limit. In samples BQ5956-10R, BR3044-10R, BR3045-10R and BQ9606-10R (AXYS IDs: L16978-1, -2, -3 and-5) D3-Cimetidine was observed at considerably low levels; as a result native Cimetidine has been flagged with an 'H' on reports indicating that the value is provided for information only.

AXYS METHOD MLA-075 Rev 3

Form 3A
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 14-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_188 S: 3
CS1 Data Filename: QG1K_188 S: 4
CS2 Data Filename: QG1K_188 S: 5
CS3 Data Filename: QG1K_188 S: 6
CS4 Data Filename: QG1K_188 S: 7
CS5 Data Filename: QG1K_188 S: 8
CS6 Data Filename: QG1K_188 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERY (%)								
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
Albuterol		137	113	88.8	85.1	84.1	88.6	103		
Amphetamine			97.6	108	93.4	100	102	99.8		
Atenolol		95.1	120	107	102	80.8	92.4	102		
Atorvastatin		80.1	100	115	104	101	99.2			
Cimetidine		85.3	98.7	106	99.8	102	111	97.8		
Clonidine		98.7	105	116	97.9	81.3	100	101		
Codeine		106	111	99.7	91.1	92.8	98.8	101		
Cotinine		100	99.4	107	96.1	97.1	99.7	100		
Enalapril		106	113	110	84.1	90.8	93.7	102		
Hydrocodone		107	105	93.7	97.5	95.2	101			
Metformin		122	105	99.2	80.6	93.5	99.1	101		
Oxycodone		66.2	125	112	99.8	96.4	101			
Ranitidine		113	102	92.6	88.4	105	99.7			
Triamterene		91.9	128	99.4	95.4	80.8	105			

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form3A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_14-Oct-2011_QG1K__Form3A_GS43294.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3B
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 14-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_188 S: 3
CS1 Data Filename: QG1K_188 S: 4
CS2 Data Filename: QG1K_188 S: 5
CS3 Data Filename: QG1K_188 S: 6
CS4 Data Filename: QG1K_188 S: 7
CS5 Data Filename: QG1K_188 S: 8
CS6 Data Filename: QG1K_188 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERIES (%)								
LABELED COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
D3-Albuterol		92.5	93.8	113	113	101	110	76.4		
D6-Metformin		102	93.9	112	115	94.6	81.5			
D3-Cotinine		106	100	102	114	104	103	69.8		
D3-Cimetidine		100	94.4	91.9	109	95.5	105	104		
D5-Enalapril		105	94.6	87.0	108	101	115	88.7		
D6-Oxycodone		106	92.1	90.3	117	112	106	77.1		
D4-Clonidine		110	93.3	98.0	118	113	104	64.7		
D5-Amphetamine		110	108	105	109	99.8	106	61.8		
D6-Codeine		97.5	99.1	111	115	113	105	60.3		
D3-Hydrocodone		105	92.8	109	121	100	102	70.3		
D7-Atenolol		97.8	98.0	105	105	112	109	72.4		

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form3B.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_14-Oct-2011_QG1K__Form3B_GS43294.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3C
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 14-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_188 S: 3
CS1 Data Filename: QG1K_188 S: 4
CS2 Data Filename: QG1K_188 S: 5
CS3 Data Filename: QG1K_188 S: 6
CS4 Data Filename: QG1K_188 S: 7
CS5 Data Filename: QG1K_188 S: 8
CS6 Data Filename: QG1K_188 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
Albuterol		8:19	8:19	8:19	8:19	8:19	8:19	8:19			8:19
Amphetamine			8:02	8:08	8:08	8:02	8:02	8:08			8:05
Atenolol		8:53	8:53	8:53	8:53	8:53	8:53	8:53			8:53
Atorvastatin		3:55	3:46	3:49	3:51	3:49	3:49				3:50
Cimetidine		4:52	4:55	4:52	4:50	4:57	4:57	4:55			4:54
Clonidine		6:57	6:57	6:57	6:57	6:57	6:57	6:57			6:57
Codeine		8:34	8:34	8:34	8:34	8:34	8:34	8:34			8:34
Cotinine		4:06	4:03	4:06	4:06	4:06	4:09	4:08			4:06
Enalapril		6:25	6:25	6:25	6:25	6:25	6:25	6:25			6:25
Hydrocodone		8:49	8:49	8:49	8:49	8:49	8:45				8:48
Metformin		9:34	9:34	9:34	9:34	9:34	9:38	9:34			9:35
Oxycodone		6:57	6:57	6:57	6:57	6:57	6:57				6:57
Ranitidine		8:53	8:53	8:53	8:53	8:49	8:49				8:52
Triamterene		5:18	5:21	5:21	5:21	5:24	5:21				5:21

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form3C.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_14-Oct-2011_QG1K__Form3C_GS43294.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3D
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 14-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_188 S: 3
CS1 Data Filename: QG1K_188 S: 4
CS2 Data Filename: QG1K_188 S: 5
CS3 Data Filename: QG1K_188 S: 6
CS4 Data Filename: QG1K_188 S: 7
CS5 Data Filename: QG1K_188 S: 8
CS6 Data Filename: QG1K_188 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES								
LABELED COMPOUND	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
D3-Albuterol		8:19	8:19	8:19	8:19	8:19	8:19	8:19			8:19
D6-Metformin		9:38	9:38	9:38	9:38	9:38	9:38				9:38
D3-Cotinine		4:09	4:11	4:05	4:11	4:14	4:14	4:11			4:11
D3-Cimetidine		4:50	4:55	4:47	4:57	4:55	4:55	4:54			4:53
D5-Enalapril		6:25	6:25	6:21	6:25	6:25	6:25	6:25			6:24
D6-Oxycodone		7:14	7:19	7:19	7:19	7:19	7:14	7:19			7:18
D4-Clonidine		7:03	7:03	7:03	7:03	7:03	7:03	7:03			7:03
D5-Amphetamine		8:08	8:08	8:08	8:08	8:02	8:08	8:08			8:07
D6-Codeine		8:45	8:42	8:45	8:45	8:42	8:42	8:42			8:43
D3-Hydrocodone		9:00	9:00	9:04	9:00	9:00	9:00	9:00			9:01
D7-Atenolol		8:57	8:57	8:57	8:57	8:57	8:57	8:57			8:57

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form3D.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_14-Oct-2011_QG1K__Form3D_GS43294.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3A
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 20-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_193 S: 3
CS1 Data Filename: QG1K_193 S: 4
CS2 Data Filename: QG1K_193 S: 5
CS3 Data Filename: QG1K_193 S: 6
CS4 Data Filename: QG1K_193 S: 7
CS5 Data Filename: QG1K_193 S: 8
CS6 Data Filename: QG1K_193 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERY (%)								
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
Albuterol		83.2	109	102	102	97.3	107	98.6		
Amphetamine		61.1	85.1	116	111	120	110	96.8		
Atenolol		90.9	128	103	76.7	100	102			
Atorvastatin		90.4	96.3	108	101	94.0	113	97.7		
Cimetidine		83.4	91.2	109	100	107	112	97.2		
Clonidine			84.8	125	102	92.9	93.0	102		
Codeine		120	104	91.7	90.0	87.8	107	99.4		
Cotinine		103	94.0	106	97.8	96.3	103	99.6		
Enalapril		116	98.0	110	85.1	92.8	98.1	101		
Hydrocodone		78.1	93.0	113	93.9	110	115	96.6		
Metformin		96.5	101	106	96.3	99.3	100			
Oxycodone			61.9	127	103	111	96.8			
Ranitidine		118	104	95.5	83.0	97.7	102			
Triamterene		125	94.2	105	83.8	88.0	104			

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form3A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_20-Oct-2011_QG1K__Form3A_GS43295.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3B
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 20-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_193 S: 3
CS1 Data Filename: QG1K_193 S: 4
CS2 Data Filename: QG1K_193 S: 5
CS3 Data Filename: QG1K_193 S: 6
CS4 Data Filename: QG1K_193 S: 7
CS5 Data Filename: QG1K_193 S: 8
CS6 Data Filename: QG1K_193 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERIES (%)								
LABELED COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
D3-Albuterol		107	92.0	104	99.8	94.4	115	87.4		
D6-Metformin		108	107	104	102	89.0	89.4			
D3-Cotinine		107	107	113	103	96.8	99.0	74.5		
D3-Cimetidine		99.0	99.0	99.7	96.5	93.5	105	107		
D5-Enalapril		106	109	98.5	97.0	96.9	105	87.8		
D6-Oxycodone		122	98.3	96.7	100	95.1	104	83.5		
D4-Clonidine		107	123	102	104	98.5	103	63.2		
D5-Amphetamine		108	106	106	110	96.3	103	70.5		
D6-Codeine		105	108	116	105	104	100	61.3		
D3-Hydrocodone		103	112	105	112	97.3	103	67.2		
D7-Atenolol		112	109	97.4	108	99.0	103	71.2		

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form3B.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_20-Oct-2011_QG1K__Form3B_GS43295.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3C
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 20-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_193 S: 3
CS1 Data Filename: QG1K_193 S: 4
CS2 Data Filename: QG1K_193 S: 5
CS3 Data Filename: QG1K_193 S: 6
CS4 Data Filename: QG1K_193 S: 7
CS5 Data Filename: QG1K_193 S: 8
CS6 Data Filename: QG1K_193 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
Albuterol		8:19	8:19	8:19	8:19	8:19	8:19	8:19			8:19
Amphetamine		8:02	8:02	8:02	8:02	8:02	8:02	8:02			8:02
Atenolol		8:53	8:53	8:53	8:53	8:53	8:49				8:52
Atorvastatin		3:55	3:57	3:55	3:54	3:55	3:55	3:57			3:55
Cimetidine		5:00	4:52	4:54	4:52	4:54	4:54	4:55			4:54
Clonidine			6:57	6:57	6:51	6:51	6:51	6:51			6:53
Codeine		8:34	8:30	8:30	8:34	8:30	8:30	8:30			8:31
Cotinine		4:08	4:00	4:03	4:00	4:05	4:05	4:05			4:04
Enalapril		6:25	6:28	6:28	6:25	6:25	6:25	6:25			6:26
Hydrocodone		8:45	8:45	8:45	8:45	8:45	8:45	8:42			8:45
Metformin		9:30	9:30	9:30	9:34	9:30	9:30				9:31
Oxycodone		6:51	7:03	7:03	7:03	7:08	7:03				7:02
Ranitidine		8:53	8:49	8:49	8:49	8:49	8:49				8:50
Triamterene		5:24	5:24	5:24	5:21	5:24	5:21				5:23

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form3C.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_20-Oct-2011_QG1K__Form3C_GS43295.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3D
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 20-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_193 S: 3
CS1 Data Filename: QG1K_193 S: 4
CS2 Data Filename: QG1K_193 S: 5
CS3 Data Filename: QG1K_193 S: 6
CS4 Data Filename: QG1K_193 S: 7
CS5 Data Filename: QG1K_193 S: 8
CS6 Data Filename: QG1K_193 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES								
LABELED COMPOUND	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
D3-Albuterol		8:19	8:19	8:19	8:19	8:19	8:19	8:19			8:19
D6-Metformin		9:34	9:34	9:34	9:34	9:34	9:34				9:34
D3-Cotinine		4:03	4:06	4:06	4:05	4:06	4:08	4:06			4:06
D3-Cimetidine		4:50	4:52	4:54	4:50	5:00	4:54	4:55			4:54
D5-Enalapril		6:25	6:25	6:25	6:25	6:28	6:25	6:25			6:25
D6-Oxycodone		7:19	7:19	7:19	7:19	7:19	7:19	7:19			7:19
D4-Clonidine		6:57	6:57	6:57	6:57	6:57	6:57	6:57			6:57
D5-Amphetamine		8:02	8:02	8:02	8:02	8:02	8:02	8:02			8:02
D6-Codeine		8:42	8:42	8:42	8:42	8:42	8:38	8:42			8:41
D3-Hydrocodone		9:00	9:00	8:57	8:57	8:57	8:57	9:00			8:58
D7-Atenolol		8:53	8:53	8:53	8:53	8:53	8:53	8:57			8:54

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form3D.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_20-Oct-2011_QG1K__Form3D_GS43295.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4A
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	14-Oct-2011	**VER Data Filename:**	QG1K_188 S: 12
Instrument ID:	LC MS/MS	**Analysis Date:**	14-Oct-2011
LC Column ID:	HILIC	**Analysis Time:**	15:55:06

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Albuterol		8:19	15.0	12.8	85.1
Amphetamine		8:02	75.0	72.7	96.9
Atenolol		8:53	30.0	26.0	86.8
Atorvastatin		3:49	75.0	85.0	113
Cimetidine		4:57	30.0	29.5	98.3
Clonidine		6:57	75.0	73.5	98.0
Codeine		8:34	150	122	81.2
Cotinine		4:09	75.0	69.5	92.6
Enalapril		6:25	15.0	14.8	98.8
Hydrocodone		8:49	75.0	79.0	105
Metformin		9:34	150	122	81.3
Oxycodone		6:57	30.0	26.7	89.1
Ranitidine		8:49	30.0	32.3	108
Triamterene		5:24	15.0	13.9	93.0

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QG1K_188S12__Form4A_SJ1380586.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4B
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	14-Oct-2011	**VER Data Filename:**	QG1K_188 S: 12
Instrument ID:	LC MS/MS	**Analysis Date:**	14-Oct-2011
LC Column ID:	HILIC	**Analysis Time:**	15:55:06

LABELED COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
D3-Albuterol		8:19	100	102	102
D6-Metformin		9:38	400	430	108
D3-Cotinine		4:09	60.0	62.4	104
D3-Cimetidine		4:54	30.0	31.7	106
D5-Enalapril		6:21	20.0	19.4	96.8
D6-Oxycodone		7:14	60.0	67.6	113
D4-Clonidine		7:03	400	440	110
D5-Amphetamine		8:08	20.0	20.0	100
D6-Codeine		8:42	200	264	132
D3-Hydrocodone		9:00	60.0	68.0	113
D7-Atenolol		8:57	60.0	65.0	108

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4B.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QG1K_188S12__Form4B_SJ1380586.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4A
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	20-Oct-2011	**VER Data Filename:**	QG1K_193 S: 25
Instrument ID:	LC MS/MS	**Analysis Date:**	20-Oct-2011
LC Column ID:	HILIC	**Analysis Time:**	10:04:44

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Albuterol		8:19	15.0	15.1	101
Amphetamine		8:02	75.0	62.9	83.9
Atenolol		8:53	30.0	25.8	86.1
Atorvastatin		3:55	75.0	87.8	117
Cimetidine		4:55	30.0	30.4	101
Clonidine		6:57	75.0	74.5	99.4
Codeine		8:30	150	152	101
Cotinine		4:06	75.0	68.7	91.6
Enalapril		6:25	15.0	15.1	101
Hydrocodone		8:42	75.0	85.6	114
Metformin		9:30	150	149	99.1
Oxycodone		7:08	30.0	32.5	108
Ranitidine		8:49	30.0	26.7	89.0
Triamterene		5:24	15.0	13.1	87.3

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QG1K_193S25__Form4A_SJ1380942.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4B
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	20-Oct-2011	**VER Data Filename:**	QG1K_193 S: 25
Instrument ID:	LC MS/MS	**Analysis Date:**	20-Oct-2011
LC Column ID:	HILIC	**Analysis Time:**	10:04:44

LABELED COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
D3-Albuterol		8:19	100	94.1	94.1
D6-Metformin		9:34	400	341	85.3
D3-Cotinine		4:05	60.0	51.5	85.9
D3-Cimetidine		4:54	30.0	24.6	81.9
D5-Enalapril		6:25	20.0	17.1	85.3
D6-Oxycodone		7:19	60.0	55.6	92.7
D4-Clonidine		7:03	400	352	88.0
D5-Amphetamine		8:02	20.0	19.3	96.4
D6-Codeine		8:42	200	193	96.4
D3-Hydrocodone		8:57	60.0	56.0	93.3
D7-Atenolol		8:53	60.0	55.7	92.9

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4B.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QG1K_193S25__Form4B_SJ1380942.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 18:51:59	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 21**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	ND		0.472 (S)	
Amphetamine	ND		4.81 (L)	
Atenolol	ND		0.940 (S)	
Atorvastatin	ND		1.44 (L)	
Cimetidine	ND H		0.577 (L)	
Clonidine	X			
Codeine	ND		2.89 (L)	
Cotinine	ND		1.44 (L)	
Enalapril	ND		0.289 (L)	
Hydrocodone	ND		1.44 (L)	
Metformin	ND		2.89 (L)	
Oxycodone	ND		0.577 (L)	
Ranitidine	ND		0.577 (L)	
Triamterene	X			

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; X = result reported separately; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-1_Form1A_QG1K_188S21_SJ1380599.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1 N
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	20-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	20-Oct-2011 **Time:** 13:21:21	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_193 S: 35**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	3	**Cal. Ver. Data Filename:**	QG1K_193 S: 25
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	33.0

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	X			
Amphetamine	X			
Atenolol	X			
Atorvastatin	X			
Cimetidine	X			
Clonidine	ND D		14.4 (L)	
Codeine	X			
Cotinine	X			
Enalapril	X			
Hydrocodone	X			
Metformin	X			
Oxycodone	X			
Ranitidine	X			
Triamterene	X			

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; D = dilution data; X = result reported separately.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

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Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_BEP_L16978-1_Form1A_QG1K_193S35_SJ1380946.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 18:51:59	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 21**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng absolute	**% Moisture:**	33.0

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LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol		100	41.8	41.8	8:19
D6-Metformin		400	164	41.1	9:38
D3-Cotinine		60.0	68.8	115	4:05
D3-Cimetidine	V	30.0	1.18	3.94	4:47
D5-Enalapril		20.0	22.7	113	6:25
D6-Oxycodone		60.0	51.0	85.0	7:19
D4-Clonidine	X				
D5-Amphetamine		20.0	12.0	59.9	8:08
D6-Codeine		200	153	76.3	8:42
D3-Hydrocodone		60.0	55.1	91.9	9:00
D7-Atenolol		60.0	58.3	97.2	8:57

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits; X = result reported separately.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_BEP_L16978-1_Form2_QG1K_188S21_SJ1380599.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1 N
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	20-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	20-Oct-2011 **Time:** 13:21:21	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_193 S: 35**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	3	**Cal. Ver. Data Filename:**	QG1K_193 S: 25
Concentration Units:	ng absolute	**% Moisture:**	33.0

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LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol	X				
D6-Metformin	X				
D3-Cotinine	X				
D3-Cimetidine	X				
D5-Enalapril	X				
D6-Oxycodone	X				
D4-Clonidine	D	400	432	108	7:03
D5-Amphetamine	X				
D6-Codeine	X				
D3-Hydrocodone	X				
D7-Atenolol	X				

(1) Where applicable, custom lab flags have been used on this report; D = dilution data; X = result reported separately.
(2) R(%) = percent recovery.

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Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_BEP_L16978-1_Form2_QG1K_193S35_SJ1380946.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 19:11:44	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 22**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	37.6

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	ND		0.288 (L)	
Amphetamine	NDR	5.67	4.80 (L)	7:46
Atenolol	ND		0.579 (S)	
Atorvastatin	ND		1.44 (L)	
Cimetidine	ND H		0.576 (L)	
Clonidine	ND		1.44 (L)	
Codeine	ND		2.88 (L)	
Cotinine	ND		1.44 (L)	
Enalapril	ND		0.288 (L)	
Hydrocodone	ND		1.44 (L)	
Metformin	ND		5.28 (S)	
Oxycodone	ND		0.576 (L)	
Ranitidine	ND		0.576 (L)	
Triamterene	ND		0.408 (S)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_BEP_L16978-2_Form1A_QG1K_188S22_SJ1380600.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 19:11:44	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 22**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng absolute	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol		100	52.8	52.8	8:25
D6-Metformin		400	73.2	18.3	9:34
D3-Cotinine		60.0	56.8	94.7	4:08
D3-Cimetidine	V	30.0	1.84	6.13	4:57
D5-Enalapril		20.0	21.0	105	6:25
D6-Oxycodone		60.0	52.3	87.1	7:19
D4-Clonidine		400	430	108	7:03
D5-Amphetamine		20.0	10.9	54.3	8:02
D6-Codeine		200	149	74.6	8:42
D3-Hydrocodone		60.0	46.1	76.9	9:00
D7-Atenolol		60.0	49.9	83.1	8:57

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-2_Form2_QG1K_188S22_SJ1380600.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.06 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 19:31:19	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 23**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.7

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	ND		0.295 (S)	
Amphetamine	NDR	4.82	4.72 (L)	8:02
Atenolol	ND		0.734 (S)	
Atorvastatin	ND		1.41 (L)	
Cimetidine	ND H		0.566 (L)	
Clonidine	X			
Codeine	ND		2.83 (L)	
Cotinine	ND		1.41 (L)	
Enalapril	ND		0.283 (L)	
Hydrocodone	ND		1.41 (L)	
Metformin	ND		6.44 (S)	
Oxycodone	ND		0.566 (L)	
Ranitidine	ND		0.911 (S)	
Triamterene	X			

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; X = result reported separately; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-3_Form1A_QG1K_188S23_SJ1380601.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3 N
Matrix:	SOLID	**Sample Size:**	1.06 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	20-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	20-Oct-2011 **Time:** 14:00:41	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_193 S: 37**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	3	**Cal. Ver. Data Filename:**	QG1K_193 S: 25
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.7

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	X			
Amphetamine	X			
Atenolol	X			
Atorvastatin	X			
Cimetidine	X			
Clonidine	ND D		14.1 (L)	
Codeine	X			
Cotinine	X			
Enalapril	X			
Hydrocodone	X			
Metformin	X			
Oxycodone	X			
Ranitidine	X			
Triamterene	X			

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; D = dilution data; X = result reported separately.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

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Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_BEP_L16978-3_Form1A_QG1K_193S37_SJ1380948.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.06 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 19:31:19	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 23**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng absolute	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol		100	53.2	53.2	8:19
D6-Metformin		400	92.6	23.2	9:38
D3-Cotinine		60.0	62.7	105	4:11
D3-Cimetidine	V	30.0	1.32	4.39	4:58
D5-Enalapril		20.0	20.5	103	6:25
D6-Oxycodone		60.0	51.1	85.2	7:19
D4-Clonidine	X				
D5-Amphetamine		20.0	10.7	53.5	8:02
D6-Codeine		200	142	70.8	8:42
D3-Hydrocodone		60.0	44.8	74.6	9:00
D7-Atenolol		60.0	53.4	89.0	8:57

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits; X = result reported separately.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-3_Form2_QG1K_188S23_SJ1380601.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3 N
Matrix:	SOLID	**Sample Size:**	1.06 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	20-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	20-Oct-2011 **Time:** 14:00:41	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_193 S: 37**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	3	**Cal. Ver. Data Filename:**	QG1K_193 S: 25
Concentration Units:	ng absolute	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol	X				
D6-Metformin	X				
D3-Cotinine	X				
D3-Cimetidine	X				
D5-Enalapril	X				
D6-Oxycodone	X				
D4-Clonidine	D	400	373	93.2	7:03
D5-Amphetamine	X				
D6-Codeine	X				
D3-Hydrocodone	X				
D7-Atenolol	X				

(1) Where applicable, custom lab flags have been used on this report; D = dilution data; X = result reported separately.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-3_Form2_QG1K_193S37_SJ1380948.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.01 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 19:51:03	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 24**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	ND		0.375 (S)	
Amphetamine	NDR	6.16	4.97 (L)	8:14
Atenolol		0.768	0.660 (S)	8:49
Atorvastatin	ND		1.49 (L)	
Cimetidine	ND		0.597 (L)	
Clonidine	ND		1.49 (L)	
Codeine	ND		3.55 (S)	
Cotinine	ND		1.49 (L)	
Enalapril	ND		0.298 (L)	
Hydrocodone	ND		1.49 (L)	
Metformin	ND		4.74 (S)	
Oxycodone	ND		0.597 (L)	
Ranitidine	ND		0.612 (S)	
Triamterene	ND		0.445 (S)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-4_Form1A_QG1K_188S24_SJ1380602.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.01 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 19:51:03	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 24**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng absolute	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol		100	55.5	55.5	8:25
D6-Metformin		400	154	38.4	9:38
D3-Cotinine		60.0	66.4	111	4:09
D3-Cimetidine	V	30.0	2.48	8.27	4:55
D5-Enalapril		20.0	22.6	113	6:25
D6-Oxycodone		60.0	48.0	80.0	7:19
D4-Clonidine		400	488	122	7:03
D5-Amphetamine		20.0	10.8	53.8	8:08
D6-Codeine		200	160	79.9	8:45
D3-Hydrocodone		60.0	61.8	103	9:00
D7-Atenolol		60.0	66.4	111	8:57

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-4_Form2_QG1K_188S24_SJ1380602.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.08 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 20:10:39	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 25**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	ND		0.279 (L)	
Amphetamine	ND		4.64 (L)	
Atenolol	ND		0.614 (S)	
Atorvastatin	ND		1.39 (L)	
Cimetidine	ND H		2.68 (S)	
Clonidine	ND		1.39 (L)	
Codeine	ND		2.79 (L)	
Cotinine	ND		1.39 (L)	
Enalapril	ND		0.279 (L)	
Hydrocodone	ND		1.39 (L)	
Metformin	ND		5.66 (S)	
Oxycodone	ND		0.557 (L)	
Ranitidine	ND		0.557 (L)	
Triamterene	ND		0.444 (S)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-5_Form1A_QG1K_188S25_SJ1380603.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.08 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 20:10:39	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 25**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng absolute	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol		100	57.4	57.4	8:25
D6-Metformin		400	62.5	15.6	9:34
D3-Cotinine		60.0	59.9	99.9	4:13
D3-Cimetidine	V	30.0	1.46	4.86	4:54
D5-Enalapril		20.0	20.3	102	6:25
D6-Oxycodone		60.0	47.3	78.8	7:19
D4-Clonidine		400	497	124	7:03
D5-Amphetamine		20.0	10.9	54.5	8:08
D6-Codeine		200	154	76.9	8:42
D3-Hydrocodone		60.0	52.2	87.0	9:00
D7-Atenolol		60.0	56.2	93.6	8:57

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-5_Form2_QG1K_188S25_SJ1380603.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37879-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 18:12:40	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 19**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng/g		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	ND		0.300 (L)	
Amphetamine	ND		5.00 (L)	
Atenolol	ND		0.723 (S)	
Atorvastatin	ND		1.50 (L)	
Cimetidine	ND		0.600 (L)	
Clonidine	ND		1.50 (L)	
Codeine	ND		3.00 (L)	
Cotinine	ND		1.50 (L)	
Enalapril	ND		0.300 (L)	
Hydrocodone	ND		1.50 (L)	
Metformin	ND		3.44 (S)	
Oxycodone	ND		0.600 (L)	
Ranitidine	ND		0.600 (L)	
Triamterene	ND		0.312 (S)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_WG37879-101_Form1A_QG1K_188S19_SJ1380595.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37879-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 18:12:40	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 19**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol		100	67.5	67.5	8:25
D6-Metformin		400	130	32.5	9:38
D3-Cotinine		60.0	61.8	103	4:09
D3-Cimetidine		30.0	9.29	31.0	4:54
D5-Enalapril		20.0	23.2	116	6:25
D6-Oxycodone		60.0	41.8	69.6	7:19
D4-Clonidine	V	400	551	138	7:03
D5-Amphetamine		20.0	10.4	52.2	8:08
D6-Codeine		200	137	68.5	8:45
D3-Hydrocodone		60.0	48.3	80.4	9:00
D7-Atenolol		60.0	52.3	87.1	8:57

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_WG37879-101_Form2_QG1K_188S19_SJ1380595.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8A

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37879-102
Matrix:	SOLID	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 16:54:01	**Column ID:**	HILIC
Extract Volume (uL):	4000	**OPR Data Filename:**	**QG1K_188 S: 15**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
Albuterol		15.0	14.9	99.0	8:19
Amphetamine		75.0	68.0	90.7	8:02
Atenolol		30.0	27.0	90.0	8:57
Atorvastatin		75.0	64.2	85.6	3:57
Cimetidine		30.0	26.5	88.2	4:50
Clonidine		75.0	83.3	111	6:57
Codeine		150	127	84.9	8:30
Cotinine		75.0	73.3	97.8	4:03
Enalapril		15.0	14.0	93.5	6:25
Hydrocodone	N	75.0	33.9	45.2	8:49
Metformin		150	123	82.1	9:34
Oxycodone		30.0	25.5	85.1	6:57
Ranitidine	N	30.0	6.17	20.6	8:49
Triamterene		15.0	12.7	84.8	5:21

(1) Where applicable, custom lab flags have been used on this report; N = authentic recovery is not within method/contract control limits.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: FC-Form8A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_WG37879-102_Form8A_SJ1380589.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8B

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37879-102
Matrix:	SOLID	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 16:54:01	**Column ID:**	HILIC
Extract Volume (uL):	4000	**OPR Data Filename:**	**QG1K_188 S: 15**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
D3-Albuterol		100	71.6	71.6	8:19
D6-Metformin		400	300	74.9	9:38
D3-Cotinine		60.0	57.7	96.1	4:05
D3-Cimetidine		30.0	17.2	57.3	4:54
D5-Enalapril		20.0	19.5	97.6	6:21
D6-Oxycodone		60.0	45.4	75.6	7:14
D4-Clonidine		400	458	115	7:03
D5-Amphetamine		20.0	10.5	52.4	8:02
D6-Codeine		200	146	72.9	8:42
D3-Hydrocodone		60.0	50.4	84.1	9:00
D7-Atenolol		60.0	49.8	83.0	8:57

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: LC_PPC_LC_PPC075_BEP_WG37879-102_Form8B_SJ1380589.html; Workgroup: WG37879; Design ID: 1482]

AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
1,2,3,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD	1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF			1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls												
PCB 1 2-Chlorobiphenyl	7	7								7	7	
PCB 3 4-Chlorobiphenyl	7	7								7	7	
PCB 4 2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5 2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15 4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18 2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19 2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31 2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37 3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44 2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52 2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54 2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66 2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77 3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81 3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87 2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

AXYS Analytical Services Ltd.

Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

AXYS Analytical Services Ltd.

Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

Your Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Your C.O.C. #: 08315004

Attention: JASON CLARKE
WORLEYPARSONS CANADA SERVICES LTD
100-3795 CAREY RD
VICTORIA, BC
CANADA V8Z 6T8

Report Date: 2012/02/23

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B193099
Received: 2011/09/29, 15:40

Sample Matrix: Sediment
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Soil by GC/MS	3	2011/10/11	2011/10/14	BBY8SOP-00023	EPA SW846 3540C
Phenols in Soil by GCMS	3	2011/10/03	2011/10/09	BBY8SOP-00025	EPA 8270D
Ecotox Report Attachment	3	2012/02/15	2012/02/15		
Ecotox Report Attachment	3	2012/02/15	2012/02/15		
Fecal Coliforms (MTF) in Soil	4	N/A	2011/10/01	BBY4-00119	SM 9221
Elements by ICPMS (total)	4	2011/10/03	2011/10/03	BBY7SOP-00001	EPA 6020A
Simultaneously Extractable Metals-ICPMS	4	2011/10/12	2011/10/12	BBY7SOP-00001	EPA 6020A
Moisture	6	N/A	2011/10/03	BBY8SOP-00017	Ont MOE -E 3139
Moisture	1	N/A	2011/10/13	BBY8SOP-00017	Ont MOE -E 3139
PAH in Soil by GC/MS (SIM)	3	2011/10/02	2011/10/03	BBY8SOP-00022	EPA 8270D
Total LMW, HMW, Total PAH Calc	3	N/A	2011/10/04		PAHTOT-S
Polychlorinated Biphenyls in Soil	3	N/A	2011/10/05	BBY8SOP-00036	EPA 8080
pH (2:1 DI Water Extract)	4	2011/10/05	2011/10/05	BBY6SOP-00028	Carter, SSMA 16.2
CSR VH C6-C10 in Soil by GC/FID	3	2011/10/02	2011/10/03	BBY8SOP-00011	EPA SW8260C
Particle Size Distribution - Standard (1)	4	2011/10/04	2011/10/04		
Sulfide (AVS) (soil) - Calc for umole/g	3	2011/09/30	2011/10/13	BRN SOP-00229 R2.0	EPA821-R91-100
Sulfide (AVS) (soil) - Calc for umole/g	1	2011/09/30	2011/10/14	BRN SOP-00229 R2.0	EPA821-R91-100
Sulfide (AVS) (soil)	4	2011/10/12	2011/10/12	BBY6SOP-00007	EPA821-R91-100
Sublet (Inorganics) (2)	3	N/A	2011/11/21		
Texture Class (1)	4	N/A	2011/11/08		
VOCs in Soil by HS GC/MS	3	2011/10/02	2011/10/03	BBY8-SOP-0009	EPA 8260C
Volatile HC-BTEX	3	N/A	2011/10/04	BBY8-SOP-00011	BC Env Lab Manual
Nonyl Phenol Soil Subcontract (2)	3	2011/11/24	2011/11/24		
Pesticides, OC Soil Subcontract (3)	3	2011/10/06	2011/10/09	CAM SOP-00307	EPA 8081A(1)
PBDE Soil Subcontract (2)	3	2011/10/06	2011/10/13		
TOC Soil Subcontract (3)	4	2011/11/22	2011/10/11		

* Results relate only to the items tested.

(1) This test was performed by Maxxam Winnipeg
(2) This test was performed by Ext. Sublet from Victoria
(3) This test was performed by Maxxam Ontario (From Burnaby)

../2

Maxxam Job #: B193099
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Debbie Nordbruget, Sample Logistics Technician
Email: DNordbruget@maxxam.ca
Phone# (250) 385-6112

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B193099
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

RESULTS OF CHEMICAL ANALYSES OF SEDIMENT

Maxxam ID		BR3043		BR3044	BR3045		BR3046		
Sampling Date		2011/09/29 09:15		2011/09/29 10:45	2011/09/29 12:05		2011/09/29 14:05		
	Units	**M1300E - COMPOSITE**	**QC Batch**	**M800NE - COMPOSITE**	**T1000 - COMPOSITE**	**QC Batch**	**T2000 - COMPOSITE**	**RDL**	**QC Batch**
Calculated Parameters									
No Parameter	N/A			ATTACHED	ATTACHED	5599913	ATTACHED	N/A	5599913
Parameter									
Subcontract Parameter	N/A	ATTACHED	5384003	ATTACHED	ATTACHED	5384051	ATTACHED	N/A	5567426
Physical Properties									
Texture	N/A	SANDY LOAM	5226359	SANDY LOAM	SANDY LOAM	5226359	LOAM	N/A	5226359

Maxxam ID		BR3047		BR3048		BR3049		BR3050		
Sampling Date		2011/09/29 08:40		2011/09/29 09:45		2011/09/29 11:10		2011/09/29 13:00		
	Units	**M1300E - GRAB**	**RDL**	**M800NE - GRAB**	**RDL**	**T100 - GRAB**	**RDL**	**T200 - GRAB**	**RDL**	**QC Batch**
Calculated Parameters										
Sulphide	umole/g	0.177	0.0083	0.250	0.0070	0.0664	0.0083	0.129	0.0070	5226352
MISCELLANEOUS										
Sulphide	ug/g	5.69	0.27	8.02	0.22	2.13	0.27	4.15(1)	0.23	5255705

N/A = Not Applicable
RDL = Reportable Detection Limit
(1) - Matrix spike exceeds acceptance limits due to matrix interference. Re-analysis yields similar results.

Maxxam Job #: B193099
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

POLYCHLORINATED BIPHENYLS BY GC-ECD (SEDIMENT)

Maxxam ID		BR3044	BR3045	BR3046		
Sampling Date		2011/09/29 10:45	2011/09/29 12:05	2011/09/29 14:05		
	Units	**M800NE - COMPOSITE**	**T1000 - COMPOSITE**	**T2000 - COMPOSITE**	**RDL**	**QC Batch**
Polychlorinated Biphenyls						
Aroclor 1242	mg/kg	<0.030	<0.030	<0.030	0.030	5234240
Aroclor 1248	mg/kg	<0.030	<0.030	<0.030	0.030	5234240
Aroclor 1254	mg/kg	<0.030	<0.030	<0.030	0.030	5234240
Aroclor 1260	mg/kg	<0.030	<0.030	<0.030	0.030	5234240
Total PCB	mg/kg	<0.030	<0.030	<0.030	0.030	5234240
Surrogate Recovery (%)						
Hexabromobiphenyl (sur.)	%	78	87	87		5234240

PARTICLE SIZE DISTRIBUTION ANALYSIS (SEDIMENT)

Maxxam ID		BR3043	BR3044	BR3045	BR3046		
Sampling Date		2011/09/29 09:15	2011/09/29 10:45	2011/09/29 12:05	2011/09/29 14:05		
	Units	**M1300E - COMPOSITE**	**M800NE - COMPOSITE**	**T1000 - COMPOSITE**	**T2000 - COMPOSITE**	**RDL**	**QC Batch**
Percent Passing							
<0.002mm Pipette	%	8.51	11.59	10.81	10.80	0.01	5345183
<0.053mm Pipette	%	29.85	40.16	41.34	40.24	0.01	5345183
<0.125mm, Sieve #120	%	67.10	84.21	88.95	77.98	0.01	5345183
<0.250mm, Sieve #60	%	74.29	89.00	92.82	82.25	0.01	5345183
<2.00mm, Sieve #10	%	79.23	91.01	93.99	85.33	0.01	5345183
Percent of Entire Sample							
<0.002mm	%	8.51	11.59	10.81	10.80	0.01	5345183
<0.053mm & >0.002mm	%	21.34	28.58	30.53	29.44	0.01	5345183
<2.00mm & >0.053mm	%	49.37	50.85	52.64	45.09	0.01	5345183
>2.00mm	%	20.77	8.99	6.01	14.67	0.01	5345183
% of the <2mm Fraction							
% Clay <0.002mm	%	10.74	12.73	11.51	12.66	0.01	5345183
% Sand <2.00mm & >0.053mm	%	62.32	55.87	56.01	52.85	0.01	5345183
% Silt <0.053mm & >0.002mm	%	26.94	31.40	32.48	34.50	0.01	5345183

RDL = Reportable Detection Limit

Maxxam Job #: B193099
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

PHYSICAL TESTING (SEDIMENT)

Maxxam ID		BR3044	BR3045	BR3046		BR3047		BR3048	BR3049	BR3050		
Sampling Date		2011/09/29 10:45	2011/09/29 12:05	2011/09/29 14:05		2011/09/29 08:40		2011/09/29 09:45	2011/09/29 11:10	2011/09/29 13:00		
	Units	**M800NE - COMPOSITE**	**T1000 - COMPOSITE**	**T2000 - COMPOSITE**	**QC Batch**	**M1300E - GRAB**	**QC Batch**	**M800NE - GRAB**	**T100 - GRAB**	**T200 - GRAB**	**RDL**	**QC Batch**
Physical Properties												
Moisture	%	34	34	34	5228591	39	5261212	38	39	28	0.3	5228591

RDL = Reportable Detection Limit

Maxxam Job #: B193099
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BR3044	BR3045	BR3046		
Sampling Date		2011/09/29 10:45	2011/09/29 12:05	2011/09/29 14:05		
	Units	**M800NE - COMPOSITE**	**T1000 - COMPOSITE**	**T2000 - COMPOSITE**	**RDL**	**QC Batch**
Base Neutrals						
2,4-dinitrotoluene	mg/kg	<0.05	<0.05	<0.05	0.05	5253776
2,6-dinitrotoluene	mg/kg	<0.05	<0.05	<0.05	0.05	5253776
2-chloronaphthalene	mg/kg	<0.08	<0.08	<0.08	0.08	5253776
3,3'-Dichlorobenzidine	mg/kg	<0.5	<0.5	<0.5	0.5	5253776
4-bromophenyl phenyl ether	mg/kg	<0.06	<0.06	<0.06	0.06	5253776
4-chlorophenyl phenyl ether	mg/kg	<0.07	<0.07	<0.07	0.07	5253776
Bis(2-chloroethoxy)methane	mg/kg	<0.08	<0.08	<0.08	0.08	5253776
Bis(2-chloroethyl)ether	mg/kg	<0.06	<0.06	<0.06	0.06	5253776
Bis(2-chloroisopropyl)ether	mg/kg	<0.2	<0.2	<0.2	0.2	5253776
Carbazole	mg/kg	<0.1	<0.1	<0.1	0.1	5253776
Dibenzofuran	mg/kg	<0.1	<0.1	<0.1	0.1	5253776
Hexachlorobutadiene	mg/kg	<0.05	<0.05	<0.05	0.05	5253776
Hexachlorocyclopentadiene	mg/kg	<0.5 (1)	<0.5 (1)	<0.5 (1)	0.5	5253776
Hexachloroethane	mg/kg	<0.06	<0.06	<0.06	0.06	5253776
Isophorone	mg/kg	<0.06	<0.06	<0.06	0.06	5253776
Nitrobenzene	mg/kg	<0.07	<0.07	<0.07	0.07	5253776
N-nitroso-di-n-propylamine	mg/kg	<0.06	<0.06	<0.06	0.06	5253776
N-nitrosodiphenylamine	mg/kg	<0.08	<0.08	<0.08	0.08	5253776
Chlorobenzenes						
1,2,4-trichlorobenzene	mg/kg	<0.06	<0.06	<0.06	0.06	5253776
1,2-dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	0.1	5253776
1,3-dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	0.1	5253776
1,4-dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	0.1	5253776
Hexachlorobenzene	mg/kg	<0.06	<0.06	<0.06	0.06	5253776
Phenols						
4-chloro-3-methylphenol	mg/kg	<0.07	<0.07	<0.07	0.07	5253776
m,p-Cresol	mg/kg	0.09	<0.05	<0.05	0.05	5253776
Phthalate Esters						
Bis(2-ethylhexyl)phthalate	mg/kg	<2	<2	<2	2	5253776
Butyl benzyl phthalate	mg/kg	<0.1	<0.1	<0.1	0.1	5253776
Diethyl phthalate	mg/kg	<0.09	<0.09	<0.09	0.09	5253776
Dimethyl phthalate	mg/kg	<0.07	<0.07	<0.07	0.07	5253776
Di-n-butyl phthalate	mg/kg	<0.07	<0.07	<0.07	0.07	5253776
Di-n-octyl phthalate	mg/kg	<0.1	<0.1	<0.1	0.1	5253776

RDL = Reportable Detection Limit
(1) - RDL raised due to Continuing Calibration Verification below criteria - Pot. low bias

Maxxam Job #: B193099
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

SEMIVOLATILE ORGANICS BY GC-MS (SEDIMENT)

Maxxam ID		BR3044	BR3045	BR3046		
Sampling Date		2011/09/29 10:45	2011/09/29 12:05	2011/09/29 14:05		
	Units	**M800NE - COMPOSITE**	**T1000 - COMPOSITE**	**T2000 - COMPOSITE**	**RDL**	**QC Batch**
SEMI-VOLATILE ORGANICS						
Phenol	mg/kg	0.14	<0.050	<0.050	0.050	5245678
2-chlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
3 & 4-chlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2-methylphenol	mg/kg	<0.050	<0.050	<0.050	0.050	5245678
3 & 4-methylphenol	mg/kg	<0.050	<0.050	<0.050	0.050	5245678
2-nitrophenol	mg/kg	<0.050	<0.050	<0.050	0.050	5245678
2,4-dimethylphenol	mg/kg	<0.050	<0.050	<0.050	0.050	5245678
2,4 + 2,5-Dichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,3-Dichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,6-dichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
3,5-Dichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
3,4-Dichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,4,5-trichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,4,6-trichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,3,5-trichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,3,6-Trichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,3,4-trichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
3,4,5-Trichlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,4-dinitrophenol	mg/kg	<0.080	<0.080	<0.080	0.080	5245678
4,6-dinitro-2-methylphenol	mg/kg	<0.50(1)	<0.50(1)	<0.50(1)	0.50	5245678
2,3,4,6-tetrachlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,3,4,5-tetrachlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
2,3,5,6-tetrachlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
4-nitrophenol	mg/kg	<0.050	<0.050	<0.050	0.050	5245678
Pentachlorophenol	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	5245678
Surrogate Recovery (%)						
2,4,6-TRIBROMOPHENOL (sur.)	%	84	44	80		5245678
2-FLUOROBIPHENYL (sur.)	%	76	71	76		5253776
TERPHENYL-D14 (sur.)	%	81	78	83		5253776
D5-PHENOL (sur.)	%	84	44	79		5245678
D5-NITROBENZENE (sur.)	%	76	73	76		5253776

RDL = Reportable Detection Limit
(1) - RDL raised due to Continuing Calibration Verification below criteria - Pot. low bias

Maxxam Job #: B193099
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)

Maxxam ID		BR3047	BR3048	BR3049	BR3050		
Sampling Date		2011/09/29 08:40	2011/09/29 09:45	2011/09/29 11:10	2011/09/29 13:00		
	Units	**M1300E - GRAB**	**M800NE - GRAB**	**T100 - GRAB**	**T200 - GRAB**	**RDL**	**QC Batch**
SEM Metals by ICPMS							
SEM Cadmium (Cd)	umole/g	0.0021	0.0028	0.0029	0.0014	0.0002	5257476
SEM Copper (Cu)	umole/g	0.116	0.193	0.174	0.159	0.004	5257476
SEM Lead (Pb)	umole/g	0.0360	0.0405	0.0472	0.0791(1)	0.0002	5257476
SEM Mercury (Hg)	umole/g	<0.0003	<0.0003	<0.0003	<0.0003	0.0003	5257476
SEM Nickel (Ni)	umole/g	0.177	0.223	0.235	0.180	0.004	5257476
SEM Zinc (Zn)	umole/g	0.613	0.659	0.736	0.541	0.008	5257476

MICROBIOLOGY (SEDIMENT)

Maxxam ID		BR3047	BR3048	BR3049	BR3050		
Sampling Date		2011/09/29 08:40	2011/09/29 09:45	2011/09/29 11:10	2011/09/29 13:00		
	Units	**M1300E - GRAB**	**M800NE - GRAB**	**T100 - GRAB**	**T200 - GRAB**	**RDL**	**QC Batch**
Microbiological Param.							
Fecal Coliforms	MPN/100g	700	3500	11000	17000	20	5228505

RDL = Reportable Detection Limit
(1) - Duplicate RPD for Pb exceeds acceptance criteria. 10% of analytes failure in multielement scan is allowed.

Maxxam Job #: B193099
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

CSR/CCME METALS IN SOIL (SEDIMENT)

Maxxam ID		BR3043	BR3044	BR3045	BR3046		
Sampling Date		2011/09/29 09:15	2011/09/29 10:45	2011/09/29 12:05	2011/09/29 14:05		
	Units	**M1300E - COMPOSITE**	**M800NE - COMPOSITE**	**T1000 - COMPOSITE**	**T2000 - COMPOSITE**	**RDL**	**QC Batch**
Physical Properties							
Soluble (2:1) pH	pH Units	8.24	8.28	8.22	8.24	0.01	5229559
Total Metals by ICPMS							
Total Aluminum (Al)	mg/kg	15700	15400	14100	15200	100	5229520
Total Antimony (Sb)	mg/kg	0.65	0.28	0.33	0.24	0.10	5229520
Total Arsenic (As)	mg/kg	7.45	6.20	5.40	5.52	0.50	5229520
Total Barium (Ba)	mg/kg	54.5	33.7	34.1	33.8	0.10	5229520
Total Beryllium (Be)	mg/kg	<0.40	<0.40	<0.40	<0.40	0.40	5229520
Total Bismuth (Bi)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	5229520
Total Cadmium (Cd)	mg/kg	0.337	0.331	0.319	0.303	0.050	5229520
Total Calcium (Ca)	mg/kg	11900	9820	5700	6560	100	5229520
Total Chromium (Cr)	mg/kg	24.1	23.8	23.1	24.0	1.0	5229520
Total Cobalt (Co)	mg/kg	6.58	6.52	6.44	6.58	0.30	5229520
Total Copper (Cu)	mg/kg	52.9	15.7	14.8	18.5	0.50	5229520
Total Iron (Fe)	mg/kg	28500	29000	25000	27600	100	5229520
Total Lead (Pb)	mg/kg	21.6	10.8	12.2	26.2	0.10	5229520
Total Lithium (Li)	mg/kg	20.8	20.9	21.1	21.2	5.0	5229520
Total Magnesium (Mg)	mg/kg	7340	7310	7270	7390	100	5229520
Total Manganese (Mn)	mg/kg	206	200	201	204	0.20	5229520
Total Mercury (Hg)	mg/kg	0.305	<0.050	<0.050	<0.050	0.050	5229520
Total Molybdenum (Mo)	mg/kg	0.97	0.87	0.48	0.66	0.10	5229520
Total Nickel (Ni)	mg/kg	17.6	16.8	16.4	17.1	0.80	5229520
Total Phosphorus (P)	mg/kg	735	679	675	644	10	5229520
Total Potassium (K)	mg/kg	2300	2240	2210	2250	100	5229520
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	5229520
Total Silver (Ag)	mg/kg	0.070	0.068	0.057	0.065	0.050	5229520
Total Sodium (Na)	mg/kg	7270	6580	6670	6630	100	5229520
Total Strontium (Sr)	mg/kg	73.1	63.6	35.2	38.3	0.10	5229520
Total Thallium (Tl)	mg/kg	0.087	0.082	0.083	0.089	0.050	5229520
Total Tin (Sn)	mg/kg	13.0	2.76	5.63	2.59	0.10	5229520
Total Titanium (Ti)	mg/kg	799	759	649	785	1.0	5229520
Total Uranium (U)	mg/kg	0.791	0.785	0.680	0.801	0.050	5229520
Total Vanadium (V)	mg/kg	46.8	46.3	43.6	46.5	2.0	5229520
Total Zinc (Zn)	mg/kg	76.2	91.7	67.5	63.7	1.0	5229520
Total Zirconium (Zr)	mg/kg	4.58	4.00	3.47	3.88	0.50	5229520

RDL = Reportable Detection Limit

Maxxam Job #: B193099
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

CSR PAH IN SOIL BY GC-MS (SEDIMENT)

Maxxam ID		BR3044	BR3045	BR3046		
Sampling Date		2011/09/29 10:45	2011/09/29 12:05	2011/09/29 14:05		
	Units	**M800NE - COMPOSITE**	**T1000 - COMPOSITE**	**T2000 - COMPOSITE**	**RDL**	**QC Batch**
Polycyclic Aromatics						
Naphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	5232214
2-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	5232214
Acenaphthylene	mg/kg	0.054	<0.050	<0.050	0.050	5232214
Acenaphthene	mg/kg	<0.050	<0.050	<0.050	0.050	5232214
Fluorene	mg/kg	<0.050	<0.050	<0.050	0.050	5232214
Phenanthrene	mg/kg	<0.050	0.092	<0.050	0.050	5232214
Anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	5232214
Fluoranthene	mg/kg	0.11	0.063	0.11	0.050	5232214
Pyrene	mg/kg	0.15	0.097	0.15	0.050	5232214
Benzo(a)anthracene	mg/kg	0.12	<0.050	0.12	0.050	5232214
Chrysene	mg/kg	0.098	<0.050	0.10	0.050	5232214
Benzo(b&j)fluoranthene	mg/kg	0.10	<0.050	0.096	0.050	5232214
Benzo(k)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	5232214
Benzo(a)pyrene	mg/kg	0.097	<0.050	0.096	0.050	5232214
Indeno(1,2,3-cd)pyrene	mg/kg	0.051	<0.050	<0.050	0.050	5232214
Dibenz(a,h)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	5232214
Benzo(g,h,i)perylene	mg/kg	<0.050	<0.050	<0.050	0.050	5232214
Low Molecular Weight PAH`s	mg/kg	0.054	0.092	<0.050	0.050	5226121
High Molecular Weight PAH`s	mg/kg	0.57	0.16	0.58	0.050	5226121
Total PAH	mg/kg	0.62	0.25	0.58	0.050	5226121
Surrogate Recovery (%)						
D10-ANTHRACENE (sur.)	%	98	100	99		5232214
D8-ACENAPHTHYLENE (sur.)	%	99	102	99		5232214
D8-NAPHTHALENE (sur.)	%	96	100	97		5232214
TERPHENYL-D14 (sur.)	%	98	102	98		5232214

RDL = Reportable Detection Limit

Maxxam Job #: B193099
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

CSR VOC + VPH IN SOIL (SEDIMENT)

Maxxam ID		BR3048	BR3049	BR3050		
Sampling Date		2011/09/29 09:45	2011/09/29 11:10	2011/09/29 13:00		
	Units	**M800NE - GRAB**	**T100 - GRAB**	**T200 - GRAB**	**RDL**	**QC Batch**
Volatiles						
VPH (VH6 to 10 - BTEX)	mg/kg	<10	<10	<10	10	5226162
Volatile Hydrocarbons						
CSR VH C6-C10	mg/kg	<10(1)	<10(1)	<10(1)	10	5231614

RDL = Reportable Detection Limit
(1) - Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime

Maxxam Job #: B193099
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

CSR VOC + VPH IN SOIL (SEDIMENT)

Maxxam ID		BR3048	BR3049	BR3050		
Sampling Date		2011/09/29 09:45	2011/09/29 11:10	2011/09/29 13:00		
	Units	**M800NE - GRAB**	**T100 - GRAB**	**T200 - GRAB**	**RDL**	**QC Batch**
Volatiles						
Chloromethane	mg/kg	<0.10(1)	<0.10(1)	<0.10(1)	0.10	5231194
Vinyl chloride	mg/kg	<0.060(1)	<0.060(1)	<0.060(1)	0.060	5231194
Bromomethane	mg/kg	<0.30(1)	<0.30(1)	<0.30(1)	0.30	5231194
Chloroethane	mg/kg	<0.10(1)	<0.10(1)	<0.10(1)	0.10	5231194
Trichlorofluoromethane	mg/kg	<0.20(1)	<0.20(1)	<0.20(1)	0.20	5231194
1,1-dichloroethene	mg/kg	<0.025(1)	<0.025(1)	<0.025(1)	0.025	5231194
Dichloromethane	mg/kg	<0.10(1)	<0.10(1)	<0.10(1)	0.10	5231194
trans-1,2-dichloroethene	mg/kg	<0.025(1)	<0.025(1)	<0.025(1)	0.025	5231194
1,1-dichloroethane	mg/kg	<0.025(1)	<0.025(1)	<0.025(1)	0.025	5231194
cis-1,2-dichloroethene	mg/kg	<0.025(1)	<0.025(1)	<0.025(1)	0.025	5231194
Chloroform	mg/kg	<0.050(1)	<0.050(1)	<0.050(1)	0.050	5231194
1,1,1-trichloroethane	mg/kg	<0.025(1)	<0.025(1)	<0.025(1)	0.025	5231194
1,2-dichloroethane	mg/kg	<0.025(1)	<0.025(1)	<0.025(1)	0.025	5231194
Carbon tetrachloride	mg/kg	<0.025(1)	<0.025(1)	<0.025(1)	0.025	5231194
Benzene	mg/kg	<0.0050(1)	<0.0050(1)	<0.0050(1)	0.0050	5231194
Methyl-tert-butylether (MTBE)	mg/kg	<0.10(1)	<0.10(1)	<0.10(1)	0.10	5231194
1,2-dichloropropane	mg/kg	<0.025(1)	<0.025(1)	<0.025(1)	0.025	5231194
Trichloroethene	mg/kg	<0.0090(1)	<0.0090(1)	<0.0090(1)	0.0090	5231194
Bromodichloromethane	mg/kg	<0.050(1)	<0.050(1)	<0.050(1)	0.050	5231194
cis-1,3-dichloropropene	mg/kg	<0.050(1)	<0.050(1)	<0.050(1)	0.050	5231194
trans-1,3-dichloropropene	mg/kg	<0.050(1)	<0.050(1)	<0.050(1)	0.050	5231194
1,1,2-trichloroethane	mg/kg	<0.025(1)	<0.025(1)	<0.025(1)	0.025	5231194
Toluene	mg/kg	<0.020(1)	<0.020(1)	<0.020(1)	0.020	5231194
Chlorodibromomethane	mg/kg	<0.050(1)	<0.050(1)	<0.050(1)	0.050	5231194
Tetrachloroethene	mg/kg	<0.025(1)	<0.025(1)	<0.025(1)	0.025	5231194
Chlorobenzene	mg/kg	<0.025(1)	<0.025(1)	<0.025(1)	0.025	5231194
1,1,1,2-tetrachloroethane	mg/kg	<0.025(1)	<0.025(1)	<0.025(1)	0.025	5231194
Ethylbenzene	mg/kg	<0.010(1)	<0.010(1)	<0.010(1)	0.010	5231194
m & p-Xylene	mg/kg	<0.040(1)	<0.040(1)	<0.040(1)	0.040	5231194
Bromoform	mg/kg	<0.050(1)	<0.050(1)	<0.050(1)	0.050	5231194
Styrene	mg/kg	<0.030(1)	<0.030(1)	<0.030(1)	0.030	5231194
o-Xylene	mg/kg	<0.040(1)	<0.040(1)	<0.040(1)	0.040	5231194
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	0.040	5231194
1,1,2,2-tetrachloroethane	mg/kg	<0.025(1)	<0.025(1)	<0.025(1)	0.025	5231194

RDL = Reportable Detection Limit
(1) - Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime

Maxxam Job #: B193099
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

CSR VOC + VPH IN SOIL (SEDIMENT)

Maxxam ID		BR3048	BR3049	BR3050		
Sampling Date		2011/09/29 09:45	2011/09/29 11:10	2011/09/29 13:00		
	Units	**M800NE - GRAB**	**T100 - GRAB**	**T200 - GRAB**	**RDL**	**QC Batch**
Surrogate Recovery (%)						
4-BROMOFLUOROBENZENE (sur.)	%	102	101	100		5231194
D10-ETHYLBENZENE (sur.)	%	114	115	110		5231194
D4-1,2-DICHLOROETHANE (sur.)	%	117	118	121		5231194
D8-TOLUENE (sur.)	%	99	99	98		5231194

RDL = Reportable Detection Limit

Maxxam Job #: B193099
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

Package 1	11.3°C
Package 2	7.7°C
Package 3	11.3°C
Package 4	11.3°C
Package 5	9.7°C
Package 6	7.7°C
Package 7	7.7°C
Package 8	6.3°C
Package 9	12.0°C
Package 10	6.7°C
Package 11	9.0°C
Package 12	11.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Sample BR3043-01: Lots of shell debris in sample. KMP.

Sample BR3044-01: Lots of shell debris in sample. KMP.

Sample BR3045-01: Lots of shell debris in sample. KMP.

Sample BR3046-01: Lots of shell debris in sample. KMP.

Sample BR3047-01: ** SEM/AVS = 5.32 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BR3048-01: ** SEM/AVS = 4.47 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BR3049-01: ** SEM/AVS = 18.01 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Sample BR3050-01: ** SEM/AVS = 7.41 [SEM IS THE SUM OF CD CU HG NI PB AND ZN] **

Maxxam Job #: B193099
Report Date: 2012/02/23

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185 - CRD - SEDIMENT
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: BL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5228591	Moisture	2011/10/03					<0.3	%	3.8	20		
5229520	Total Antimony (Sb)	2011/10/03	104	75 - 125	104	75 - 125	<0.10	mg/kg	NC	30	103	70 - 130
5229520	Total Arsenic (As)	2011/10/03	106	75 - 125	104	75 - 125	<0.50	mg/kg	24.0	30	104	70 - 130
5229520	Total Barium (Ba)	2011/10/03	NC	75 - 125	100	75 - 125	<0.10	mg/kg	4.4	35	104	70 - 130
5229520	Total Beryllium (Be)	2011/10/03	102	75 - 125	103	75 - 125	<0.40	mg/kg	NC	30		
5229520	Total Cadmium (Cd)	2011/10/03	106	75 - 125	109	75 - 125	<0.050	mg/kg	NC	30	108	70 - 130
5229520	Total Chromium (Cr)	2011/10/03	NC	75 - 125	101	75 - 125	<1.0	mg/kg	5.2	30	96	70 - 130
5229520	Total Cobalt (Co)	2011/10/03	97	75 - 125	101	75 - 125	<0.30	mg/kg	5.5	30	89	70 - 130
5229520	Total Copper (Cu)	2011/10/03	91	75 - 125	100	75 - 125	<0.50	mg/kg	5.7	30	75	70 - 130
5229520	Total Lead (Pb)	2011/10/03	105	75 - 125	98	75 - 125	<0.10	mg/kg	21.5	35	99	70 - 130
5229520	Total Lithium (Li)	2011/10/03	102	75 - 125	100	75 - 125	<5.0	mg/kg				
5229520	Total Manganese (Mn)	2011/10/03	NC	75 - 125	102	75 - 125	<0.20	mg/kg	3.2	30	98	70 - 130
5229520	Total Mercury (Hg)	2011/10/03	110	75 - 125	106	75 - 125	<0.050	mg/kg	NC	35		
5229520	Total Molybdenum (Mo)	2011/10/03	91	75 - 125	89	75 - 125	<0.10	mg/kg	15.2	35	91	70 - 130
5229520	Total Nickel (Ni)	2011/10/03	NC	75 - 125	98	75 - 125	<0.80	mg/kg	1.4	30	77	70 - 130
5229520	Total Selenium (Se)	2011/10/03	119	75 - 125	118	75 - 125	<0.50	mg/kg	NC	30		
5229520	Total Silver (Ag)	2011/10/03	92	75 - 125	96	75 - 125	<0.050	mg/kg	NC	35		
5229520	Total Strontium (Sr)	2011/10/03	90	75 - 125	96	75 - 125	<0.10	mg/kg	7.0	35	84	70 - 130
5229520	Total Thallium (Tl)	2011/10/03	95	75 - 125	93	75 - 125	<0.050	mg/kg	NC	30	87	70 - 130
5229520	Total Tin (Sn)	2011/10/03	103	75 - 125	98	75 - 125	<0.10	mg/kg	NC	35		
5229520	Total Titanium (Ti)	2011/10/03	NC	75 - 125	100	75 - 125	<1.0	mg/kg	11.8	35	104	70 - 130
5229520	Total Uranium (U)	2011/10/03	101	75 - 125	98	75 - 125	<0.050	mg/kg			97	70 - 130
5229520	Total Vanadium (V)	2011/10/03	NC	75 - 125	102	75 - 125	<2.0	mg/kg	9.9	30	99	70 - 130
5229520	Total Zinc (Zn)	2011/10/03	NC	75 - 125	120	75 - 125	<1.0	mg/kg	4.1	30	80	70 - 130
5229520	Total Aluminum (Al)	2011/10/03					<100	mg/kg	5.2	35	106	70 - 130
5229520	Total Calcium (Ca)	2011/10/03					<100	mg/kg	10.2	30	97	70 - 130
5229520	Total Iron (Fe)	2011/10/03					<100	mg/kg	4.8	30	97	70 - 130
5229520	Total Magnesium (Mg)	2011/10/03					<100	mg/kg	4.0	30	91	70 - 130
5229520	Total Phosphorus (P)	2011/10/03					<10	mg/kg	3.0	30	93	70 - 130
5229520	Total Bismuth (Bi)	2011/10/03					<0.10	mg/kg	NC	30		
5229520	Total Potassium (K)	2011/10/03					<100	mg/kg	NC	35		
5229520	Total Sodium (Na)	2011/10/03					<100	mg/kg	NC	35		
5229520	Total Zirconium (Zr)	2011/10/03					<0.50	mg/kg	5.7	30		
5229559	Soluble (2:1) pH	2011/10/05			102	96 - 104			0.1	20		
5231194	4-BROMOFLUOROBENZENE (sur.)	2011/10/03	111	70 - 130	108	70 - 130	101	%				
5231194	D10-ETHYLBENZENE (sur.)	2011/10/03	120	50 - 130	107	50 - 130	110	%				
5231194	D4-1,2-DICHLOROETHANE (sur.)	2011/10/03	112	70 - 130	111	70 - 130	115	%				
5231194	D8-TOLUENE (sur.)	2011/10/03	94	70 - 130	95	70 - 130	99	%				
5231194	Chloromethane	2011/10/03	131	40 - 150	129	40 - 150	<0.10	mg/kg	NC	40		
5231194	Vinyl chloride	2011/10/03	117	40 - 150	118	40 - 150	<0.060	mg/kg	NC	40		

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Sampler Initials: BL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5231194	Bromomethane	2011/10/03	99	40 - 150	109	40 - 150	<0.30	mg/kg	NC	40		
5231194	Chloroethane	2011/10/03	126	40 - 150	120	40 - 150	<0.10	mg/kg	NC	40		
5231194	Trichlorofluoromethane	2011/10/03	144	40 - 150	139	40 - 150	<0.20	mg/kg	NC	40		
5231194	1,1-dichloroethene	2011/10/03	120	60 - 140	106	60 - 140	<0.025	mg/kg	NC	40		
5231194	Dichloromethane	2011/10/03	126	60 - 140	115	60 - 140	<0.10	mg/kg	NC	40		
5231194	trans-1,2-dichloroethene	2011/10/03	117	60 - 140	105	60 - 140	<0.025	mg/kg	NC	40		
5231194	1,1-dichloroethane	2011/10/03	125	60 - 140	111	60 - 140	<0.025	mg/kg	NC	40		
5231194	cis-1,2-dichloroethene	2011/10/03	118	60 - 140	106	60 - 140	<0.025	mg/kg	NC	40		
5231194	Chloroform	2011/10/03	117	60 - 140	105	60 - 140	<0.050	mg/kg	NC	40		
5231194	1,1,1-trichloroethane	2011/10/03	122	60 - 140	110	60 - 140	<0.025	mg/kg	NC	40		
5231194	1,2-dichloroethane	2011/10/03	116	60 - 140	106	60 - 140	<0.025	mg/kg	NC	40		
5231194	Carbon tetrachloride	2011/10/03	124	60 - 140	110	60 - 140	<0.025	mg/kg	NC	40		
5231194	Benzene	2011/10/03	129	60 - 140	114	60 - 140	<0.0050	mg/kg	NC	40		
5231194	1,2-dichloropropane	2011/10/03	118	60 - 140	106	60 - 140	<0.025	mg/kg	NC	40		
5231194	Trichloroethene	2011/10/03	125	60 - 140	111	60 - 140	<0.0090	mg/kg	NC	40		
5231194	Bromodichloromethane	2011/10/03	114	60 - 140	102	60 - 140	<0.050	mg/kg	NC	40		
5231194	cis-1,3-dichloropropene	2011/10/03	95	60 - 140	101	60 - 140	<0.050	mg/kg	NC	40		
5231194	trans-1,3-dichloropropene	2011/10/03	94	60 - 140	106	60 - 140	<0.050	mg/kg	NC	40		
5231194	1,1,2-trichloroethane	2011/10/03	113	60 - 140	102	60 - 140	<0.025	mg/kg	NC	40		
5231194	Toluene	2011/10/03	120	60 - 140	105	60 - 140	<0.020	mg/kg	NC	40		
5231194	Chlorodibromomethane	2011/10/03	116	60 - 140	109	60 - 140	<0.050	mg/kg	NC	40		
5231194	Tetrachloroethene	2011/10/03	120	60 - 140	108	60 - 140	<0.025	mg/kg	NC	40		
5231194	Chlorobenzene	2011/10/03	129	60 - 140	108	60 - 140	<0.025	mg/kg	NC	40		
5231194	1,1,1,2-tetrachloroethane	2011/10/03	127	60 - 140	110	60 - 140	<0.025	mg/kg	NC	40		
5231194	Ethylbenzene	2011/10/03	139	60 - 140	123	60 - 140	<0.010	mg/kg	NC	40		
5231194	m & p-Xylene	2011/10/03	147 (1)	60 - 140	129	60 - 140	<0.040	mg/kg	NC	40		
5231194	Bromoform	2011/10/03	119	60 - 140	107	60 - 140	<0.050	mg/kg	NC	40		
5231194	Styrene	2011/10/03	136	60 - 140	125	60 - 140	<0.030	mg/kg	NC	40		
5231194	o-Xylene	2011/10/03	131	60 - 140	119	60 - 140	<0.040	mg/kg	NC	40		
5231194	1,1,2,2-tetrachloroethane	2011/10/03	118	60 - 140	107	60 - 140	<0.025	mg/kg	NC	40		
5231194	Methyl-tert-butylether(MTBE)	2011/10/03					<0.10	mg/kg	NC	40		
5231194	Xylenes (Total)	2011/10/03					<0.040	mg/kg	NC	40		
5231614	CSR VH C6-C10	2011/10/03					<10	mg/kg	NC	50	90	60 - 140
5232214	D10-ANTHRACENE (sur.)	2011/10/03	99	60 - 130	96	60 - 130	98	%				
5232214	D8-ACENAPHTHYLENE (sur.)	2011/10/03	102	50 - 130	92	50 - 130	97	%				
5232214	D8-NAPHTHALENE (sur.)	2011/10/03	98	50 - 130	96	50 - 130	103	%				
5232214	TERPHENYL-D14 (sur.)	2011/10/03	100	60 - 130	97	60 - 130	104	%				
5232214	Naphthalene	2011/10/03	78	50 - 130	85	50 - 130	<0.050	mg/kg	NC	50		
5232214	2-Methylnaphthalene	2011/10/03	84	50 - 130	87	50 - 130	<0.050	mg/kg	NC	50		
5232214	Acenaphthylene	2011/10/03	80	50 - 130	82	50 - 130	<0.050	mg/kg	NC	50		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5232214	Acenaphthene	2011/10/03	82	50 - 130	87	50 - 130	<0.050	mg/kg	NC	50		
5232214	Fluorene	2011/10/03	85	50 - 130	88	50 - 130	<0.050	mg/kg	NC	50		
5232214	Phenanthrene	2011/10/03	77	60 - 130	84	60 - 130	<0.050	mg/kg	NC	50		
5232214	Anthracene	2011/10/03	79	60 - 130	86	60 - 130	<0.050	mg/kg	NC	50		
5232214	Fluoranthene	2011/10/03	81	60 - 130	90	60 - 130	<0.050	mg/kg	NC	50		
5232214	Pyrene	2011/10/03	82	60 - 130	91	60 - 130	<0.050	mg/kg	NC	50		
5232214	Benzo(a)anthracene	2011/10/03	75	60 - 130	74	60 - 130	<0.050	mg/kg	NC	50		
5232214	Chrysene	2011/10/03	74	60 - 130	92	60 - 130	<0.050	mg/kg	NC	50		
5232214	Benzo(b&j)fluoranthene	2011/10/03	85	60 - 130	91	60 - 130	<0.050	mg/kg	45.9	50		
5232214	Benzo(k)fluoranthene	2011/10/03	72	60 - 130	84	60 - 130	<0.050	mg/kg	NC	50		
5232214	Benzo(a)pyrene	2011/10/03	81	60 - 130	91	60 - 130	<0.050	mg/kg	NC	50		
5232214	Indeno(1,2,3-cd)pyrene	2011/10/03	76	60 - 130	85	60 - 130	<0.050	mg/kg	NC	50		
5232214	Dibenz(a,h)anthracene	2011/10/03	82	60 - 130	87	60 - 130	<0.050	mg/kg	NC	50		
5232214	Benzo(g,h,i)perylene	2011/10/03	70	60 - 130	85	60 - 130	<0.050	mg/kg	NC	50		
5234240	Hexabromobiphenyl (sur.)	2011/10/05	98	60 - 130	97	60 - 130	95	%				
5234240	Aroclor 1254	2011/10/05	101	70 - 110	101	70 - 110	<0.030	mg/kg	NC	50		
5234240	Aroclor 1242	2011/10/05					<0.030	mg/kg	NC	50		
5234240	Aroclor 1248	2011/10/05					<0.030	mg/kg	NC	50		
5234240	Aroclor 1260	2011/10/05					<0.030	mg/kg	NC	50		
5234240	Total PCB	2011/10/05					<0.030	mg/kg	NC	50		
5245678	2,4,6-TRIBROMOPHENOL (sur.)	2011/10/08	85	19 - 122	80	19 - 122	16 (1, 2)	%				
5245678	D5-PHENOL (sur.)	2011/10/08	82	24 - 113	82	24 - 113	21 (1, 2)	%				
5245678	Phenol	2011/10/08	82	12 - 110	85	12 - 110	<0.050	mg/kg	NC	50		
5245678	2-chlorophenol	2011/10/08	88	27 - 123	92	27 - 123	<0.0050	mg/kg	NC	50		
5245678	3 & 4-chlorophenol	2011/10/08	88	27 - 123	90	27 - 123	<0.0050	mg/kg	NC	50		
5245678	2-methylphenol	2011/10/08	86	25 - 120	81	25 - 120	<0.050	mg/kg	NC	50		
5245678	3 & 4-methylphenol	2011/10/08	86	25 - 120	86	25 - 120	<0.050	mg/kg	NC	50		
5245678	2-nitrophenol	2011/10/08	90	29 - 182	90	29 - 182	<0.050	mg/kg	NC	50		
5245678	2,4-dimethylphenol	2011/10/08	75	32 - 119	45	32 - 119	<0.050	mg/kg	NC	50		
5245678	2,4 + 2,5-Dichlorophenol	2011/10/08	92	39 - 135	94	39 - 135	<0.0050	mg/kg	NC	50		
5245678	2,3-Dichlorophenol	2011/10/08	87	39 - 135	91	39 - 135	<0.0050	mg/kg	NC	50		
5245678	2,6-dichlorophenol	2011/10/08	92	39 - 135	95	39 - 135	<0.0050	mg/kg	NC	50		
5245678	3,5-Dichlorophenol	2011/10/08	85	39 - 135	83	39 - 135	<0.0050	mg/kg	NC	50		
5245678	3,4-Dichlorophenol	2011/10/08	89	39 - 135	85	39 - 135	<0.0050	mg/kg	NC	50		
5245678	2,4,5-trichlorophenol	2011/10/08	97	37 - 144	94	37 - 144	<0.0050	mg/kg	NC	50		
5245678	2,4,6-trichlorophenol	2011/10/08	96	37 - 144	92	37 - 144	<0.0050	mg/kg	NC	50		
5245678	2,3,5-trichlorophenol	2011/10/08	95	37 - 144	90	37 - 144	<0.0050	mg/kg	NC	50		
5245678	2,3,6-Trichlorophenol	2011/10/08	91	37 - 144	92	37 - 144	<0.0050	mg/kg	NC	50		
5245678	2,3,4-trichlorophenol	2011/10/08	95	37 - 144	93	37 - 144	<0.0050	mg/kg	NC	50		
5245678	3,4,5-Trichlorophenol	2011/10/08	100	37 - 144	88	37 - 144	<0.0050	mg/kg	NC	50		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5245678	2,4-dinitrophenol	2011/10/08	95	1 - 191	45	1 - 191	<0.080	mg/kg	NC	50		
5245678	4,6-dinitro-2-methylphenol	2011/10/08	85	1 - 181	63	1 - 181	<0.080	mg/kg	NC(3)	50		
5245678	2,3,4,6-tetrachlorophenol	2011/10/08	87	14 - 176	91	14 - 176	<0.0050	mg/kg	NC	50		
5245678	2,3,4,5-tetrachlorophenol	2011/10/08	106	14 - 176	81	14 - 176	<0.0050	mg/kg	NC	50		
5245678	2,3,5,6-tetrachlorophenol	2011/10/08	93	14 - 176	74	14 - 176	<0.0050	mg/kg	NC	50		
5245678	4-nitrophenol	2011/10/08	95	1 - 132	79	1 - 132	<0.050	mg/kg	NC	50		
5245678	Pentachlorophenol	2011/10/08	115	14 - 176	62	14 - 176	<0.0050	mg/kg	NC	50		
5253776	2,4,6-TRIBROMOPHENOL (sur.)	2011/10/14	99	19 - 122	64	19 - 122	43	%				
5253776	2-FLUOROBIPHENYL (sur.)	2011/10/14	75	30 - 115	76	30 - 115	74	%				
5253776	TERPHENYL-D14 (sur.)	2011/10/14	80	18 - 137	74	18 - 137	76	%				
5253776	D5-PHENOL (sur.)	2011/10/14	79	24 - 113	74	24 - 113	65	%				
5253776	2,4-dinitrotoluene	2011/10/14	87	24 - 96	69	24 - 96	<0.05	mg/kg	NC	50		
5253776	D5-NITROBENZENE (sur.)	2011/10/14	77	23 - 120	74	23 - 120	73	%				
5253776	N-nitroso-di-n-propylamine	2011/10/14	78	40 - 140	77	40 - 140	<0.06	mg/kg	NC	50		
5253776	1,2,4-trichlorobenzene	2011/10/14	74	44 - 142	75	44 - 142	<0.06	mg/kg	NC	50		
5253776	1,4-dichlorobenzene	2011/10/14	59	20 - 124	61	20 - 124	<0.1	mg/kg	NC	50		
5253776	4-chloro-3-methylphenol	2011/10/14	82	22 - 147	70	22 - 147	<0.07	mg/kg	NC	50		
5253776	2,6-dinitrotoluene	2011/10/14					<0.05	mg/kg	NC	50		
5253776	2-chloronaphthalene	2011/10/14					<0.08	mg/kg	NC	50		
5253776	3,3'-Dichlorobenzidine	2011/10/14					<0.5	mg/kg	NC	50		
5253776	4-bromophenyl phenyl ether	2011/10/14					<0.06	mg/kg	NC	50		
5253776	4-chlorophenyl phenyl ether	2011/10/14					<0.07	mg/kg	NC	50		
5253776	Bis(2-chloroethoxy)methane	2011/10/14					<0.08	mg/kg	NC	50		
5253776	Bis(2-chloroethyl)ether	2011/10/14					<0.06	mg/kg	NC	50		
5253776	Bis(2-chloroisopropyl)ether	2011/10/14					<0.2	mg/kg	NC	50		
5253776	Carbazole	2011/10/14					<0.1	mg/kg	NC	50		
5253776	Dibenzofuran	2011/10/14					<0.1	mg/kg	NC	50		
5253776	Hexachlorobutadiene	2011/10/14					<0.05	mg/kg	NC	50		
5253776	Hexachlorocyclopentadiene	2011/10/14					<0.2	mg/kg	NC(3)	50		
5253776	Hexachloroethane	2011/10/14					<0.06	mg/kg	NC	50		
5253776	Isophorone	2011/10/14					<0.06	mg/kg	NC	50		
5253776	Nitrobenzene	2011/10/14					<0.07	mg/kg	NC	50		
5253776	N-nitrosodiphenylamine	2011/10/14					<0.08	mg/kg	NC	50		
5253776	1,2-dichlorobenzene	2011/10/14					<0.1	mg/kg	NC	50		
5253776	1,3-dichlorobenzene	2011/10/14					<0.1	mg/kg	NC	50		
5253776	Hexachlorobenzene	2011/10/14					<0.06	mg/kg	NC	50		
5253776	m,p-Cresol	2011/10/14					<0.05	mg/kg	NC	50		
5253776	Bis(2-ethylhexyl)phthalate	2011/10/14					<2	mg/kg	NC	50		
5253776	Butyl benzyl phthalate	2011/10/14					<0.1	mg/kg	NC	50		
5253776	Diethyl phthalate	2011/10/14					<0.09	mg/kg	NC	50		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5253776	Dimethyl phthalate	2011/10/14					<0.07	mg/kg	NC	50		
5253776	Di-n-butyl phthalate	2011/10/14					<0.07	mg/kg	NC	50		
5253776	Di-n-octyl phthalate	2011/10/14					<0.1	mg/kg	NC	50		
5255705	Sulphide	2011/10/12	NC	75 - 125	98	75 - 125	0.27, RDL=0.20	ug/g	13.2	30		
5257476	SEM Cadmium (Cd)	2011/10/12					<0.0002	umole/g	6.7	30		
5257476	SEM Copper (Cu)	2011/10/12					<0.004	umole/g	10.5	30		
5257476	SEM Lead (Pb)	2011/10/12					<0.0002	umole/g	52.8(1)	30		
5257476	SEM Mercury (Hg)	2011/10/12					<0.0003	umole/g	NC	30		
5257476	SEM Nickel (Ni)	2011/10/12					<0.004	umole/g	1.6	30		
5257476	SEM Zinc (Zn)	2011/10/12					<0.008	umole/g	0.8	30		
5261212	Moisture	2011/10/13					<0.3	%	6.5	20		

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
(2) - Surrogate recovery below control limit - Pot. low bias
(3) - RDL raised due to Continuing Calibration Verification below criteria - Pot. low bias

WorleyParsons
resources & energy

Maxxam
Suite 1104 South Wing, 4464 Markam Street
Victoria BC
Tel: (250) 385 6112, Fax: (250) 382 6364

CHAIN-OF-CUSTODY RECORD AND ANALSIS REQUEST

WorleyParsons Canada Ltd.
Suite 100 - 3795 Carey Road
Victoria BC, V8Z 6T8
Tel: (250) 384 1499, Fax: (250) 384 1201

B193099

08315004

Client: WorleyParsons Canada Ltd.
Project Manager: Jason Clarke
Address: #100 - 3795 Carey Rd
Victoria, BC V8Z 6T8
Tel #: 250-384-1499 Fax #:250-384-1201
Email: Jason.R.Clarke@worleyparsons.com
Project ID: 09185 - CRD - Sediment

ANALYSES REQUESTED

- [X] Invoice WorleyParsons
- [X] Report WorleyParsons
- [X] Digital WorleyParsons
- [X] PDF WorleyParsons
- [ ] Invoice Client care of WorleyParson

SAMPLE DESCRIPTION/ID	Maxxam ID	Date & Time Sampled (D/M/Y)	Particle Size	TOC, TC, TN	Total P, Metals	PAHs, Phthalates	Org. Chlorine Pesticides	Chorinated Phenolics	PBDEs	PCBs	Nonyphenol & ethoxolates	Pharm and Pers Care	Mar. Amphipod & Polychate	Mar Polychate Bioaccumulat	Comments	Sample Type	No. of Containers
M1300E - Composite	marine	Sept29/11 9:15	X	X	X											Sediment	
M800NE - Composite	sediment	10:45	X	X	X	X	X	X	X	X	X	X	X	X		Sediment	
T1000 - Composite		12:05	X	X	X	X	X	X	X	X	X	X	X	X		Sediment	
T2000 - Composite		14:05	X	X	X	X	X	X	X	X	X	X	X	X		Sediment	
																Sediment	
																Sediment	
																Sediment	
																Sediment	
																Sediment	
																Sediment	

PLEASE FILL IN ALL THE REQUIRED AREAS BELOW

TAT (Turnaround Time)
- [X] STD
- [ ] RUSH (2-DAY)
- [ ] RUSH (1-DAY)
- [ ] RUSH (Same Day)
- [ ] Hydrocarbon Screening

DATE Required:
TIME Required:

Regulatory Guideline
- [ ] CSR
- [ ] CCME
- [ ] Other (specify)
- [ ] Other (specify)
- [ ] Special Detection Limits / Contaminant Type:

Reporting Format
- [X] AutoFax
- [X] AutoEmail
- [X]

Mailing Address: If different than above
peter.howland@worleyparsons.com
brian.lynch@worleyparsons.com

LABORATORY USE ONLY
Received by: Nadler
Date: Sept 29/11 Time: 5:40
Comment(s): 11,12,11/ 12,8,5/ 12,10,12/ 10,14,10/ 10,9,10/ 8,9,6/ 8,8,7/
Work Order Number: 12,12,12/ 7,7,6/ 5,10,9/
Temperature: 13,8,12/ 7,5,7,-15-
Laboratory prepared Containers: [ ] Yes [ ] No
Custody Seal in Tact on Cooler: [ ] Yes [ ] No N/A
Due Date:

Sampled by:
Name (print): Date:

Relinquished by:
Name (print): Date:

Date:
Time:

White: PSC Yellow: Mail Pink: Receiver Golden Rod: Customer Copy

WorleyParsons
resources & energy

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Maxxam
Suite 1104 South Wing, 4464 Markam Street
Victoria BC
Tel: (250) 385 6112, Fax: (250) 382 6364

WorleyParsons Canada Ltd.
Suite 100 - 3795 Carey Road
Victoria BC, V8Z 6T8
Tel: (250) 384 1499, Fax: (250) 384 1201

B193099 COC#:

PAGE2 OF2

Client: WorleyParsons Canada Ltd.
Project Manager: Jason Clarke
Address: #100 - 3795 Carey Rd
Victoria, BC V8Z 6T8
Tel #: 250-384-1499 Fax #:250-384-1201
Email: Jason.R.Clarke@worleyparsons.com
Project ID: 09185

[x] Invoice WorleyParsons
[x] Report WorleyParsons
[x] Digital WorleyParsons
[x] PDF WorleyParsons
[ ] Invoice Client care of WorleyParson

ANALYSES REQUESTED

SAMPLE DESCRIPTION/ID	Maxxam ID	Date & Time Sampled (D/M/Y)	Fecal Coliform	AVS and SEM	VOCs inc BTEX	Comments	Sample Type	No. of Containers
M1300F-Grab	Marine sed	Sept 29/11 8:40	X	X			Sediment	
M80 ONE-Grab	↓	↓ 9:45	X	X	X		Sediment	
T1000-Grab	↓	↓ 11:10	X	X	X		Sediment	
T2000-Grab	↓	↓ 13:00	X	X	X		Sediment	
							Sediment	
							Sediment	
							Sediment	
							Sediment	
							Sediment	
							Sediment	

PLEASE FILL IN ALL THE REQUIRED AREAS BELOW

TAT (Turnaround Time)
[x] STD
[ ] RUSH (2-DAY)
[ ] RUSH (1-DAY)
[ ] RUSH (Same Day)
[ ] Hydrocarbon Screening

DATE Required:
TIME Required:

Regulatory Guideline
[ ] CSR
[ ] CCME
[ ] Other (specify)
[ ] Other (specify)
[ ] Special Detection Limits / Contaminant Type:

Reporting Format
[x] AutoFax [x] AutoEmail
[x]
Mailing Address: If different than above
peter.howland@worleyparsons.com
brian.lynch@worleyparsons.com

LABORATORY USE ONLY
Received by: DW Sept 29, 2011 (Nadler)
Date: Sept 29, 2011 Time: 15:40
Comment(s):
Work Order Number:
Temperature:
Laboratory prepared Containers: [ ] Yes [ ] No
Custody Seal in Tact on Cooler [ ] Yes [ ] No N/A
Due Date:

Sampled by: [signature]
Name (print): BB Date: Sept 29/11
Relinquished by: [signature]
Name (print): Date: Sept 29/11
Date:
Time:

White: PSC Yellow: Mail Pink: Receiver Golden Rod: Customer Copy

11/12/11 10/9/10 7/7/6
10/8/5 8/9/6 8/10/9
12/10/12 8/8/7 13/8/12
10/11/10 12/12/12 7/5/7

Your Project #: B193099
Your C.O.C. #: na

Attention: Debbie Nordbruget
Maxxam Analytics
Vancouver Island Tech. Park
1104 - 4464 Markham St
Victoria, BC
CANADA V8Z 7X8

Report Date: 2011/10/19

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1F3708
Received: 2011/10/04, 09:20

Sample Matrix: Soil
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Miscellaneous Inorganics Test (1)	4	N/A	2011/10/11		
Moisture	3	N/A	2011/10/07	CAM SOP-00445	McKeague 2nd ed 1978
OC Pesticides (Selected) & PCB (2)	3	2011/10/06	2011/10/09	CAM SOP-00307	SW846 8081, 8082
Total Carbon in Soil	4	N/A	2011/10/05	CAM SOP-00468	Leco Manual
Total Organic Carbon in Soil	4	N/A	2011/10/07	CAM SOP-00468	LECO Combustion

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Sample(s) analyzed using methodologies that have not been subjected to Maxxam's standard validation process for the submitted matrix and is not an accredited method. Analysis performed with client consent, however results should be viewed with discretion
(2) Chlordane (Total) = Alpha Chlordane + Gamma Chlordane

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

HEATHER JASUMANI, Campobello Customer Service
Email: Heather.Jasumani@maxxamanalytics.com
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B1F3708
Report Date: 2011/10/19

Maxxam Analytics
Client Project #: B193099

RESULTS OF ANALYSES OF SOIL

Maxxam ID		LD2362	LD2363	LD2364	LD2365	LD2366	LD2367		
Sampling Date		2011/09/29	2011/09/29	2011/09/29	2011/09/29	2011/09/29	2011/09/29		
COC Number		na	na	na	na	na	na		
	Units	**BR3043-02R/ M1300E - COMP**	**BR3044-05R/ M800NE - COMP**	**BR3044-02R/ M800NE - COMP**	**BR3045-02R/ T1000 - COMPO**	**BR3045-05R/ T1000 - COMPO**	**BR3046-02R/ T2000 - COMPO**	**RDL**	**QC Batch**
Inorganics									
Total Carbon (C)	mg/kg	8500		6800	6900		6700	500	2637685
Miscellaneous Inorganics	N/A	0.08		0.06	0.07		0.06	0.05	2643402
Moisture	%		39			39		1	2641508
Total Organic Carbon	mg/kg	6300		5500	5500		6000	500	2639063

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		LD2368		
Sampling Date		2011/09/29		
COC Number		na		
	Units	**BR3046-05R/ T2000 - COMPO**	**RDL**	**QC Batch**
Inorganics				
Moisture	%	39	1	2641508

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1F3708
Report Date: 2011/10/19

Maxxam Analytics
Client Project #: B193099

ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		LD2363	LD2366	LD2368		
Sampling Date		2011/09/29	2011/09/29	2011/09/29		
COC Number		na	na	na		
	Units	**BR3044-05R/ M800NE - COMP**	**BR3045-05R/ T1000 - COMPO**	**BR3046-05R/ T2000 - COMPO**	**RDL**	**QC Batch**
Pesticides & Herbicides						
Aroclor 1262	ug/g	ND	ND	ND	0.03	2640100
Aroclor 1268	ug/g	ND	ND	ND	0.03	2640100
Aldrin	ug/g	ND	ND	ND	0.004	2640100
alpha-BHC	ug/g	ND	ND	ND	0.004	2640100
beta-BHC	ug/g	ND	ND	ND	0.004	2640100
delta-BHC	ug/g	ND	ND	ND	0.004	2640100
a-Chlordane	ug/g	ND	ND	ND	0.004	2640100
g-Chlordane	ug/g	ND	ND	ND	0.004	2640100
Chlordane (Total)	ug/g	ND	ND	ND	0.004	2640100
o,p-DDD	ug/g	ND	ND	ND	0.004	2640100
p,p-DDD	ug/g	ND	ND	ND	0.004	2640100
o,p-DDD + p,p-DDD	ug/g	ND	ND	ND	0.004	2640100
o,p-DDE	ug/g	ND	ND	ND	0.004	2640100
p,p-DDE	ug/g	ND	ND	ND	0.004	2640100
o,p-DDE + p,p-DDE	ug/g	ND	ND	ND	0.004	2640100
o,p-DDT	ug/g	ND	ND	ND	0.004	2640100
p,p-DDT	ug/g	ND	ND	ND	0.004	2640100
o,p-DDT + p,p-DDT	ug/g	ND	ND	ND	0.004	2640100
DDT+ Metabolites	ug/g	ND	ND	ND	0.004	2640100
Dieldrin	ug/g	ND	ND	ND	0.004	2640100
Endosulfan I (alpha)	ug/g	ND	ND	ND	0.004	2640100
Endosulfan II	ug/g	ND	ND	ND	0.004	2640100
Endosulfan sulfate	ug/g	ND	ND	ND	0.004	2640100
Total Endosulfan	ug/g	ND	ND	ND	0.004	2640100
Endrin	ug/g	ND	ND	ND	0.004	2640100
Endrin aldehyde	ug/g	ND	ND	ND	0.004	2640100
Endrin ketone	ug/g	ND	ND	ND	0.004	2640100
Heptachlor	ug/g	ND	ND	ND	0.004	2640100
Heptachlor epoxide	ug/g	ND	ND	ND	0.004	2640100
Hexachlorobenzene	ug/g	ND	ND	ND	0.004	2640100

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B1F3708
Report Date: 2011/10/19

Maxxam Analytics
Client Project #: B193099

ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		LD2363	LD2366	LD2368		
Sampling Date		2011/09/29	2011/09/29	2011/09/29		
COC Number		na	na	na		
	Units	**BR3044-05R/ M800NE - COMP**	**BR3045-05R/ T1000 - COMPO**	**BR3046-05R/ T2000 - COMPO**	**RDL**	**QC Batch**
Lindane	ug/g	ND	ND	ND	0.004	2640100
Methoxychlor	ug/g	ND	ND	ND	0.01	2640100
Mirex	ug/g	ND	ND	ND	0.004	2640100
Octachlorostyrene	ug/g	ND	ND	ND	0.004	2640100
Total PCB	ug/g	ND	ND	ND	0.06	2640100
Aroclor 1016	ug/g	ND	ND	ND	0.03	2640100
Aroclor 1221	ug/g	ND	ND	ND	0.06	2640100
Aroclor 1232	ug/g	ND	ND	ND	0.03	2640100
Aroclor 1242	ug/g	ND	ND	ND	0.03	2640100
Aroclor 1248	ug/g	ND	ND	ND	0.03	2640100
Aroclor 1254	ug/g	ND	ND	ND	0.03	2640100
Aroclor 1260	ug/g	ND	ND	ND	0.03	2640100
Toxaphene	ug/g	ND	ND	ND	0.2	2640100
Surrogate Recovery (%)						
2,4,5,6-Tetrachloro-m-xylene	%	84	83	77		2640100
Decachlorobiphenyl	%	85	86	94		2640100

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B1F3708
Report Date: 2011/10/19

Maxxam Analytics
Client Project #: B193099

GENERAL COMMENTS

OC Pesticide Analysis: Detection limits were adjusted for high moisture content.

Miscellaneous Inorganics = total nitrogen by LECO furnace, unit in %

Results relate only to the items tested.

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Maxxam Analytics
Attention: Debbie Nordbruget
Client Project #: B193099
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: MB1F3708

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2637685	OK	QC Standard	Total Carbon (C)	2011/10/05		89	%	80 - 120
		Method Blank	Total Carbon (C)	2011/10/05	ND, RDL=500		mg/kg	
		RPD	Total Carbon (C)	2011/10/05	6.4		%	35
2639063	OK	QC Standard	Total Organic Carbon	2011/10/07		105	%	80 - 120
		Method Blank	Total Organic Carbon	2011/10/07	ND, RDL=500		mg/kg	
		RPD	Total Organic Carbon	2011/10/07	11.9		%	35
2640100	DH	Matrix Spike						
		[LD2368-01]	2,4,5,6-Tetrachloro-m-xylene	2011/10/09		89	%	30 - 130
			Decachlorobiphenyl	2011/10/09		89	%	30 - 130
			Aldrin	2011/10/09		94	%	30 - 130
			alpha-BHC	2011/10/09		103	%	30 - 130
			beta-BHC	2011/10/09		101	%	30 - 130
			delta-BHC	2011/10/09		101	%	30 - 130
			a-Chlordane	2011/10/09		92	%	30 - 130
			g-Chlordane	2011/10/09		122	%	30 - 130
			o,p-DDD	2011/10/09		88	%	30 - 130
			p,p-DDD	2011/10/09		95	%	30 - 130
			o,p-DDE	2011/10/09		127	%	30 - 130
			p,p-DDE	2011/10/09		104	%	30 - 130
			o,p-DDT	2011/10/09		106	%	30 - 130
			p,p-DDT	2011/10/09		100	%	30 - 130
			Dieldrin	2011/10/09		93	%	30 - 130
			Endosulfan I (alpha)	2011/10/09		104	%	30 - 130
			Endosulfan II	2011/10/09		92	%	30 - 130
			Endosulfan sulfate	2011/10/09		91	%	30 - 130
			Endrin	2011/10/09		94	%	30 - 130
			Endrin aldehyde	2011/10/09		72	%	30 - 130
			Endrin ketone	2011/10/09		91	%	30 - 130
			Heptachlor	2011/10/09		95	%	30 - 130
			Heptachlor epoxide	2011/10/09		90	%	30 - 130
			Hexachlorobenzene	2011/10/09		90	%	30 - 130
			Lindane	2011/10/09		93	%	30 - 130
			Methoxychlor	2011/10/09		94	%	30 - 130
			Mirex	2011/10/09		77	%	30 - 130
			Octachlorostyrene	2011/10/09		88	%	30 - 130
		Spiked Blank	2,4,5,6-Tetrachloro-m-xylene	2011/10/09		73	%	30 - 130
			Decachlorobiphenyl	2011/10/09		89	%	30 - 130
			Aldrin	2011/10/09		91	%	30 - 130
			alpha-BHC	2011/10/09		86	%	30 - 130
			beta-BHC	2011/10/09		90	%	30 - 130
			delta-BHC	2011/10/09		94	%	30 - 130
			a-Chlordane	2011/10/09		96	%	30 - 130
			g-Chlordane	2011/10/09		99	%	30 - 130
			o,p-DDD	2011/10/09		95	%	30 - 130
			p,p-DDD	2011/10/09		101	%	30 - 130
			o,p-DDE	2011/10/09		94	%	30 - 130
			p,p-DDE	2011/10/09		96	%	30 - 130
			o,p-DDT	2011/10/09		90	%	30 - 130
			p,p-DDT	2011/10/09		86	%	30 - 130
			Dieldrin	2011/10/09		109	%	30 - 130
			Endosulfan I (alpha)	2011/10/09		109	%	30 - 130
			Endosulfan II	2011/10/09		101	%	30 - 130
			Endosulfan sulfate	2011/10/09		105	%	30 - 130
			Endrin	2011/10/09		91	%	30 - 130
			Endrin aldehyde	2011/10/09		71	%	30 - 130

Maxxam Analytics
Attention: Debbie Nordbruget
Client Project #: B193099
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB1F3708

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2640100	DH	Spiked Blank	Endrin ketone	2011/10/09		97	%	30 - 130
			Heptachlor	2011/10/09		82	%	30 - 130
			Heptachlor epoxide	2011/10/09		93	%	30 - 130
			Hexachlorobenzene	2011/10/09		75	%	30 - 130
			Lindane	2011/10/09		87	%	30 - 130
			Methoxychlor	2011/10/09		82	%	30 - 130
			Mirex	2011/10/09		87	%	30 - 130
			Octachlorostyrene	2011/10/09		98	%	30 - 130
		RPD	Total PCB	2011/10/09	NC		%	50
			Aroclor 1242	2011/10/09	NC		%	50
			Toxaphene	2011/10/09	NC		%	50
		Method Blank	2,4,5,6-Tetrachloro-m-xylene	2011/10/09		72	%	30 - 130
			Decachlorobiphenyl	2011/10/09		85	%	30 - 130
			Aroclor 1262	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1268	2011/10/09	ND, RDL=0.02		ug/g	
			Aldrin	2011/10/09	ND, RDL=0.002		ug/g	
			alpha-BHC	2011/10/09	ND, RDL=0.002		ug/g	
			beta-BHC	2011/10/09	ND, RDL=0.002		ug/g	
			delta-BHC	2011/10/09	ND, RDL=0.002		ug/g	
			a-Chlordane	2011/10/09	ND, RDL=0.002		ug/g	
			g-Chlordane	2011/10/09	ND, RDL=0.002		ug/g	
			Chlordane (Total)	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDD	2011/10/09	ND, RDL=0.002		ug/g	
			p,p-DDD	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDD + p,p-DDD	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDE	2011/10/09	ND, RDL=0.002		ug/g	
			p,p-DDE	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDE + p,p-DDE	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDT	2011/10/09	ND, RDL=0.002		ug/g	
			p,p-DDT	2011/10/09	ND, RDL=0.002		ug/g	
			o,p-DDT + p,p-DDT	2011/10/09	ND, RDL=0.002		ug/g	
			DDT+ Metabolites	2011/10/09	ND, RDL=0.002		ug/g	
			Dieldrin	2011/10/09	ND, RDL=0.002		ug/g	
			Endosulfan I (alpha)	2011/10/09	ND, RDL=0.002		ug/g	
			Endosulfan II	2011/10/09	ND, RDL=0.002		ug/g	
			Endosulfan sulfate	2011/10/09	ND, RDL=0.002		ug/g	
			Total Endosulfan	2011/10/09	ND, RDL=0.002		ug/g	
			Endrin	2011/10/09	ND, RDL=0.002		ug/g	
			Endrin aldehyde	2011/10/09	ND, RDL=0.002		ug/g	
			Endrin ketone	2011/10/09	ND, RDL=0.002		ug/g	
			Heptachlor	2011/10/09	ND, RDL=0.002		ug/g	
			Heptachlor epoxide	2011/10/09	ND, RDL=0.002		ug/g	
			Hexachlorobenzene	2011/10/09	ND, RDL=0.002		ug/g	
			Lindane	2011/10/09	ND, RDL=0.002		ug/g	
			Methoxychlor	2011/10/09	ND, RDL=0.005		ug/g	
			Mirex	2011/10/09	ND, RDL=0.002		ug/g	
			Octachlorostyrene	2011/10/09	ND, RDL=0.002		ug/g	
			Total PCB	2011/10/09	ND, RDL=0.03		ug/g	
			Aroclor 1016	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1221	2011/10/09	ND, RDL=0.03		ug/g	
			Aroclor 1232	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1242	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1248	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1254	2011/10/09	ND, RDL=0.02		ug/g	
			Aroclor 1260	2011/10/09	ND, RDL=0.02		ug/g	

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Analytics
Attention: Debbie Nordbruget
Client Project #: B193099
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB1F3708

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2640100	DH	Method Blank	Toxaphene	2011/10/09	ND, RDL=0.08		ug/g	
		RPD [LD2368-01]	Aroclor 1262	2011/10/09	NC		%	50
			Aroclor 1268	2011/10/09	NC		%	50
			Aldrin	2011/10/09	NC		%	50
			alpha-BHC	2011/10/09	NC		%	50
			beta-BHC	2011/10/09	NC		%	50
			delta-BHC	2011/10/09	NC		%	50
			a-Chlordane	2011/10/09	NC		%	50
			g-Chlordane	2011/10/09	NC		%	50
			Chlordane (Total)	2011/10/09	NC		%	50
			o,p-DDD	2011/10/09	NC		%	50
			p,p-DDD	2011/10/09	NC		%	50
			o,p-DDD + p,p-DDD	2011/10/09	NC		%	50
			o,p-DDE	2011/10/09	NC		%	50
			p,p-DDE	2011/10/09	NC		%	50
			o,p-DDE + p,p-DDE	2011/10/09	NC		%	50
			o,p-DDT	2011/10/09	NC		%	50
			p,p-DDT	2011/10/09	NC		%	50
			o,p-DDT + p,p-DDT	2011/10/09	NC		%	50
			DDT+ Metabolites	2011/10/09	NC		%	50
			Dieldrin	2011/10/09	NC		%	50
			Endosulfan I (alpha)	2011/10/09	NC		%	50
			Endosulfan II	2011/10/09	NC		%	50
			Endosulfan sulfate	2011/10/09	NC		%	50
			Total Endosulfan	2011/10/09	NC		%	50
			Endrin	2011/10/09	NC		%	50
			Endrin aldehyde	2011/10/09	NC		%	50
			Endrin ketone	2011/10/09	NC		%	50
			Heptachlor	2011/10/09	NC		%	50
			Heptachlor epoxide	2011/10/09	NC		%	50
			Hexachlorobenzene	2011/10/09	NC		%	50
			Lindane	2011/10/09	NC		%	50
			Methoxychlor	2011/10/09	NC		%	50
			Mirex	2011/10/09	NC		%	50
			Octachlorostyrene	2011/10/09	NC		%	50
			Total PCB	2011/10/09	NC		%	50
			Aroclor 1016	2011/10/09	NC		%	50
			Aroclor 1221	2011/10/09	NC		%	50
			Aroclor 1232	2011/10/09	NC		%	50
			Aroclor 1242	2011/10/09	NC		%	50
			Aroclor 1248	2011/10/09	NC		%	50
			Aroclor 1254	2011/10/09	NC		%	50
			Aroclor 1260	2011/10/09	NC		%	50
			Toxaphene	2011/10/09	NC		%	50
2641508	PHM	RPD	Moisture	2011/10/07	3.0		%	20
2643402	OK	QC Standard	Miscellaneous Inorganics	2011/10/11		91	%	N/A
		Method Blank	Miscellaneous Inorganics	2011/10/11	ND, RDL=0.05		N/A	
		RPD	Miscellaneous Inorganics	2011/10/11	NC		%	N/A

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

Maxxam Analytics
Attention: Debbie Nordbruget
Client Project #: B193099
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB1F3708

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B1F3708

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

CHARLES ANCKER, B.Sc., M.Sc., C.Chem, Senior Analyst

CRISTINA CARRIERE, Scientific Services

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

4-Oct-11 09:20

Page #: 1

Maxxam Analytics
Vancouver Island Technology Park 1104 - 4464
Victoria, British Columbia, V8Z 7X8
Phone: (250) 385 6112
Fax: (250) 382 6364

ENV-727

B1F3708
PKN

EYPARSONS CANADA
VICES LTD - VICTORIA
Maxxam PM Debbie Nordbruget

SUBCONTRACTING REQUEST FORM

Job# B193099

To: Maxxam Ontario (From Burnaby)

☐ Yes ☑ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
☐ Yes ☑ No Special Protocol (if yes, Protocol ________)

Received @ Subcontract Lab by (sign) ________ (print) ZOFIA ZEUTH

Received @ Subcontract Lab (Date) 2011/10/04 (Time) 9:20

Received Lab's Job # ________ Inspected by (print) ________ SIF ☐ Yes ☐ No

Upon receipt, record 3 temperatures for each package/cooler. If required by contract or legal sample, indicate if custody sealed.

Temp1 6°C Temp2 5°C Temp3 6°C Custody sealed NO

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BR3043-02R \ M1300E - COMP	SED	TOC Soil Subcontract	1(CJAR)	2011/09/29	2011/10/14
BR3044-05R \ M800NE - COMP	SED	Pesticides, OC Soil Subcontract	1(AJAR)	2011/09/29	2011/10/14
BR3044-02R \ M800NE - COMP	SED	TOC Soil Subcontract	1(CJAR)	2011/09/29	2011/10/14
BR3045-02R \ T1000 - COMPO	SED	TOC Soil Subcontract	1(CJAR)	2011/09/29	2011/10/14
BR3045-05R \ T1000 - COMPO	SED	Pesticides, OC Soil Subcontract	1(AJAR)	2011/09/29	2011/10/14
BR3046-02R \ T2000 - COMPO	SED	TOC Soil Subcontract	1(CJAR)	2011/09/29	2011/10/14
BR3046-05R \ T2000 - COMPO	SED	Pesticides, OC Soil Subcontract	1(AJAR)	2011/09/29	2011/10/14

NOTES:
1) Please call us if due date cannot be met. Please reference Sample ID on your report.
2) Include copy of this completed form, Client COC & signed final report to

TOC Soil Sub: Please perform TOC, Total Carbon and Total Nitrogen analysis

SHIPPING INSTRUCTIONS

☐ Ship Immediately (highlight Yellow)
☐ Requires 9am
☐ Requires Sat. Delivery
☑ Regular Ship next available day
☑ Ship Cold
☐ Ship Room Temp
☐ Ship Frozen
☐ COC Must be Attached

Sender (Print) D. Nordbruget Initial ________

SHIPPING DEPARTMENT CHECKLIST

☑ Correct Shipping location
☑ Correct Sample Ids (Paperwork vs Bottles)
☑ Yes ☐ No Special-Cooler, Ice, Tape-custody seal, Date&Sign
Date Shipped 03 Oct 2011
Shipper (Print) D. Nordbruget Initial ________

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37863	***Date:*** 01-Nov-2011
Analysis Type: Polybrominated Diphenylether	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520

Samples:

L16976-2	BR3044-07R
L16976-3	BR3045-07R
L16976-4	BR3046-07R

Blank: WG37863-101

Reference or Spike: WG37863-102

Duplicate:

Comments:

1- Data are not blank corrected
2- A disturbance of the mass ion used to monitor instrument performance (lock-mass) was observed in client sample BR3045-07R (AXYS ID: L16796-3) near the retention time corresponding to the labeled BDE-154 surrogate standard. Test dilutions to minimize this interference have proven that this disturbance does not affect target quantification and the affected targets have been flagged with a 'G'.

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
BR3044-07R
Sample Collection:
29-Sep-2011

Form 1A

BROMINATED DIPHENYLETHER CONGENER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16976-2
Matrix:	SOLID	**Sample Size:**	10.2 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 13:24:27	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 7**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg/g (dry weight basis)	**% Moisture:**	38.7

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Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,4-DiBDE	7			7.33	0.163 (S)	0.51	0.926
2,4'-DiBDE	8	8 + 11	C	5.95	0.121 (S)	0.51	0.959
2,6-DiBDE	10		ND		0.195 (S)		
3,3'-DiBDE	11	8 + 11	C8				
3,4-DiBDE	12	12 + 13	C	0.362	0.101 (S)	0.53	0.979
3,4'-DiBDE	13	12 + 13	C12				
4,4'-DiBDE	15			2.54	0.098 (Q)	0.53	1.001
2,2',4-TriBDE	17	17 + 25	C	14.9	0.301 (S)	0.94	0.972
2,3',4-TriBDE	25	17 + 25	C17				
2,4,4'-TriBDE	28	28 + 33	C	7.74	0.254 (S)	1.04	1.000
2,4,6-TriBDE	30		ND		0.349 (S)		
2,4',6-TriBDE	32		ND		0.271 (S)		
2',3,4-TriBDE	33	28 + 33	C28				
3,3',4-TriBDE	35		ND		0.199 (S)		
3,4,4'-TriBDE	37		NDR	0.245	0.183 (S)	1.19	1.038
2,2',4,4'-TeBDE	47			83.6	0.098 (Q)	0.68	1.001
2,2',4,5'-TeBDE	49			11.7	0.098 (Q)	0.67	0.975
2,2',4,6'-TeBDE	51			1.89	0.098 (Q)	0.72	0.967
2,3',4,4'-TeBDE	66			2.96	0.098 (Q)	0.68	1.022
2,3',4',6-TeBDE	71		NDR	1.46	0.098 (Q)	0.85	0.980
2,4,4',6-TeBDE	75		NDR	0.416	0.098 (Q)	1.01	0.961
3,3',4,4'-TeBDE	77		ND		0.098 (Q)		
3,3',4,5'-TeBDE	79		NDR	0.194	0.098 (Q)	0.83	1.012
2,2',3,4,4'-PeBDE	85			2.45	0.341 (S)	0.94	0.992
2,2',4,4',5-PeBDE	99			62.1	0.233 (S)	1.01	1.001
2,2',4,4',6-PeBDE	100			16.0	0.156 (S)	1.01	1.001
2,3,3',4,4'-PeBDE	105		ND		0.440 (S)		

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,3,4,5,6-PeBDE	116		ND		0.629 (S)		
2,3',4,4',6-PeBDE	119	119 + 120	C	0.443	0.381 (S)	1.09	1.010
2,3',4,5,5'-PeBDE	120	119 + 120	C119				
3,3',4,4',5-PeBDE	126		ND		0.207 (S)		
2,2',3,3',4,4'-HxBDE	128		ND		1.12 (S)		
2,2',3,4,4',5'-HxBDE	138	138 + 166	C NDR	0.891	0.270 (S)	0.95	1.045
2,2',3,4,4',6'-HxBDE	140			0.307	0.165 (S)	0.76	1.022
2,2',4,4',5,5'-HxBDE	153			6.60	0.171 (S)	0.79	1.000
2,2',4,4',5,6'-HxBDE	154			6.13	0.110 (S)	0.77	1.001
2,2',4,4',6,6'-HxBDE	155			1.38	0.122 (S)	0.80	0.981
2,3,4,4',5,6-HxBDE	166	138 + 166	C138				
2,2',3,4,4',5,6-HpBDE	181		ND		0.649 (S)		
2,2',3,4,4',5',6-HpBDE	183			2.43	0.320 (S)	0.99	1.000
2,3,3',4,4',5,6-HpBDE	190		ND		1.14 (S)		
2,2',3,4,4',5,5',6-OcBDE	203			7.63	3.56 (S)	0.82	1.011
2,2',3,3',4,4',5,5',6-NoBDE	206			39.3	2.41 (S)	1.07	1.115
2,2',3,3',4,4',5,6,6'-NoBDE	207			65.3	1.97 (S)	1.07	1.099
2,2',3,3',4,5,5',6,6'-NoBDE	208			46.5	2.35 (S)	0.92	1.091
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			789	19.4 (S)	0.93	1.000

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; C = co-eluting congener.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16141A.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_L16976-2_Form1A_BE11_332S7_SJ1376720.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
BR3044-07R
Sample Collection:
29-Sep-2011

Form 2

BROMINATED DIPHENYLETHER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16976-2
Matrix:	SOLID	**Sample Size:**	10.2 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 13:24:27	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 7**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg absolute	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	SPIKE CONC.	CONC. FOUND	R(%) [3]	ION ABUND. RATIO	RRT
13C12-4,4'-DiBDE	15L			2000	1630	81.4	0.51	0.664
13C12-2,4,4'-TriBDE	28L			2000	1020	50.9	1.04	0.830
13C12-2,2',4,4'-TeBDE	47L			2000	1550	77.3	1.57	0.987
13C12-3,3',4,4'-TeBDE	77L			2000	1700	85.1	1.57	1.040
13C12-2,2',4,4',5-PeBDE	99L			1980	1200	60.5	1.05	1.132
13C12-2,2',4,4',6-PeBDE	100L			2000	1080	54.1	1.07	1.099
13C12-3,3',4,4',5-PeBDE	126L			2000	1680	83.9	1.05	1.197
13C12-2,2',4,4',5,5'-HxBDE	153L			2000	1610	80.3	1.35	0.880
13C12-2,2',4,4',5,6'-HxBDE	154L			2000	1440	71.9	1.42	0.851
13C12-2,2',3,4,4',5',6-HpBDE	183L			2000	1500	75.0	1.06	0.966
13C12-2,2',3,3',4,4',6,6'-OcBDE	197L			2000	1410	70.5	0.83	1.063
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			20000	10100	50.6	1.28	1.080
CLEANUP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			2000	1720	86.2	1.33	1.013

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report.
(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16682.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_L16976-2_Form2_BE11_332S7_SJ1376720.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
BR3045-07R
Sample Collection:
29-Sep-2011

Form 1A

BROMINATED DIPHENYLETHER CONGENER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16976-3
Matrix:	SOLID	**Sample Size:**	10.4 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 14:22:35	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 8**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg/g (dry weight basis)	**% Moisture:**	38.9

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,4-DiBDE	7			6.38	0.134 (S)	0.52	0.926
2,4'-DiBDE	8	8 + 11	C	5.12	0.100 (S)	0.52	0.958
2,6-DiBDE	10		ND		0.160 (S)		
3,3'-DiBDE	11	8 + 11	C8				
3,4-DiBDE	12	12 + 13	C	0.359	0.096 (Q)	0.51	0.979
3,4'-DiBDE	13	12 + 13	C12				
4,4'-DiBDE	15			2.49	0.096 (Q)	0.52	1.001
2,2',4-TriBDE	17	17 + 25	C	11.9	0.230 (S)	0.94	0.972
2,3',4-TriBDE	25	17 + 25	C17				
2,4,4'-TriBDE	28	28 + 33	C	6.79	0.194 (S)	1.00	1.000
2,4,6-TriBDE	30		ND		0.267 (S)		
2,4',6-TriBDE	32		ND		0.207 (S)		
2',3,4-TriBDE	33	28 + 33	C28				
3,3',4-TriBDE	35		ND		0.152 (S)		
3,4,4'-TriBDE	37		NDR	0.241	0.140 (S)	0.86	1.038
2,2',4,4'-TeBDE	47			78.8	0.096 (Q)	0.68	1.000
2,2',4,5'-TeBDE	49			10.4	0.096 (Q)	0.75	0.975
2,2',4,6'-TeBDE	51		NDR	1.34	0.096 (Q)	0.92	0.967
2,3',4,4'-TeBDE	66			2.90	0.096 (Q)	0.78	1.022
2,3',4',6-TeBDE	71			1.21	0.096 (Q)	0.67	0.980
2,4,4',6-TeBDE	75		NDR	0.192	0.096 (Q)	0.51	0.961
3,3',4,4'-TeBDE	77		ND		0.096 (Q)		
3,3',4,5'-TeBDE	79		ND		0.096 (Q)		
2,2',3,4,4'-PeBDE	85			1.90	0.261 (S)	0.92	0.992
2,2',4,4',5-PeBDE	99			53.5	0.176 (S)	1.02	1.001
2,2',4,4',6-PeBDE	100			14.2	0.117 (S)	1.01	1.001
2,3,3',4,4'-PeBDE	105		ND		0.336 (S)		

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,3,4,5,6-PeBDE	116		ND		0.481 (S)		
2,3',4,4',6-PeBDE	119	119 + 120	C	0.606	0.291 (S)	1.04	1.010
2,3',4,5,5'-PeBDE	120	119 + 120	C119				
3,3',4,4',5-PeBDE	126		ND		0.163 (S)		
2,2',3,3',4,4'-HxBDE	128		ND		3.32 (S)		
2,2',3,4,4',5'-HxBDE	138	138 + 166	C	0.974	0.453 (S)	0.66	1.044
2,2',3,4,4',6'-HxBDE	140			0.455	0.276 (S)	0.86	1.021
2,2',4,4',5,5'-HxBDE	153			5.76	0.252 (S)	0.83	1.000
2,2',4,4',5,6'-HxBDE	154		G	6.13	0.207 (S)	0.77	1.000
2,2',4,4',6,6'-HxBDE	155			1.22	0.205 (S)	0.75	0.981
2,3,4,4',5,6-HxBDE	166	138 + 166	C138				
2,2',3,4,4',5,6-HpBDE	181		ND		0.329 (S)		
2,2',3,4,4',5',6-HpBDE	183			1.89	0.162 (S)	0.88	1.000
2,3,3',4,4',5,6-HpBDE	190		NDR	1.00	0.576 (S)	0.63	1.053
2,2',3,4,4',5,5',6-OcBDE	203			6.78	1.59 (S)	0.70	1.011
2,2',3,3',4,4',5,5',6-NoBDE	206			29.1	1.31 (S)	0.90	1.114
2,2',3,3',4,4',5,6,6'-NoBDE	207			47.9	1.07 (S)	1.07	1.099
2,2',3,3',4,5,5',6,6'-NoBDE	208			32.6	1.28 (S)	0.90	1.091
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			520	14.1 (S)	0.87	1.000

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; G = lock mass interference present; C = co-eluting congener.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16141A.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_L16976-3_Form1A_BE11_332S8_SJ1376722.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
BR3045-07R
Sample Collection:
29-Sep-2011

Form 2

BROMINATED DIPHENYLETHER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16976-3
Matrix:	SOLID	**Sample Size:**	10.4 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 14:22:35	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 8**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg absolute	**% Moisture:**	38.9

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	SPIKE CONC.	CONC. FOUND	R(%) [3]	ION ABUND. RATIO	RRT
13C12-4,4'-DiBDE	15L			2000	1650	82.3	0.53	0.665
13C12-2,4,4'-TriBDE	28L			2000	1090	54.4	1.05	0.831
13C12-2,2',4,4'-TeBDE	47L			2000	1570	78.3	1.53	0.987
13C12-3,3',4,4'-TeBDE	77L			2000	1870	93.7	1.59	1.042
13C12-2,2',4,4',5-PeBDE	99L			1980	1360	68.4	1.03	1.132
13C12-2,2',4,4',6-PeBDE	100L			2000	1250	62.5	1.05	1.100
13C12-3,3',4,4',5-PeBDE	126L			2000	1910	95.4	1.02	1.199
13C12-2,2',4,4',5,5'-HxBDE	153L			2000	1690	84.4	1.37	0.880
13C12-2,2',4,4',5,6'-HxBDE	154L		G	2000	1260	63.1	1.44	0.851
13C12-2,2',3,4,4',5',6-HpBDE	183L			2000	1550	77.5	1.06	0.966
13C12-2,2',3,3',4,4',6,6'-OcBDE	197L			2000	1570	78.3	0.82	1.063
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			20000	11700	58.5	1.22	1.080
CLEANUP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			2000	1820	90.8	1.36	1.013

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report; G = lock mass interference present.
(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16682.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_L16976-3_Form2_BE11_332S8_SJ1376722.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
BR3046-07R
Sample Collection:
29-Sep-2011

Form 1A

BROMINATED DIPHENYLETHER CONGENER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16976-4
Matrix:	SOLID	**Sample Size:**	10.4 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 15:20:45	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 9**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg/g (dry weight basis)	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,4-DiBDE	7			6.48	0.171 (S)	0.50	0.925
2,4'-DiBDE	8	8 + 11	C	5.11	0.127 (S)	0.51	0.958
2,6-DiBDE	10		ND		0.204 (S)		
3,3'-DiBDE	11	8 + 11	C8				
3,4-DiBDE	12	12 + 13	C	0.248	0.105 (S)	0.47	0.977
3,4'-DiBDE	13	12 + 13	C12				
4,4'-DiBDE	15			2.30	0.096 (Q)	0.57	1.001
2,2',4-TriBDE	17	17 + 25	C	14.4	0.286 (S)	1.00	0.972
2,3',4-TriBDE	25	17 + 25	C17				
2,4,4'-TriBDE	28	28 + 33	C	6.43	0.242 (S)	1.08	1.000
2,4,6-TriBDE	30		ND		0.333 (S)		
2,4',6-TriBDE	32		NDR	0.288	0.258 (S)	0.74	0.951
2',3,4-TriBDE	33	28 + 33	C28				
3,3',4-TriBDE	35		ND		0.190 (S)		
3,4,4'-TriBDE	37		NDR	0.228	0.174 (S)	0.72	1.038
2,2',4,4'-TeBDE	47			72.1	0.096 (Q)	0.70	1.000
2,2',4,5'-TeBDE	49			9.92	0.096 (Q)	0.75	0.975
2,2',4,6'-TeBDE	51		NDR	1.46	0.096 (Q)	0.83	0.967
2,3',4,4'-TeBDE	66			3.19	0.096 (Q)	0.79	1.022
2,3',4',6-TeBDE	71		NDR	0.755	0.096 (Q)	0.97	0.980
2,4,4',6-TeBDE	75			0.244	0.096 (Q)	0.80	0.961
3,3',4,4'-TeBDE	77		ND		0.096 (Q)		
3,3',4,5'-TeBDE	79		ND		0.096 (Q)		
2,2',3,4,4'-PeBDE	85			1.96	0.250 (S)	1.04	0.991
2,2',4,4',5-PeBDE	99			51.1	0.169 (S)	1.05	1.001
2,2',4,4',6-PeBDE	100			14.2	0.114 (S)	1.05	1.001
2,3,3',4,4'-PeBDE	105		ND		0.322 (S)		

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,3,4,5,6-PeBDE	116		ND		0.461 (S)		
2,3',4,4',6-PeBDE	119	119 + 120	C	0.425	0.279 (S)	1.00	1.011
2,3',4,5,5'-PeBDE	120	119 + 120	C119				
3,3',4,4',5-PeBDE	126		ND		0.154 (S)		
2,2',3,3',4,4'-HxBDE	128		ND		1.86 (S)		
2,2',3,4,4',5'-HxBDE	138	138 + 166	C NDR	0.782	0.317 (S)	0.64	1.044
2,2',3,4,4',6'-HxBDE	140		NDR	0.367	0.194 (S)	0.95	1.021
2,2',4,4',5,5'-HxBDE	153			5.65	0.196 (S)	0.80	1.000
2,2',4,4',5,6'-HxBDE	154			6.10	0.131 (S)	0.77	1.001
2,2',4,4',6,6'-HxBDE	155			1.09	0.144 (S)	0.73	0.981
2,3,4,4',5,6-HxBDE	166	138 + 166	C138				
2,2',3,4,4',5,6-HpBDE	181		ND		0.513 (S)		
2,2',3,4,4',5',6-HpBDE	183			1.98	0.253 (S)	0.88	1.000
2,3,3',4,4',5,6-HpBDE	190		ND		0.900 (S)		
2,2',3,4,4',5,5',6-OcBDE	203			8.00	3.02 (S)	0.89	1.012
2,2',3,3',4,4',5,5',6-NoBDE	206			50.4	1.32 (S)	1.00	1.115
2,2',3,3',4,4',5,6,6'-NoBDE	207			88.5	1.08 (S)	1.07	1.099
2,2',3,3',4,5,5',6,6'-NoBDE	208			64.5	1.28 (S)	1.05	1.091
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			1030	13.0 (S)	0.83	1.000

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; C = co-eluting congener.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

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Report Filename: 1614_PBDPE_1614LS_L16976-4_Form1A_BE11_332S9_SJ1376724.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
BR3046-07R
Sample Collection:
29-Sep-2011

Form 2

BROMINATED DIPHENYLETHER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16976-4
Matrix:	SOLID	**Sample Size:**	10.4 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 15:20:45	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 9**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg absolute	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	SPIKE CONC.	CONC. FOUND	R(%) [3]	ION ABUND. RATIO	RRT
13C12-4,4'-DiBDE	15L			2000	1650	82.6	0.52	0.665
13C12-2,4,4'-TriBDE	28L			2000	1040	52.1	1.02	0.832
13C12-2,2',4,4'-TeBDE	47L			2000	1490	74.5	1.55	0.987
13C12-3,3',4,4'-TeBDE	77L			2000	1780	88.8	1.58	1.042
13C12-2,2',4,4',5-PeBDE	99L			1980	1330	67.1	1.05	1.132
13C12-2,2',4,4',6-PeBDE	100L			2000	1230	61.3	1.04	1.100
13C12-3,3',4,4',5-PeBDE	126L			2000	1930	96.6	1.02	1.198
13C12-2,2',4,4',5,5'-HxBDE	153L			2000	1610	80.7	1.38	0.881
13C12-2,2',4,4',5,6'-HxBDE	154L			2000	1370	68.6	1.36	0.851
13C12-2,2',3,4,4',5',6-HpBDE	183L			2000	1500	75.0	1.00	0.966
13C12-2,2',3,3',4,4',6,6'-OcBDE	197L			2000	1470	73.4	0.81	1.063
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			20000	12500	62.7	1.24	1.080
CLEANUP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			2000	1720	85.8	1.39	1.013

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report.
(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16682.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_L16976-4_Form2_BE11_332S9_SJ1376724.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 1A

BROMINATED DIPHENYLETHER CONGENER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37863-101
Matrix:	SOLID	**Sample Size:**	10.0 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 11:28:10	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 5**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1

Concentration Units: pg/g

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,4-DiBDE	7		ND		0.225 (S)		
2,4'-DiBDE	8	8 + 11	C ND		0.167 (S)		
2,6-DiBDE	10		ND		0.269 (S)		
3,3'-DiBDE	11	8 + 11	C8				
3,4-DiBDE	12	12 + 13	C ND		0.139 (S)		
3,4'-DiBDE	13	12 + 13	C12				
4,4'-DiBDE	15		ND		0.121 (S)		
2,2',4-TriBDE	17	17 + 25	C ND		0.207 (S)		
2,3',4-TriBDE	25	17 + 25	C17				
2,4,4'-TriBDE	28	28 + 33	C ND		0.175 (S)		
2,4,6-TriBDE	30		ND		0.241 (S)		
2,4',6-TriBDE	32		ND		0.187 (S)		
2',3,4-TriBDE	33	28 + 33	C28				
3,3',4-TriBDE	35		ND		0.137 (S)		
3,4,4'-TriBDE	37		ND		0.126 (S)		
2,2',4,4'-TeBDE	47			2.77	0.100 (Q)	0.72	1.001
2,2',4,5'-TeBDE	49			0.206	0.100 (Q)	0.80	0.975
2,2',4,6'-TeBDE	51		ND		0.100 (Q)		
2,3',4,4'-TeBDE	66		NDR	0.156	0.100 (Q)	0.93	1.022
2,3',4',6-TeBDE	71		ND		0.100 (Q)		
2,4,4',6-TeBDE	75		ND		0.100 (Q)		
3,3',4,4'-TeBDE	77		ND		0.100 (Q)		
3,3',4,5'-TeBDE	79		ND		0.100 (Q)		
2,2',3,4,4'-PeBDE	85		ND		0.172 (S)		
2,2',4,4',5-PeBDE	99		NDR	2.29	0.117 (S)	1.23	1.001
2,2',4,4',6-PeBDE	100			0.432	0.100 (Q)	1.05	1.001
2,3,3',4,4'-PeBDE	105		ND		0.222 (S)		

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
2,3,4,5,6-PeBDE	116		ND		0.318 (S)		
2,3',4,4',6-PeBDE	119	119 + 120	C ND		0.192 (S)		
2,3',4,5,5'-PeBDE	120	119 + 120	C119				
3,3',4,4',5-PeBDE	126		ND		0.111 (S)		
2,2',3,3',4,4'-HxBDE	128		ND		0.317 (S)		
2,2',3,4,4',5'-HxBDE	138	138 + 166	C ND		0.264 (S)		
2,2',3,4,4',6'-HxBDE	140		ND		0.161 (S)		
2,2',4,4',5,5'-HxBDE	153			0.276	0.181 (S)	0.67	1.000
2,2',4,4',5,6'-HxBDE	154			0.213	0.100 (S)	0.78	1.001
2,2',4,4',6,6'-HxBDE	155		ND		0.120 (S)		
2,3,4,4',5,6-HxBDE	166	138 + 166	C138				
2,2',3,4,4',5,6-HpBDE	181		ND		0.100 (Q)		
2,2',3,4,4',5',6-HpBDE	183			0.261	0.100 (Q)	1.09	1.000
2,3,3',4,4',5,6-HpBDE	190		ND		0.100 (Q)		
2,2',3,4,4',5,5',6-OcBDE	203		NDR	0.387	0.100 (Q)	0.48	1.011
2,2',3,3',4,4',5,5',6-NoBDE	206		ND		1.32 (S)		
2,2',3,3',4,4',5,6,6'-NoBDE	207		NDR	1.92	1.08 (S)	1.94	1.099
2,2',3,3',4,5,5',6,6'-NoBDE	208		ND		1.29 (S)		
2,2',3,3',4,4',5,5',6,6'-DeBDE	209		ND		23.0 (S)		

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; C = co-eluting congener.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16141A.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_WG37863-101_Form1A_BE11_332S5_SJ1376715.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 2

BROMINATED DIPHENYLETHER ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37863-101
Matrix:	SOLID	**Sample Size:**	10.0 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 11:28:10	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**Sample Data Filename:**	**BE11_332 S: 5**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1
Concentration Units:	pg absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with CALA accreditation described in the total report. Sample results relate only to the sample tested.

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	SPIKE CONC.	CONC. FOUND	R(%) [3]	ION ABUND. RATIO	RRT
13C12-4,4'-DiBDE	15L			2000	1410	70.6	0.52	0.665
13C12-2,4,4'-TriBDE	28L			2000	977	48.8	1.05	0.832
13C12-2,2',4,4'-TeBDE	47L			2000	1430	71.6	1.53	0.987
13C12-3,3',4,4'-TeBDE	77L			2000	1650	82.5	1.56	1.042
13C12-2,2',4,4',5-PeBDE	99L			1980	1190	59.9	1.05	1.132
13C12-2,2',4,4',6-PeBDE	100L			2000	1120	56.0	1.04	1.100
13C12-3,3',4,4',5-PeBDE	126L			2000	1670	83.4	1.08	1.198
13C12-2,2',4,4',5,5'-HxBDE	153L			2000	1440	72.2	1.39	0.881
13C12-2,2',4,4',5,6'-HxBDE	154L			2000	1420	70.9	1.41	0.851
13C12-2,2',3,4,4',5',6-HpBDE	183L			2000	1390	69.3	1.06	0.966
13C12-2,2',3,3',4,4',6,6'-OcBDE	197L			2000	1310	65.4	0.81	1.063
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			20000	6980	34.9	1.24	1.080
CLEANUP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			2000	1590	79.5	1.43	1.013

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report.
(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kirsten Anderson_____

For Axys Internal Use Only [XSL Template: Form16682.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_1614LS_WG37863-101_Form2_BE11_332S5_SJ1376715.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 8A

BROMINATED DIPHENYLETHER ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37863-102
Matrix:	SOLID	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 08:33:51	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**OPR Data Filename:**	**BE11_332 S: 2**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1

CONCENTRATIONS REPORTED ARE CONCENTRATIONS IN EXTRACT, BASED ON A 20 uL EXTRACT VOLUME.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	ION ABUND. RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS [2] (ng/mL)	% RECOVERY
2,4,4'-TriBDE	28	28 + 33	C	1.04	97.4	91.4	48.7 - 146	93.8
2',3,4-TriBDE	33	28 + 33	C28					
2,2',4,4'-TeBDE	47			0.70	50.0	48.5	25.0 - 75.0	96.9
2,2',4,4',5-PeBDE	99			1.05	50.0	46.9	25.0 - 75.0	93.8
2,2',4,4',6-PeBDE	100			1.05	50.0	46.6	25.0 - 75.0	93.3
2,2',4,4',5,5'-HxBDE	153			0.78	50.0	44.8	25.0 - 75.0	89.5
2,2',4,4',5,6'-HxBDE	154			0.78	50.0	44.2	25.0 - 75.0	88.4
2,2',3,4,4',5',6-HpBDE	183			1.00	50.0	48.8	25.0 - 75.0	97.5
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			0.83	500	422	200 - 1000	84.3

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(2) Contract-required limits for OPR as specified in Table 6, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: 1614_PBDPE_1614LS_WG37863-102_Form8A_SJ1376736.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 8B

BROMINATED DIPHENYLETHER ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37863-102
Matrix:	SOLID	**Initial Calibration Date:**	21-Jul-2011
Extraction Date:	06-Oct-2011	**Instrument ID:**	HR GC/MS
Analysis Date:	13-Oct-2011 **Time:** 08:33:51	**GC Column ID:**	DB5HT
Extract Volume (uL):	50	**OPR Data Filename:**	**BE11_332 S: 2**
Injection Volume (uL):	1.0	**Blank Data Filename:**	BE11_332 S: 5
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	BE11_332 S: 1

CONCENTRATIONS REPORTED ARE CONCENTRATIONS IN EXTRACT, BASED ON A 20 uL EXTRACT VOLUME.

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	ION ABUND. RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS [3] (ng/mL)	% RECOVERY
13C12-2,4,4'-TriBDE	28L			1.02	100	54.7	30.0 - 140	54.7
13C12-2,2',4,4'-TeBDE	47L			1.56	100	85.2	30.0 - 140	85.2
13C12-2,2',4,4',5-PeBDE	99L			1.03	99.0	74.7	29.7 - 139	75.5
13C12-2,2',4,4',6-PeBDE	100L			1.05	100	66.1	30.0 - 140	66.1
13C12-2,2',4,4',5,5'-HxBDE	153L			1.41	100	84.5	30.0 - 140	84.5
13C12-2,2',4,4',5,6'-HxBDE	154L			1.38	100	77.5	30.0 - 140	77.5
13C12-2,2',3,4,4',5',6-HpBDE	183L			1.05	100	81.9	30.0 - 140	81.9
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			1.24	1000	519	200 - 2000	51.9
CLEANUP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			1.39	100	88.2	40.0 - 125	88.2

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report.
(3) Contract-required limits for OPR as specified in Table 6, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: 1614_PBDPE_1614LS_WG37863-102_Form8B_SJ1376736.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 4A

BROMINATED DIPHENYLETHER CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**VER Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	MZ's FORMING RATIO [2]	ION ABUND. RATIO	QC LIMITS [3]	CONC. FOUND (ng/mL)	CONC. RANGE [4] (ng/mL)
2,4,4'-TriBDE	28	28 + 33	C	**M+2/M+4**	1.03	0.88-1.18	92.0	68.2 - 127
2',3,4-TriBDE	33	28 + 33	C28					
2,2',4,4'-TeBDE	47			**M+2/M+4**	0.68	0.60-0.81	47.2	35.0 - 65.0
2,2',4,4',5-PeBDE	99			**M+4/M+6**	1.05	0.88-1.18	45.6	35.0 - 65.0
2,2',4,4',6-PeBDE	100			**M+4/M+6**	1.03	0.88-1.18	46.0	35.0 - 65.0
2,2',4,4',5,5'-HxBDE	153			**M+4/M+6**	0.77	0.65-0.89	44.6	35.0 - 65.0
2,2',4,4',5,6'-HxBDE	154			**M+4/M+6**	0.78	0.65-0.89	45.0	35.0 - 65.0
2,2',3,4,4',5',6-HpBDE	183			**M+6/M+8**	1.03	0.88-1.18	48.1	35.0 - 65.0
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			**M+8/M+10**	0.87	0.73-0.99	423	250 - 1000

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(2) See Table 8, Method 1614, for m/z specifications.
(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1614.
(4) Contract-required concentration range as specified in Table 6, Method 1614, under VER.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Thong Do_____

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Report Filename: 1614_PBDPE_BE11_332S1__Form4A_SJ1376734.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 4B
BROMINATED DIPHENYLETHER CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**VER Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	MZ's FORMING RATIO [3]	ION ABUND. RATIO	QC LIMITS [4]	CONC. FOUND (ng/mL)	CONC. RANGE [5] (ng/mL)
13C12-2,4,4'-TriBDE	28L			**M+2/M+4**	1.02	0.88-1.18	60.3	50.0 - 150
13C12-2,2',4,4'-TeBDE	47L			**M+4/M+6**	1.57	1.31-1.77	88.0	50.0 - 150
13C12-2,2',4,4',5-PeBDE	99L			**M+4/M+6**	1.03	0.88-1.18	72.3	49.5 - 149
13C12-2,2',4,4',6-PeBDE	100L			**M+4/M+6**	1.05	0.88-1.18	65.9	50.0 - 150
13C12-2,2',4,4',5,5'-HxBDE	153L			**M+6/M+8**	1.37	1.16-1.58	81.0	50.0 - 150
13C12-2,2',4,4',5,6'-HxBDE	154L			**M+6/M+8**	1.36	1.16-1.58	74.9	50.0 - 150
13C12-2,2',3,4,4',5',6-HpBDE	183L			**M+6/M+8**	1.07	0.88-1.18	81.5	50.0 - 150
CLEAN-UP STANDARD								
13C12-2,2',3,4,4',6-HxBDE	139L			**M+6/M+8**	1.39	1.16-1.58	83.6	60.0 - 130

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(3) See Table 8, Method 1614, for m/z specifications.
(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1614.
(5) Contract-required concentration range as specified in Table 6, Method 1614, under VER.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Thong Do_____

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Report Filename: 1614_PBDPE_BE11_332S1__Form4B_SJ1376734.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 6A
BROMINATED DIPHENYLETHER RELATIVE RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**VER Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	RETENTION TIME REFERENCE	IUPAC NO. [2]	RRT	RRT QC LIMITS [3]
2,4,4'-TriBDE	28	28 + 33	C	13C12-2,4,4'-TriBDE	28L	1.0000	0.9985-1.0022
2',3,4-TriBDE	33	28 + 33	C28				
2,2',4,4'-TeBDE	47			13C12-2,2',4,4'-TeBDE	47L	1.0012	0.9988-1.0019
2,2',4,4',5-PeBDE	99			13C12-2,2',4,4',5-PeBDE	99L	1.0005	0.9989-1.0016
2,2',4,4',6-PeBDE	100			13C12-2,2',4,4',6-PeBDE	100L	1.0000	0.9989-1.0017
2,2',4,4',5,5'-HxBDE	153			13C12-2,2',4,4',5,5'-HxBDE	153L	1.0005	0.9990-1.0015
2,2',4,4',5,6'-HxBDE	154			13C12-2,2',4,4',5,6'-HxBDE	154L	1.0005	0.9990-1.0015
2,2',3,4,4',5',6-HpBDE	183			13C12-2,2',3,4,4',5',6-HpBDE	183L	1.0004	0.9991-1.0013
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L	1.0003	0.9993-1.0010

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(2) Suffix "L" indicates labeled compound
(3) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Thong Do_____

For Axys Internal Use Only [XSL Template: Form16686A.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_BE11_332S1__Form6A_SJ1376734.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 6B
BROMINATED DIPHENYLETHER RELATIVE RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**VER Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	RETENTION TIME REFERENCE	IUPAC NO. [1]	RRT	RRT QC LIMITS [3]
13C12-2,4,4'-TriBDE	28L			13C12-3,3',4,5'-TeBDE	79L	0.8315	0.8223-0.8407
13C12-2,2',4,4'-TeBDE	47L			13C12-3,3',4,5'-TeBDE	79L	0.9871	0.9810-0.9933
13C12-2,2',4,4',5-PeBDE	99L			13C12-3,3',4,5'-TeBDE	79L	1.1330	1.1238-1.1422
13C12-2,2',4,4',6-PeBDE	100L			13C12-3,3',4,5'-TeBDE	79L	1.1005	1.0913-1.1097
13C12-2,2',4,4',5,5'-HxBDE	153L			13C12-2,2',3,4,4',5,5'-HpBDE	180L	0.8809	0.8745-0.8873
13C12-2,2',4,4',5,6'-HxBDE	154L			13C12-2,2',3,4,4',5,5'-HpBDE	180L	0.8506	0.8442-0.8570
13C12-2,2',3,4,4',5',6-HpBDE	183L			13C12-2,2',3,4,4',5,5'-HpBDE	180L	0.9658	0.9616-0.9701
CLEANUP STANDARD							
13C12-2,2',3,4,4',6-HxBDE	139L			13C12-2,2',4,4',5,5'-HxBDE	153L	1.0121	1.0073-1.0170

(1) Suffix "L" indicates labeled compound
(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(3) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Thong Do_____

For Axys Internal Use Only [XSL Template: Form16686B.xsl; Created: 01-Nov-2011 14:29:28; Application: XMLTransformer-1.12.1;
Report Filename: 1614_PBDPE_BE11_332S1__Form6B_SJ1376734.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 3A

BROMINATED DIPHENYLETHER INITIAL CALIBRATION RELATIVE RESPONSES, ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 21-Jul-2011 **CAL Data Filename:** BE11_332 S: 1

Instrument ID: HR GC/MS **Analysis Date:** 13-Oct-2011

GC Column ID: DB5HT **Analysis Time:** 07:35:46

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG [1]	RRF	MZ's FORMING RATIO [2]	ION ABUND. RATIO	RATIO QC LIMITS [3]	RRT	RRT QC LIMITS
2,4-DiBDE	7			0.54	**M/M+2**	0.51	0.43-0.59	0.928	0.914 - 0.942
2,4'-DiBDE	8	8 + 11	C	0.73	**M/M+2**	0.51	0.43-0.59	0.957	0.947 - 0.966
2,6-DiBDE	10			0.45	**M/M+2**	0.52	0.43-0.59	0.862	0.843 - 0.880
3,3'-DiBDE	11	8 + 11	C8						
3,4-DiBDE	12	12 + 13	C	0.88	**M/M+2**	0.51	0.43-0.59	0.977	0.968 - 0.986
3,4'-DiBDE	13	12 + 13	C12						
4,4'-DiBDE	15			1.00	**M/M+2**	0.52	0.43-0.59	1.001	0.998 - 1.003
2,2',4-TriBDE	17	17 + 25	C	0.81	**M+2/M+4**	1.03	0.88-1.18	0.975	0.968 - 0.982
2,3',4-TriBDE	25	17 + 25	C17						
2,4,6-TriBDE	30			0.70	**M+2/M+4**	1.01	0.88-1.18	0.894	0.879 - 0.909
2,4',6-TriBDE	32			0.90	**M+2/M+4**	1.03	0.88-1.18	0.952	0.945 - 0.959
3,3',4-TriBDE	35			1.22	**M+2/M+4**	1.02	0.88-1.18	1.018	1.010 - 1.025
3,4,4'-TriBDE	37			1.33	**M+2/M+4**	1.02	0.88-1.18	1.038	1.031 - 1.046
2,2',4,5'-TeBDE	49			0.83	**M+2/M+4**	0.70	0.60-0.81	0.975	0.969 - 0.981
2,2',4,6'-TeBDE	51			1.23	**M+2/M+4**	0.69	0.60-0.81	0.967	0.961 - 0.973
2,3',4,4'-TeBDE	66			0.73	**M+2/M+4**	0.70	0.60-0.81	1.022	1.016 - 1.029
2,3',4',6-TeBDE	71			0.89	**M+2/M+4**	0.69	0.60-0.81	0.981	0.975 - 0.987
2,4,4',6-TeBDE	75			0.94	**M+2/M+4**	0.71	0.60-0.81	0.962	0.956 - 0.968
3,3',4,4'-TeBDE	77			1.29	**M+2/M+4**	0.68	0.60-0.81	1.000	0.999 - 1.002
3,3',4,5'-TeBDE	79			1.12	**M+2/M+4**	0.71	0.60-0.81	1.014	1.007 - 1.020
2,2',3,4,4'-PeBDE	85			0.68	**M+4/M+6**	1.03	0.88-1.18	0.992	0.987 - 0.997
2,3,3',4,4'-PeBDE	105			0.53	**M+4/M+6**	1.04	0.88-1.18	1.009	1.004 - 1.014
2,3,4,5,6-PeBDE	116			0.37	**M+4/M+6**	1.02	0.88-1.18	1.009	1.003 - 1.014
2,3',4,4',6-PeBDE	119	119 + 120	C	0.61	**M+4/M+6**	1.04	0.88-1.18	1.011	1.005 - 1.016
2,3',4,5,5'-PeBDE	120	119 + 120	C119						
3,3',4,4',5-PeBDE	126			1.19	**M+4/M+6**	1.05	0.88-1.18	1.001	0.999 - 1.002
2,2',3,3',4,4'-HxBDE	128			0.63	**M+4/M+6**	0.76	0.65-0.89	1.090	1.082 - 1.097
2,2',3,4,4',5'-HxBDE	138	138 + 166	C	0.64	**M+4/M+6**	0.78	0.65-0.89	1.045	1.040 - 1.050
2,2',3,4,4',6'-HxBDE	140			1.04	**M+4/M+6**	0.77	0.65-0.89	1.021	1.016 - 1.026
2,2',4,4',6,6'-HxBDE	155			1.41	**M+4/M+6**	0.76	0.65-0.89	0.981	0.976 - 0.986
2,3,4,4',5,6-HxBDE	166	138 + 166	C138						
2,2',3,4,4',5,6-HpBDE	181			0.55	**M+6/M+8**	1.01	0.88-1.18	1.045	1.041 - 1.050
2,3,3',4,4',5,6-HpBDE	190			0.31	**M+6/M+8**	1.02	0.88-1.18	1.052	1.047 - 1.056
2,2',3,3',4,4',6,6'-OcBDE	197	197 + 204	C	0.86	**M+6/M+8**	0.81	0.70-0.94	0.999	0.997 - 1.001
2,2',3,4,4',5,5',6-OcBDE	203			0.62	**M+6/M+8**	0.81	0.70-0.94	1.011	1.007 - 1.015
2,2',3,4,4',5,6,6'-OcBDE	204	197 + 204	C197						
2,3,3',4,4',5,5',6-OcBDE	205			0.31	**M+6/M+8**	0.82	0.70-0.94	1.033	1.029 - 1.037
2,2',3,3',4,4',5,5',6-NoBDE	206			0.24	**M+8/M+10**	1.09	0.88-1.18	1.114	1.108 - 1.120
2,2',3,3',4,4',5,6,6'-NoBDE	207			0.29	**M+8/M+10**	1.03	0.88-1.18	1.099	1.093 - 1.105
2,2',3,3',4,5,5',6,6'-NoBDE	208			0.24	**M+8/M+10**	1.03	0.88-1.18	1.091	1.085 - 1.097

(1) Where applicable, custom lab flags have been used on this report.
(2) See Table 8, Method 1614, for m/z specifications.
(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Thong Do_____

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Report Filename: 1614_PBDPE_BE11_332S1__Form346A_SJ1376764_GS43149.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 3B

BROMINATED DIPHENYLETHER INITIAL CALIBRATION RELATIVE RESPONSES, ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	21-Jul-2011	**CAL Data Filename:**	BE11_332 S: 1
Instrument ID:	HR GC/MS	**Analysis Date:**	13-Oct-2011
GC Column ID:	DB5HT	**Analysis Time:**	07:35:46

LABELED COMPOUND	IUPAC NO. [1]	CO-ELUTIONS	LAB FLAG [2]	RRF	MZ's FORMING RATIO [3]	ION ABUND. RATIO	RATIO QC LIMITS [4]	RRT	RRT QC LIMITS
13C12-4,4'-DiBDE	15L			2.86	**M/M+2**	0.52	0.43-0.59	0.665	0.653 - 0.677
13C12-2,4,4'-TriBDE	28L			1.66	**M+2/M+4**	1.02	0.88-1.18	0.831	0.822 - 0.841
13C12-2,2',4,4'-TeBDE	47L			0.90	**M+4/M+6**	1.57	1.31-1.77	0.987	0.981 - 0.993
13C12-3,3',4,4'-TeBDE	77L			0.94	**M+4/M+6**	1.58	1.31-1.77	1.042	1.036 - 1.048
13C12-2,2',4,4',5-PeBDE	99L			1.15	**M+4/M+6**	1.03	0.88-1.18	1.133	1.124 - 1.142
13C12-2,2',4,4',6-PeBDE	100L			1.57	**M+4/M+6**	1.05	0.88-1.18	1.100	1.091 - 1.110
13C12-3,3',4,4',5-PeBDE	126L			1.29	**M+4/M+6**	1.03	0.88-1.18	1.199	1.189 - 1.208
13C12-2,2',4,4',5,5'-HxBDE	153L			1.98	**M+6/M+8**	1.37	1.16-1.58	0.881	0.874 - 0.887
13C12-2,2',4,4',5,6'-HxBDE	154L			2.55	**M+6/M+8**	1.36	1.16-1.58	0.851	0.844 - 0.857
13C12-2,2',3,4,4',5',6-HpBDE	183L			1.77	**M+6/M+8**	1.07	0.88-1.18	0.966	0.962 - 0.970
13C12-2,2',3,3',4,4',6,6'-OcBDE	197L			1.52	**M+6/M+8**	0.85	0.70-0.94	1.063	1.057 - 1.070
13C12-2,2',3,3',4,4',5,5',6,6'-DeBDE	209L			0.39	**M+10/M+12**	1.25	1.05-1.41	1.080	1.075 - 1.085
ADDITIONAL STANDARD									
13C12-2,2',3,4,4',5'-HxBDE	138L			0.68	**M+6/M+8**	1.42	1.16-1.58	1.044	1.039 - 1.048

(1) Suffix "L" indicates labeled compound
(2) Where applicable, custom lab flags have been used on this report.
(3) See Table 8, Method 1614, for m/z specifications.
(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Thong Do_____

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Report Filename: 1614_PBDPE_BE11_332S1__Form346B_SJ1376764_GS43149.html; Workgroup: WG37863; Design ID: 1677]

AXYS METHOD MLA-033 Rev 06

Form 3A

BROMINATED DIPHENYLETHER INITIAL CALIBRATION RELATIVE RESPONSES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 21-Jul-2011

Instrument ID: HR GC/MS

GC Column ID: DB5HT

CS0 Data Filename: N/A

CS1 Data Filename: BE11_255A S: 8

CS2 Data Filename: BE11_255A S: 7

CS3 Data Filename: BE11_255A S: 4

CS4 Data Filename: BE11_255A S: 3

CS5 Data Filename: BE11_255A S: 2

CS6 Data Filename: N/A

				RELATIVE RESPONSE (RR)								
COMPOUND	**IUPAC NO.**	**CO-ELUTIONS**	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**MEAN RR**	**CV[2] (%RSD)**
2,4,4'-TriBDE	28	28 + 33	C		0.96	0.98	0.94	0.95	0.95		0.96	1.54
2',3,4-TriBDE	33	28 + 33	C28									
2,2',4,4'-TeBDE	47				1.38	1.25	1.23	1.26	1.28		1.28	4.72
2,2',4,4',5-PeBDE	99				1.25	1.17	1.17	1.16	1.17		1.18	3.04
2,2',4,4',6-PeBDE	100				1.23	1.18	1.18	1.19	1.22		1.20	1.82
2,2',4,4',5,5'-HxBDE	153				1.25	1.11	1.15	1.18	1.15		1.17	4.35
2,2',4,4',5,6'-HxBDE	154				1.44	1.35	1.35	1.37	1.35		1.37	2.80
2,2',3,4,4',5',6-HpBDE	183				1.20	1.00	1.12	1.12	1.13		1.12	6.43
2,2',3,3',4,4',5,5',6,6'-DeBDE	209				1.72	1.23	1.45	1.33	1.23		1.39	14.6

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(2) For contract CV specifications, see Section 10.4.4, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

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AXYS METHOD MLA-033 Rev 06

Form 3B

BROMINATED DIPHENYLETHER INITIAL CALIBRATION RELATIVE RESPONSES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 21-Jul-2011

Instrument ID: HR GC/MS

GC Column ID: DB5HT

CS0 Data Filename: N/A

CS1 Data Filename: BE11_255A S: 8

CS2 Data Filename: BE11_255A S: 7

CS3 Data Filename: BE11_255A S: 4

CS4 Data Filename: BE11_255A S: 3

CS5 Data Filename: BE11_255A S: 2

CS6 Data Filename: N/A

				RELATIVE RESPONSE (RR)								
COMPOUND	**IUPAC NO.** [1]	**CO-ELUTIONS**	**LAB FLAG**[2]	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**MEAN RR**	**CV**[3] **(%RSD)**
13C12-2,4,4'-TriBDE	28L				2.70	2.58	2.69	2.76	3.03		2.75	6.14
13C12-2,2',4,4'-TeBDE	47L				0.94	0.95	0.97	1.07	1.19		1.02	10.5
13C12-2,2',4,4',5-PeBDE	99L				1.38	1.37	1.47	1.65	1.99		1.57	16.6
13C12-2,2',4,4',6-PeBDE	100L				2.20	2.21	2.28	2.46	2.79		2.39	10.4
13C12-2,2',4,4',5,5'-HxBDE	153L				2.19	2.09	2.11	2.50	3.31		2.44	21.0
13C12-2,2',4,4',5,6'-HxBDE	154L				3.20	3.05	3.05	3.46	4.24		3.40	14.7
13C12-2,2',3,4,4',5',6-HpBDE	183L				1.96	1.85	1.90	2.24	2.92		2.17	20.5
CLEAN-UP STANDARD												
13C12-2,2',3,4,4',6-HxBDE	139L				2.73	2.59	2.57	2.61	2.57		2.61	2.64

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(3) For contract CV specifications, see Section 10.5.6, Method 1614.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

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AXYS METHOD MLA-033 Rev 06

Form 3C

BROMINATED DIPHENYLETHER INITIAL CALIBRATION ION ABUNDANCE RATIOS

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 21-Jul-2011

Instrument ID: HR GC/MS

GC Column ID: DB5HT

CS0 Data Filename: N/A

CS1 Data Filename: BE11_255A S: 8

CS2 Data Filename: BE11_255A S: 7

CS3 Data Filename: BE11_255A S: 4

CS4 Data Filename: BE11_255A S: 3

CS5 Data Filename: BE11_255A S: 2

CS6 Data Filename: N/A

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG[1]	M/Z's FORMING RATIO [2]	ION ABUNDANCE RATIO CS0	CS1	CS2	CS3	CS4	CS5	CS6	QC LIMITS [2]
2,4,4'-TriBDE	28	28 + 33	C	**M+2/M+4**		1.05	1.05	1.00	1.04	1.03		0.88-1.18
2',3,4-TriBDE	33	28 + 33	C28									
2,2',4,4'-TeBDE	47			**M+2/M+4**		0.80	0.71	0.69	0.71	0.70		0.60-0.81
2,2',4,4',5-PeBDE	99			**M+4/M+6**		1.06	1.04	1.04	1.04	1.04		0.88-1.18
2,2',4,4',6-PeBDE	100			**M+4/M+6**		1.09	1.08	1.04	1.03	1.04		0.88-1.18
2,2',4,4',5,5'-HxBDE	153			**M+4/M+6**		0.81	0.79	0.77	0.77	0.78		0.65-0.89
2,2',4,4',5,6'-HxBDE	154			**M+4/M+6**		0.71	0.79	0.77	0.77	0.78		0.65-0.89
2,2',3,4,4',5',6-HpBDE	183			**M+6/M+8**		0.96	1.10	1.04	1.03	1.03		0.88-1.18
2,2',3,3',4,4',5,5',6,6'-DeBDE	209			**M+8/M+10**		0.84	0.73	0.86	0.85	0.85		0.73-0.99

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(2) See Table 8 Method 1614 for m/z specifications and ion abundance ratio control limits; QC Limits apply to CS2 to CS5 only.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

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AXYS METHOD MLA-033 Rev 06

Form 3D

BROMINATED DIPHENYLETHER INITIAL CALIBRATION ION ABUNDANCE RATIOS

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 21-Jul-2011

Instrument ID: HR GC/MS

GC Column ID: DB5HT

CS0 Data Filename: N/A

CS1 Data Filename: BE11_255A S: 8

CS2 Data Filename: BE11_255A S: 7

CS3 Data Filename: BE11_255A S: 4

CS4 Data Filename: BE11_255A S: 3

CS5 Data Filename: BE11_255A S: 2

CS6 Data Filename: N/A

LABELED COMPOUND	IUPAC NO.[1]	CO-ELUTIONS	LAB FLAG[2]	M/Z's FORMING RATIO [3]	ION ABUNDANCE RATIO CS0	CS1	CS2	CS3	CS4	CS5	CS6	QC LIMITS [3]
13C12-2,4,4'-TriBDE	28L			**M+2/M+4**		1.04	1.07	1.03	1.07	1.07		0.88-1.18
13C12-2,2',4,4'-TeBDE	47L			**M+4/M+6**		1.61	1.61	1.56	1.55	1.61		1.31-1.77
13C12-2,2',4,4',5-PeBDE	99L			**M+4/M+6**		1.07	1.04	1.04	1.04	1.04		0.88-1.18
13C12-2,2',4,4',6-PeBDE	100L			**M+4/M+6**		1.06	1.05	1.06	1.05	1.05		0.88-1.18
13C12-2,2',4,4',5,5'-HxBDE	153L			**M+6/M+8**		1.39	1.43	1.38	1.38	1.43		1.16-1.58
13C12-2,2',4,4',5,6'-HxBDE	154L			**M+6/M+8**		1.38	1.41	1.41	1.39	1.43		1.16-1.58
13C12-2,2',3,4,4',5',6-HpBDE	183L			**M+6/M+8**		1.03	1.04	1.02	1.05	1.06		0.88-1.18
CLEAN-UP STANDARD												
13C12-2,2',3,4,4',6-HxBDE	139L			**M+6/M+8**		1.38	1.38	1.40	1.37	1.37		1.16-1.58

(1) Suffix "L" indicates labeled compound.
(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.
(3) See Table 8 Method 1614 for m/z specifications and ion abundance ratio control limits.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kirsten Anderson_____

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AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
1,2,3,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD	1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF			1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls												
PCB 1 2-Chlorobiphenyl	7	7								7	7	
PCB 3 4-Chlorobiphenyl	7	7								7	7	
PCB 4 2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5 2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15 4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18 2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19 2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31 2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37 3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44 2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52 2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54 2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66 2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77 3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81 3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87 2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

AXYS Analytical Services Ltd.

Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

AXYS Analytical Services Ltd.

Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

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		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37864	***Date:*** 24-Nov-2011
Analysis Type: Alkylphenols	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520

Samples:

L16977-2	BR3044-09R
L16977-3	BR3045-09R
L16977-4	BR3046-09R

Blank: WG37864-101

Reference or Spike: WG37864-102

Duplicate:

Comments:

1. Data are not blank corrected.

AXYS METHOD MLA-004 Rev 07

Form 1A

ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3044-09R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16977-2
Matrix:	SOLID	**Sample Size:**	4.97 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	BRACKETING CAL
Extraction Date:	06-Oct-2011	**Instrument ID:**	LR GC/MS
Analysis Date:	11-Oct-2011 **Time:** 17:45:00	**GC Column ID:**	RTX5
Extract Volume (uL):	500	**Sample Data Filename:**	**AP1H2108.D**
Injection Volume (uL):	2.0	**Blank Data Filename:**	AP1H2105.D
Dilution Factor:	N/A	**Opening Cal. Data Filename:**	AP1H2102.D
		Closing Cal. Data Filename:	AP1H2114.D
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	39.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	CAS NO.	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
4-Nonylphenols			12.9	1.02 (S)		
4-Nonylphenol monoethoxylates		ND		3.13 (S)		
4-Nonylphenol diethoxylates		ND		11.0 (S)		
Octylphenol		ND		0.706 (S)		

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

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Report Filename: AP_ALKYLPHENOLS_AP_L16977-2_Form1A_AP1H2108.D_SJ1384476.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 2

ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3044-09R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Project No.**	B193099
Matrix:	SOLID	**Lab Sample I.D.:**	L16977-2
Sample Receipt Date:	03-Oct-2011	**Sample Size:**	4.97 g (dry)
Extraction Date:	06-Oct-2011	**Initial Calibration Date:**	BRACKETING CAL
Analysis Date:	11-Oct-2011 **Time:** 17:45:00	**Instrument ID:**	LR GC/MS
Extract Volume (uL):	500	**GC Column ID:**	RTX5
Injection Volume (uL):	2.0	**Sample Data Filename:**	**AP1H2108.D**
Dilution Factor:	N/A	**Blank Data Filename:**	AP1H2105.D
		Opening Cal. Data Filename:	AP1H2102.D
		Closing Cal. Data Filename:	AP1H2114.D
Concentration Units:	ng absolute	**% Moisture:**	39.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	ION ABUND. RATIO	RRT
13C6-4-n-Nonylphenol		1000	615	61.5	0.12	0.869
13C6-NP2EO		5000	5100	102	0.15	1.317

(1) Where applicable, custom lab flags have been used on this report.
(2) R% = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

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Report Filename: AP_ALKYLPHENOLS_AP_L16977-2_Form2_AP1H2108.D_SJ1384476.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 1A
ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3045-09R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16977-3
Matrix:	SOLID	**Sample Size:**	5.17 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	BRACKETING CAL
Extraction Date:	06-Oct-2011	**Instrument ID:**	LR GC/MS
Analysis Date:	11-Oct-2011 **Time:** 18:20:00	**GC Column ID:**	RTX5
Extract Volume (uL):	500	**Sample Data Filename:**	**AP1H2109.D**
Injection Volume (uL):	2.0	**Blank Data Filename:**	AP1H2105.D
Dilution Factor:	N/A	**Opening Cal. Data Filename:**	AP1H2102.D
		Closing Cal. Data Filename:	AP1H2114.D
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	36.8

This page is part of a total report that contains information necessary for accreditation compliance.
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COMPOUND	CAS NO.	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
4-Nonylphenols			5.14	1.47 (S)		
4-Nonylphenol monoethoxylates		ND		4.84 (S)		
4-Nonylphenol diethoxylates		ND		8.68 (S)		
Octylphenol		ND		0.327 (S)		

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

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Report Filename: AP_ALKYLPHENOLS_AP_L16977-3_Form1A_AP1H2109.D_SJ1384477.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 2

ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3045-09R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16977-3
Matrix:	SOLID	**Sample Size:**	5.17 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	BRACKETING CAL
Extraction Date:	06-Oct-2011	**Instrument ID:**	LR GC/MS
Analysis Date:	11-Oct-2011 **Time:** 18:20:00	**GC Column ID:**	RTX5
Extract Volume (uL):	500	**Sample Data Filename:**	**AP1H2109.D**
Injection Volume (uL):	2.0	**Blank Data Filename:**	AP1H2105.D
Dilution Factor:	N/A	**Opening Cal. Data Filename:** **Closing Cal. Data Filename:**	AP1H2102.D AP1H2114.D
Concentration Units:	ng absolute	**% Moisture:**	36.8

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	ION ABUND. RATIO	RRT
13C6-4-n-Nonylphenol		1000	590	59.0	0.12	0.869
13C6-NP2EO		5000	5130	103	0.15	1.317

(1) Where applicable, custom lab flags have been used on this report.
(2) R% = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

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Report Filename: AP_ALKYLPHENOLS_AP_L16977-3_Form2_AP1H2109.D_SJ1384477.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 1A
ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3046-09R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16977-4
Matrix:	SOLID	**Sample Size:**	5.15 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	BRACKETING CAL
Extraction Date:	06-Oct-2011	**Instrument ID:**	LR GC/MS
Analysis Date:	11-Oct-2011 **Time:** 18:56:00	**GC Column ID:**	RTX5
Extract Volume (uL):	500	**Sample Data Filename:**	**AP1H2110.D**
Injection Volume (uL):	2.0	**Blank Data Filename:**	AP1H2105.D
Dilution Factor:	N/A	**Opening Cal. Data Filename:**	AP1H2102.D
		Closing Cal. Data Filename:	AP1H2114.D
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	36.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	CAS NO.	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
4-Nonylphenols			7.52	1.63 (S)		
4-Nonylphenol monoethoxylates		ND		4.97 (S)		
4-Nonylphenol diethoxylates		ND		6.61 (S)		
Octylphenol		ND		0.467 (S)		

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

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Report Filename: AP_ALKYLPHENOLS_AP_L16977-4_Form1A_AP1H2110.D_SJ1384478.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 2

ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3046-09R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16977-4
Matrix:	SOLID	**Sample Size:**	5.15 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	BRACKETING CAL
Extraction Date:	06-Oct-2011	**Instrument ID:**	LR GC/MS
Analysis Date:	11-Oct-2011 **Time:** 18:56:00	**GC Column ID:**	RTX5
Extract Volume (uL):	500	**Sample Data Filename:**	**AP1H2110.D**
Injection Volume (uL):	2.0	**Blank Data Filename:**	AP1H2105.D
Dilution Factor:	N/A	**Opening Cal. Data Filename:** **Closing Cal. Data Filename:**	AP1H2102.D AP1H2114.D
Concentration Units:	ng absolute	**% Moisture:**	36.3

This page is part of a total report that contains information necessary for accreditation compliance.
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LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	ION ABUND. RATIO	RRT
13C6-4-n-Nonylphenol		1000	626	62.6	0.11	0.869
13C6-NP2EO		5000	5320	106	0.15	1.316

(1) Where applicable, custom lab flags have been used on this report.
(2) R% = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

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Report Filename: AP_ALKYLPHENOLS_AP_L16977-4_Form2_AP1H2110.D_SJ1384478.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 1A

ANALYSIS REPORT

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37864-101
Matrix:	SOLID	**Sample Size:**	5.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	BRACKETING CAL
Extraction Date:	06-Oct-2011	**Instrument ID:**	LR GC/MS
Analysis Date:	11-Oct-2011 **Time:** 15:59:00	**GC Column ID:**	RTX5
Extract Volume (uL):	500	**Sample Data Filename:**	**AP1H2105.D**
Injection Volume (uL):	2.0	**Blank Data Filename:**	AP1H2105.D
Dilution Factor:	N/A	**Opening Cal. Data Filename:**	AP1H2102.D
		Closing Cal. Data Filename:	AP1H2114.D
Concentration Units:	ng/g		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	CAS NO.	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	ION ABUND. RATIO	RRT
4-Nonylphenols		ND		1.09 (S)		
4-Nonylphenol monoethoxylates		ND		1.33 (S)		
4-Nonylphenol diethoxylates		ND		4.06 (S)		
Octylphenol		ND		0.345 (S)		

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

For Axys Internal Use Only [XSL Template: Pest1A.xsl; Created: 24-Nov-2011 14:14:18; Application: XMLTransformer-1.12.1;
Report Filename: AP_ALKYLPHENOLS_AP_WG37864-101_Form1A_AP1H2105.D_SJ1384298.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 2

ANALYSIS REPORT

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37864-101
Matrix:	SOLID	**Sample Size:**	5.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	BRACKETING CAL
Extraction Date:	06-Oct-2011	**Instrument ID:**	LR GC/MS
Analysis Date:	11-Oct-2011 **Time:** 15:59:00	**GC Column ID:**	RTX5
Extract Volume (uL):	500	**Sample Data Filename:**	**AP1H2105.D**
Injection Volume (uL):	2.0	**Blank Data Filename:**	AP1H2105.D
Dilution Factor:	N/A	**Opening Cal. Data Filename:**	AP1H2102.D
		Closing Cal. Data Filename:	AP1H2114.D
Concentration Units:	ng absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	ION ABUND. RATIO	RRT
13C6-4-n-Nonylphenol		1000	836	83.6	0.11	0.870
13C6-NP2EO		5000	2410	48.1	0.15	1.316

(1) Where applicable, custom lab flags have been used on this report.
(2) R% = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

For Axys Internal Use Only [XSL Template: Pest2.xsl; Created: 24-Nov-2011 14:14:18; Application: XMLTransformer-1.12.1;
Report Filename: AP_ALKYLPHENOLS_AP_WG37864-101_Form2_AP1H2105.D_SJ1384298.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 8A
ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**OPR Data Filename:**	**AP1H2103.D**
Matrix:	SOLID	**Lab Sample I.D.:**	WG37864-102
Extraction Date:	06-Oct-2011	**Analysis Date:**	11-Oct-2011 **Time:** 14:48:00

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON 100 uL EXTRACT.

COMPOUND	CAS NO.	LAB FLAG [1]	ION ABUND. RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY
4-Nonylphenols				20000	20600	103
4-Nonylphenol monoethoxylates				100000	89000	88.9
4-Nonylphenol diethoxylates				199000	184000	92.7
Octylphenol			0.04	20100	19600	97.5

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: AP_ALKYLPHENOLS_AP_WG37864-102_Form8A_SJ1384297.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 8B
ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**OPR Data Filename:**	**AP1H2103.D**
Matrix:	SOLID	**Lab Sample I.D.:**	WG37864-102
Extraction Date:	06-Oct-2011	**Analysis Date:**	11-Oct-2011 **Time:** 14:48:00

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON 100 uL EXTRACT.

LABELED COMPOUND	CAS NO.	LAB FLAG [1]	ION ABUND. RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY
13C6-4-n-Nonylphenol			0.11	10000	10000	100
13C6-NP2EO			0.15	50000	43900	87.9

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Celine Vaillant_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: Pest8BRS.xsl; Created: 24-Nov-2011 14:14:18; Application: XMLTransformer-1.12.1;
Report Filename: AP_ALKYLPHENOLS_AP_WG37864-102_Form8B_SJ1384297.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 4C
BRACKETING CALIBRATION RELATIVE RESPONSES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: BRACKETING CAL

Instrument ID:	LR GC/MS	**GC Column ID:**	RTX5
OPENING CAL Data Filename:	AP1H2102.D	**Analysis Date:**	11-Oct-2011 **Time:** 14:13:00
CLOSING CAL Data Filename:	AP1H2114.D	**Analysis Date:**	11-Oct-2011 **Time:** 21:17:00

COMPOUND	CAS NO.	LAB FLAG [1]	RELATIVE RESPONSE (RR)		MEAN RR	RPD [2]
			OPENING CAL	CLOSING CAL		
4-Nonylphenols			0.635	0.624	0.630	1.75
4-Nonylphenol monoethoxylates			0.369	0.364	0.367	1.36
4-Nonylphenol diethoxylates			1.45	1.43	1.44	0.972
Octylphenol			1.04	1.03	1.03	0.971

(1) Where applicable, custom lab flags have been used on this report; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration.
(2) QC limits are < 40% RPD.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____

For Axys Internal Use Only [XSL Template: Pest4C.xsl; Created: 24-Nov-2011 14:14:18; Application: XMLTransformer-1.12.1;
Report Filename: REDUCED-SPECS_ALKYLPHENOLS_GS43397__Form4C_GS43397.html; Workgroup: WG37864; Design ID: 659]

AXYS METHOD MLA-004 Rev 07

Form 4D
BRACKETING CALIBRATION RELATIVE RESPONSES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: BRACKETING CAL

Instrument ID:	LR GC/MS	**GC Column ID:**	RTX5
OPENING CAL Data Filename:	AP1H2102.D	**Analysis Date:**	11-Oct-2011 **Time:** 14:13:00
CLOSING CAL Data Filename:	AP1H2114.D	**Analysis Date:**	11-Oct-2011 **Time:** 21:17:00

COMPOUND	CAS NO.	LAB FLAG [1]	RELATIVE RESPONSE (RR) OPENING CAL	RELATIVE RESPONSE (RR) CLOSING CAL	MEAN RR	RPD [2]
13C6-NP2EO		NDR	0.0620	0.0620	0.0620	0
13C6-4-n-Nonylphenol			0.318	0.324	0.321	1.87

(1) Where applicable, custom lab flags have been used on this report; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration.
(2) QC limits are < 40% RPD.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____

For Axys Internal Use Only [XSL Template: Pest4D.xsl; Created: 24-Nov-2011 14:14:18; Application: XMLTransformer-1.12.1;
Report Filename: REDUCED-SPECS_ALKYLPHENOLS_GS43397__Form4D_GS43397.html; Workgroup: WG37864; Design ID: 659]

AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
1,2,3,6,7,8-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD		1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF				1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls													
PCB 1	2-Chlorobiphenyl	7	7								7	7	
PCB 3	4-Chlorobiphenyl	7	7								7	7	
PCB 4	2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5	2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15	4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18	2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19	2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31	2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37	3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81	3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

AXYS Analytical Services Ltd.

Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

AXYS Analytical Services Ltd.

Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37878	***Date:*** 22-Nov-2011
Analysis Type: (AC2) Pharmaceutical & Personal Care Products	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520

Samples:

L16978-1	BQ5956-10R
L16978-2	BR3044-10R
L16978-3	BR3045-10R
L16978-4	BR3046-10R
L16978-5	BQ9606-10R

Blank: WG37878-101

Reference or Spike: WG37878-102

Duplicate:

Comments:

1. Data are not blank corrected.

AXYS METHOD MLA-075 Rev 3

Form 3A
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 17-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QB1K_191 S: 7
CS1 Data Filename: QB1K_191 S: 8
CS2 Data Filename: QB1K_191 S: 9
CS3 Data Filename: QB1K_191 S: 10
CS4 Data Filename: QB1K_191 S: 11
CS5 Data Filename: QB1K_191 S: 12
CS6 Data Filename: N/A
CS7 Data Filename: N/A
CS8 Data Filename: N/A

COMPOUND	LAB FLAG [1]	PERCENT RECOVERY (%) CS0	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8
Anhydrochlortetracycline [ACTC]		122	73.4	111	85.4	109	99.1			
Anhydrotetracycline [ATC]		119	72.6	101	96.8	114	96.5			
Chlortetracycline [CTC]		135	79.4	89.2	77.9	120	98.2			
Demeclocycline		107	92.5	81.5	106	118	94.6			
Doxycycline		109	79.7	102	97.8	116	95.5			
4-Epianhydrochlortetracycline [EACTC]		102	65.5	129	94.0	114	94.8			
4-Epianhydrotetracycline [EATC]		79.1	84.4	112	117	116	91.5			
4-Epichlortetracycline [ECTC]		109	78.7	89.0	117	111	94.9			
4-Epioxytetracycline [EOTC]		112	89.7	107	94.4	94.8	102			
4-Epitetracycline [ETC]		125	84.6	104	96.1	85.7	105			
Isochlortetracycline [ICTC]		96.7	78.3	107	111	114	93.8			
Minocycline		124	82.7	77.7	107	112	97.1			
Oxytetracycline [OTC]		110	75.8	93.9	111	115	94.3			
Tetracycline [TC]		114	76.6	92.0	115	106	96.9			

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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Report Filename: GENERIC-SPECS_PPC_LC_17-Oct-2011_QB1K__Form3A_GS43273.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3B
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 17-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QB1K_191 S: 7
CS1 Data Filename: QB1K_191 S: 8
CS2 Data Filename: QB1K_191 S: 9
CS3 Data Filename: QB1K_191 S: 10
CS4 Data Filename: QB1K_191 S: 11
CS5 Data Filename: QB1K_191 S: 12
CS6 Data Filename: N/A
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERIES (%)								
LABELED COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
D6-Thiabendazole		129	135	72.2	89.9	77.3	96.8			

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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Report Filename: GENERIC-SPECS_PPC_LC_17-Oct-2011_QB1K__Form3B_GS43273.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3C
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 17-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QB1K_191 S: 7
CS1 Data Filename: QB1K_191 S: 8
CS2 Data Filename: QB1K_191 S: 9
CS3 Data Filename: QB1K_191 S: 10
CS4 Data Filename: QB1K_191 S: 11
CS5 Data Filename: QB1K_191 S: 12
CS6 Data Filename: N/A
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
Anhydrochlortetracycline [ACTC]		20:53	20:49	20:51	20:49	20:48	20:50				20:50
Anhydrotetracycline [ATC]		16:41	16:41	16:40	16:40	16:39	16:40				16:40
Chlortetracycline [CTC]		12:05	12:02	12:05	12:07	12:05	12:02				12:04
Demeclocycline		9:44	9:43	9:46	9:51	9:44	9:44				9:45
Doxycycline		14:41	14:37	14:37	14:38	14:41	14:40				14:39
4-Epianhydrochlortetracycline [EACTC]		19:08	19:11	19:08	19:08	19:08	19:12				19:09
4-Epianhydrotetracycline [EATC]		15:24	15:25	15:24	15:25	15:26	15:25				15:25
4-Epichlortetracycline [ECTC]		10:08	10:00	10:02	10:03	10:02	10:03				10:03
4-Epioxytetracycline [EOTC]		6:58	6:39	6:45	6:39	6:45	6:42				6:45
4-Epitetracycline [ETC]		6:20	5:52	6:08	6:02	6:07	6:08				6:06
Isochlortetracycline [ICTC]		10:08	10:10	10:10	10:08	10:11	10:07				10:09
Minocycline		3:29	3:27	3:41	3:40	3:36	3:46				3:37
Oxytetracycline [OTC]		7:22	7:27	7:19	7:24	7:24	7:22				7:23
Tetracycline [TC]		7:54	8:00	7:52	7:56	7:59	7:57				7:56

(1) Where applicable, custom lab flags have been used on this report.

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AXYS METHOD MLA-075 Rev 3

Form 3D
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 17-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QB1K_191 S: 7
CS1 Data Filename: QB1K_191 S: 8
CS2 Data Filename: QB1K_191 S: 9
CS3 Data Filename: QB1K_191 S: 10
CS4 Data Filename: QB1K_191 S: 11
CS5 Data Filename: QB1K_191 S: 12
CS6 Data Filename: N/A
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
LABELED COMPOUND	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
D6-Thiabendazole		5:12	5:14	5:14	5:12	5:11	5:08				5:12

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
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Report Filename: GENERIC-SPECS_PPC_LC_17-Oct-2011_QB1K__Form3D_GS43273.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4A
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	17-Oct-2011	**VER Data Filename:**	QB1K_191 S: 16
Instrument ID:	LC MS/MS	**Analysis Date:**	18-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	00:09:12

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Anhydrochlortetracycline [ACTC]		20:46	250	187	75.0
Anhydrotetracycline [ATC]		16:41	250	169	67.7
Chlortetracycline [CTC]		12:05	100	73.1	73.1
Demeclocycline		9:46	250	193	77.2
Doxycycline		14:38	100	72.6	72.6
4-Epianhydrochlortetracycline [EACTC]		19:09	1000	818	81.8
4-Epianhydrotetracycline [EATC]		15:25	250	208	83.1
4-Epichlortetracycline [ECTC]		10:03	250	183	73.2
4-Epioxytetracycline [EOTC]		6:44	100	84.0	84.0
4-Epitetracycline [ETC]		6:04	100	84.5	84.5
Isochlortetracycline [ICTC]		10:15	100	93.0	93.0
Minocycline		3:40	1000	774	77.4
Oxytetracycline [OTC]		7:27	100	79.5	79.5
Tetracycline [TC]		8:02	100	79.1	79.1

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form4A.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QB1K_191S16__Form4A_SJ1382974.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4B
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	17-Oct-2011	**VER Data Filename:**	QB1K_191 S: 16
Instrument ID:	LC MS/MS	**Analysis Date:**	18-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	00:09:12

LABELED COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
D6-Thiabendazole		5:14	100	110	110

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form4B.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QB1K_191S16__Form4B_SJ1382974.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 04:45:59	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 25**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		14.6 (L)	
Anhydrotetracycline [ATC]	ND		14.6 (L)	
Chlortetracycline [CTC]	ND		5.85 (L)	
Demeclocycline	ND		14.6 (L)	
Doxycycline	ND		5.85 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		58.5 (L)	
4-Epianhydrotetracycline [EATC]	ND		14.6 (L)	
4-Epichlortetracycline [ECTC]	ND		14.6 (L)	
4-Epioxytetracycline [EOTC]	ND		5.85 (L)	
4-Epitetracycline [ETC]	ND		5.85 (L)	
Isochlortetracycline [ICTC]	ND		5.85 (L)	
Minocycline	ND		58.5 (L)	
Oxytetracycline [OTC]	ND		5.85 (L)	
Tetracycline [TC]	ND		5.85 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 15-Nov-2011 14:20:51; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-1_Form1A_QB1K_191S25_SJ1382979.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 04:45:59	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 25**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	85.3	85.3	5:19

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 15-Nov-2011 14:20:51; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-1_Form2_QB1K_191S25_SJ1382979.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 05:16:37	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 26**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		14.4 (L)	
Anhydrotetracycline [ATC]	ND		14.4 (L)	
Chlortetracycline [CTC]	ND		5.76 (L)	
Demeclocycline	ND		14.4 (L)	
Doxycycline	ND		5.76 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		57.6 (L)	
4-Epianhydrotetracycline [EATC]	ND		14.4 (L)	
4-Epichlortetracycline [ECTC]	ND		14.4 (L)	
4-Epioxytetracycline [EOTC]	ND		5.76 (L)	
4-Epitetracycline [ETC]	ND		5.76 (L)	
Isochlortetracycline [ICTC]	ND		5.76 (L)	
Minocycline	ND		57.6 (L)	
Oxytetracycline [OTC]	ND		5.76 (L)	
Tetracycline [TC]	ND		5.76 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-2_Form1A_QB1K_191S26_SJ1382980.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 05:16:37	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 26**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	77.1	77.1	5:16

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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Report Filename: LC_PPC_LC_PPC075_CYC_L16978-2_Form2_QB1K_191S26_SJ1382980.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 05:47:22	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 27**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.7

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This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		13.7 (L)	
Anhydrotetracycline [ATC]	ND		18.2 (S)	
Chlortetracycline [CTC]	ND		5.47 (L)	
Demeclocycline	ND		13.7 (L)	
Doxycycline	ND		5.47 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		54.7 (L)	
4-Epianhydrotetracycline [EATC]	ND		13.7 (L)	
4-Epichlortetracycline [ECTC]	ND		13.7 (L)	
4-Epioxytetracycline [EOTC]	ND		5.47 (L)	
4-Epitetracycline [ETC]	ND		5.47 (L)	
Isochlortetracycline [ICTC]	ND		5.47 (L)	
Minocycline	ND		54.7 (L)	
Oxytetracycline [OTC]	ND		5.47 (L)	
Tetracycline [TC]	ND		5.47 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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Report Filename: LC_PPC_LC_PPC075_CYC_L16978-3_Form1A_QB1K_191S27_SJ1382981.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 05:47:22	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 27**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
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LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	88.7	88.7	5:14

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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Report Filename: LC_PPC_LC_PPC075_CYC_L16978-3_Form2_QB1K_191S27_SJ1382981.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 06:18:10	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 28**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		14.6 (L)	
Anhydrotetracycline [ATC]	ND		20.2 (S)	
Chlortetracycline [CTC]	ND		5.86 (L)	
Demeclocycline	ND		14.6 (L)	
Doxycycline	ND		5.86 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		58.6 (L)	
4-Epianhydrotetracycline [EATC]	ND		23.6 (S)	
4-Epichlortetracycline [ECTC]	ND		14.6 (L)	
4-Epioxytetracycline [EOTC]	ND		5.86 (L)	
4-Epitetracycline [ETC]	ND		5.86 (L)	
Isochlortetracycline [ICTC]	ND		5.86 (L)	
Minocycline	ND		58.6 (L)	
Oxytetracycline [OTC]	ND		5.86 (L)	
Tetracycline [TC]	ND		5.86 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-4_Form1A_QB1K_191S28_SJ1382982.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 06:18:10	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 28**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	87.9	87.9	5:11

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-4_Form2_QB1K_191S28_SJ1382982.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 06:48:56	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 29**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		14.0 (L)	
Anhydrotetracycline [ATC]	ND		14.0 (L)	
Chlortetracycline [CTC]	ND		5.64 (S)	
Demeclocycline	ND		14.0 (L)	
Doxycycline	ND		5.60 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		56.0 (L)	
4-Epianhydrotetracycline [EATC]	ND		14.0 (L)	
4-Epichlortetracycline [ECTC]	ND		14.0 (L)	
4-Epioxytetracycline [EOTC]	ND		5.60 (L)	
4-Epitetracycline [ETC]	ND		5.60 (L)	
Isochlortetracycline [ICTC]	ND		5.60 (L)	
Minocycline	ND		56.0 (L)	
Oxytetracycline [OTC]	ND		5.60 (L)	
Tetracycline [TC]	ND		5.60 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 15-Nov-2011 14:40:56; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-5_Form1A_QB1K_191S29_SJ1382983.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 06:48:56	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 29**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	97.5	97.5	5:14

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 15-Nov-2011 14:40:56; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_L16978-5_Form2_QB1K_191S29_SJ1382983.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 03:44:24	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 23**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng/g		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Anhydrochlortetracycline [ACTC]	ND		15.7 (S)	
Anhydrotetracycline [ATC]	ND		16.6 (S)	
Chlortetracycline [CTC]	ND		6.00 (L)	
Demeclocycline	ND		15.0 (L)	
Doxycycline	ND		6.00 (L)	
4-Epianhydrochlortetracycline [EACTC]	ND		60.0 (L)	
4-Epianhydrotetracycline [EATC]	ND		16.4 (S)	
4-Epichlortetracycline [ECTC]	ND		15.0 (L)	
4-Epioxytetracycline [EOTC]	ND		6.00 (L)	
4-Epitetracycline [ETC]	ND		6.00 (L)	
Isochlortetracycline [ICTC]	ND		6.00 (L)	
Minocycline	ND		60.0 (L)	
Oxytetracycline [OTC]	ND		6.00 (L)	
Tetracycline [TC]	ND		6.00 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

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Report Filename: LC_PPC_LC_PPC075_CYC_WG37878-101_Form1A_QB1K_191S23_SJ1382991.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 03:44:24	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QB1K_191 S: 23**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16
Concentration Units:	ng absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Thiabendazole		100	45.6	45.6	5:17

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_WG37878-101_Form2_QB1K_191S23_SJ1382991.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8A

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102
Matrix:	SOLID	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 01:41:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QB1K_191 S: 19**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
Anhydrochlortetracycline [ACTC]		250	56.7	22.7	20:51
Anhydrotetracycline [ATC]		250	80.0	32.0	16:40
Chlortetracycline [CTC]		100	92.7	92.7	12:05
Demeclocycline		250	162	64.9	9:49
Doxycycline		100	53.9	53.9	14:41
4-Epianhydrochlortetracycline [EACTC]		1000	92.7	9.3	19:11
4-Epianhydrotetracycline [EATC]		250	84.3	33.7	15:24
4-Epichlortetracycline [ECTC]		250	177	70.9	10:02
4-Epioxytetracycline [EOTC]		100	81.9	81.9	6:52
4-Epitetracycline [ETC]		100	105	105	6:00
Isochlortetracycline [ICTC]		100	74.9	74.9	10:15
Minocycline		1000	99.2	9.9	3:43
Oxytetracycline [OTC]		100	102	102	7:30
Tetracycline [TC]		100	87.7	87.7	7:56

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Henry Huang_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: LC_PPC_LC_PPC075_CYC_WG37878-102_Form8A_SJ1382987.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8B

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102
Matrix:	SOLID	**Initial Calibration Date:**	17-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	18-Oct-2011 **Time:** 01:41:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QB1K_191 S: 19**
Injection Volume (uL):	5	**Blank Data Filename:**	QB1K_191 S: 23
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QB1K_191 S: 16

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
D6-Thiabendazole		100	69.5	69.5	5:19

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Henry Huang_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: FC-Form8B.xsl; Created: 15-Nov-2011 14:43:26; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_CYC_WG37878-102_Form8B_SJ1382987.html; Workgroup: WG37878; Design ID: 1482]

AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
1,2,3,6,7,8-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD		1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF				1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls													
PCB 1	2-Chlorobiphenyl	7	7								7	7	
PCB 3	4-Chlorobiphenyl	7	7								7	7	
PCB 4	2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5	2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15	4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18	2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19	2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31	2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37	3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81	3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

AXYS Analytical Services Ltd.

Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

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Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37878	***Date:*** 17-Nov-2011
Analysis Type: (AN3) Pharmaceutical & Personal Care Products	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520

Samples:

L16978-1	BQ5956-10R
L16978-2	BR3044-10R
L16978-3	BR3045-10R
L16978-4	BR3046-10R
L16978-5	BQ9606-10R

Blank: WG37878-101

Reference or Spike: WG37878-102

Duplicate:

Comments:

1. Data are not blank corrected.
2. In the OPR (AXYS ID: WG37878-102), Hydrochlorothiazide recovered at 24%; below the lower limit of 45%. At this level, this target is deemed not quantifiable in client samples and is flagged 'NQ'.

AXYS METHOD MLA-075 Rev 3

Form 3A
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QF1K_189 S: 7
CS1 Data Filename: QF1K_189 S: 8
CS2 Data Filename: QF1K_189 S: 9
CS3 Data Filename: QF1K_189 S: 10
CS4 Data Filename: QF1K_189 S: 11
CS5 Data Filename: QF1K_189 S: 12
CS6 Data Filename: QF1K_189 S: 13
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERY (%)								
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
Bisphenol A		117	95.7	88.4	96.2	96.8	109	97.4		
Furosemide		119	95.4	84.3	127	80.9	89.1	105		
Gemfibrozil		106	99.9	99.4	105	92.9	95.5	102		
Glipizide		97.4	88.6	99.3	117	95.1	104	98.6		
Glyburide		99.4	90.5	101	119	88.6	101			
Hydrochlorothiazide		127	92.0	76.1	105					
2-Hydroxy-ibuprofen		82.5	117	95.0	111	94.4	101			
Ibuprofen		73.1	110	101	116	98.8	103	98.7		
Naproxen		118	76.3	73.7	135	99.1	98.1			
Triclocarban		96.6	95.2	99.8	108	107	90.3	102		
Triclosan		92.4	91.0	105	119	86.1	109	97.7		
Warfarin		70.1	95.4	104	118	107	110	95.7		

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Andrew Porat_____

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Report Filename: GENERIC-SPECS_PPC_LC_15-Oct-2011_QF1K__Form3A_GS43296.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3B
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QF1K_189 S: 7

CS1 Data Filename: QF1K_189 S: 8

CS2 Data Filename: QF1K_189 S: 9

CS3 Data Filename: QF1K_189 S: 10

CS4 Data Filename: QF1K_189 S: 11

CS5 Data Filename: QF1K_189 S: 12

CS6 Data Filename: QF1K_189 S: 13

CS7 Data Filename: N/A

CS8 Data Filename: N/A

		PERCENT RECOVERIES (%)								
LABELED COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
D6-Bisphenol A		72.9	103	108	125	107	96.4	87.9		
D6-Gemfibrozil		91.9	97.1	105	108	108	110	79.9		
D11-Glipizide		90.5	97.2	110	93.3	106	111	91.7		
D3-Glyburide		80.7	88.9	94.3	95.7	102	118	120		
13C3-Ibuprofen		88.5	80.7	106	106	115	114	89.8		
13C-D3-Naproxen		84.8	95.5	119	84.6	109	125	81.5		
13C6-Triclocarban		109	115	116	107	79.2	74.4			
13C12-Triclosan		111	123	114	104	89.6	58.7			
D5-Warfarin		101	100	118	102	97.0	81.2			

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Andrew Porat_____

For Axys Internal Use Only [XSL Template: FC-Form3B.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_15-Oct-2011_QF1K__Form3B_GS43296.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3C
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QF1K_189 S: 7
CS1 Data Filename: QF1K_189 S: 8
CS2 Data Filename: QF1K_189 S: 9
CS3 Data Filename: QF1K_189 S: 10
CS4 Data Filename: QF1K_189 S: 11
CS5 Data Filename: QF1K_189 S: 12
CS6 Data Filename: QF1K_189 S: 13
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
Bisphenol A		6:24	6:33	6:27	6:30	6:27	6:27	6:33			6:29
Furosemide		2:58	3:06	3:03	3:03	3:01	3:03	3:01			3:02
Gemfibrozil		9:13	9:15	9:15	9:15	9:15	9:15	9:15			9:15
Glipizide		6:27	6:30	6:24	6:27	6:24	6:27	6:27			6:27
Glyburide		8:14	8:19	8:14	8:14	8:14	8:14				8:15
Hydrochlorothiazide		2:17	2:12	2:12	2:12						2:13
2-Hydroxy-ibuprofen		3:52	4:00	3:52	3:52	3:52	3:55				3:54
Ibuprofen		8:19	8:19	8:19	8:19	8:19	8:19	8:19			8:19
Naproxen		6:27	6:33	6:27	6:30	6:30	6:30				6:30
Triclocarban		9:23	9:23	9:21	9:21	9:21	9:19	9:21			9:21
Triclosan		9:30	9:30	9:32	9:30	9:30	9:32	9:32			9:31
Warfarin		6:52	6:54	6:49	6:52	6:52	6:52	6:52			6:52

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Andrew Porat_____

For Axys Internal Use Only [XSL Template: FC-Form3C.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_15-Oct-2011_QF1K__Form3C_GS43296.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3D
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QF1K_189 S: 7
CS1 Data Filename: QF1K_189 S: 8
CS2 Data Filename: QF1K_189 S: 9
CS3 Data Filename: QF1K_189 S: 10
CS4 Data Filename: QF1K_189 S: 11
CS5 Data Filename: QF1K_189 S: 12
CS6 Data Filename: QF1K_189 S: 13
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES								
LABELED COMPOUND	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
D6-Bisphenol A		6:27	6:30	6:22	6:24	6:27	6:24	6:24			6:25
D6-Gemfibrozil		9:13	9:15	9:13	9:13	9:13	9:13	9:13			9:13
D11-Glipizide		6:24	6:27	6:22	6:22	6:22	6:27	6:24			6:24
D3-Glyburide		8:14	8:14	8:14	8:14	8:14	8:14	8:14			8:14
13C3-Ibuprofen		8:19	8:19	8:19	8:19	8:19	8:19	8:19			8:19
13C-D3-Naproxen		6:27	6:30	6:27	6:27	6:24	6:27	6:24			6:27
13C6-Triclocarban		9:19	9:23	9:21	9:21	9:17	9:21				9:20
13C12-Triclosan		9:30	9:32	9:32	9:30	9:32	9:32				9:31
D5-Warfarin		6:49	6:52	6:46	6:49	6:49	6:46				6:49

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Andrew Porat_____

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Report Filename: GENERIC-SPECS_PPC_LC_15-Oct-2011_QF1K__Form3D_GS43296.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4A
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	15-Oct-2011	**VER Data Filename:**	QF1K_189 S: 17
Instrument ID:	LC MS/MS	**Analysis Date:**	15-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	19:07:25

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Bisphenol A		6:30	4000	4960	124
Furosemide		3:01	2000	1990	99.3
Gemfibrozil		9:15	75.0	87.0	116
Glipizide		6:27	300	310	103
Glyburide		8:14	150	156	104
Hydrochlorothiazide		2:09	1000	798	79.8
2-Hydroxy-ibuprofen		3:55	4000	4140	104
Ibuprofen		8:19	750	879	117
Naproxen		6:27	150	184	123
Triclocarban		9:23	150	169	113
Triclosan		9:32	3000	3660	122
Warfarin		6:52	75.0	86.8	116

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4A.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1; Report Filename: GENERIC-SPECS_PPC_LC_QF1K_189S17__Form4A_SJ1380979.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4B
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	15-Oct-2011	**VER Data Filename:**	QF1K_189 S: 17
Instrument ID:	LC MS/MS	**Analysis Date:**	15-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	19:07:25

LABELED COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
D6-Bisphenol A		6:22	20000	17500	87.5
D6-Gemfibrozil		9:15	100	88.7	88.7
D11-Glipizide		6:24	400	467	117
D3-Glyburide		8:14	400	383	95.7
13C3-Ibuprofen		8:19	400	416	104
13C-D3-Naproxen		6:27	300	312	104
13C6-Triclocarban		9:23	50.0	52.9	106
13C12-Triclosan		9:34	400	375	93.7
D5-Warfarin		6:49	100	108	108

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: GENERIC-SPECS_PPC_LC_QF1K_189S17__Form4B_SJ1380979.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4A
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	15-Oct-2011	**VER Data Filename:**	QF1K_189 S: 46
Instrument ID:	LC MS/MS	**Analysis Date:**	17-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	10:47:31

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Bisphenol A		6:30	4000	4020	100
Furosemide		3:09	2000	1980	99.1
Gemfibrozil		9:15	75.0	82.8	110
Glipizide		6:30	300	300	100
Glyburide		8:14	150	170	113
Hydrochlorothiazide		2:12	1000	924	92.4
2-Hydroxy-ibuprofen		4:00	4000	5820	145
Ibuprofen		8:19	750	983	131
Naproxen		6:33	150	168	112
Triclocarban		9:21	150	174	116
Triclosan		9:32	3000	2800	93.5
Warfarin		6:52	75.0	87.5	117

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

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AXYS METHOD MLA-075 Rev 3

Form 4B
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	15-Oct-2011	**VER Data Filename:**	QF1K_189 S: 46
Instrument ID:	LC MS/MS	**Analysis Date:**	17-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	10:47:31

LABELED COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
D6-Bisphenol A		6:27	20000	22800	114
D6-Gemfibrozil		9:13	100	76.5	76.5
D11-Glipizide		6:24	400	503	126
D3-Glyburide		8:14	400	386	96.6
13C3-Ibuprofen		8:19	400	395	98.8
13C-D3-Naproxen		6:30	300	327	109
13C6-Triclocarban		9:21	50.0	58.8	118
13C12-Triclosan		9:30	400	418	104
D5-Warfarin		6:52	100	139	139

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4B.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QF1K_189S46__Form4B_SJ1381002.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 23:43:44	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 31**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Bisphenol A	ND		487 (L)	
Furosemide	ND		39.0 (L)	
Gemfibrozil	ND		1.46 (L)	
Glipizide	ND		5.85 (L)	
Glyburide	ND		2.92 (L)	
Hydrochlorothiazide	NQ			
2-Hydroxy-ibuprofen	ND		78.0 (L)	
Ibuprofen	ND		14.6 (L)	
Naproxen	ND		2.92 (L)	
Triclocarban	ND		2.92 (L)	
Triclosan	ND		58.5 (L)	
Warfarin	ND		1.46 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-1_Form1A_QF1K_189S31_SJ1380994.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 23:43:44	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 31**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng absolute	**% Moisture:**	33.0

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This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Bisphenol A		20000	24500	122	6:27
D6-Gemfibrozil		100	87.7	87.7	9:13
D11-Glipizide		400	462	116	6:24
D3-Glyburide		400	388	96.9	8:09
13C3-Ibuprofen		400	356	89.0	8:19
13C-D3-Naproxen		300	294	98.1	6:27
13C6-Triclocarban		50.0	30.7	61.4	9:23
13C12-Triclosan		400	303	75.8	9:30
D5-Warfarin		100	126	126	6:49

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-1_Form2_QF1K_189S31_SJ1380994.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 00:03:35	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 32**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	37.6

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This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Bisphenol A	ND		480 (L)	
Furosemide	ND		38.4 (L)	
Gemfibrozil	ND		1.44 (L)	
Glipizide	ND		5.76 (L)	
Glyburide	ND		2.88 (L)	
Hydrochlorothiazide	NQ			
2-Hydroxy-ibuprofen	ND		76.8 (L)	
Ibuprofen	ND		14.4 (L)	
Naproxen	ND		2.88 (L)	
Triclocarban		4.37	2.88 (L)	9:21
Triclosan	ND		57.6 (L)	
Warfarin	ND		1.44 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_AEN_L16978-2_Form1A_QF1K_189S32_SJ1380995.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 00:03:35	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 32**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng absolute	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Bisphenol A		20000	25200	126	6:24
D6-Gemfibrozil		100	88.4	88.4	9:13
D11-Glipizide		400	467	117	6:24
D3-Glyburide		400	432	108	8:14
13C3-Ibuprofen		400	369	92.2	8:19
13C-D3-Naproxen		300	314	105	6:27
13C6-Triclocarban		50.0	46.9	93.8	9:21
13C12-Triclosan		400	337	84.2	9:30
D5-Warfarin		100	124	124	6:49

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-2_Form2_QF1K_189S32_SJ1380995.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 00:23:18	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 33**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Bisphenol A	ND		456 (L)	
Furosemide	ND		36.5 (L)	
Gemfibrozil	ND		1.37 (L)	
Glipizide	ND		5.47 (L)	
Glyburide	ND		2.73 (L)	
Hydrochlorothiazide	NQ			
2-Hydroxy-ibuprofen	ND		72.9 (L)	
Ibuprofen	ND		13.7 (L)	
Naproxen	ND		2.73 (L)	
Triclocarban		3.39	2.73 (L)	9:21
Triclosan	ND		54.7 (L)	
Warfarin	ND		1.37 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-3_Form1A_QF1K_189S33_SJ1380996.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 00:23:18	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 33**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng absolute	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Bisphenol A		20000	26000	130	6:22
D6-Gemfibrozil		100	100	100	9:13
D11-Glipizide		400	549	137	6:19
D3-Glyburide		400	446	112	8:14
13C3-Ibuprofen		400	455	114	8:19
13C-D3-Naproxen		300	323	108	6:22
13C6-Triclocarban		50.0	44.2	88.3	9:21
13C12-Triclosan		400	439	110	9:27
D5-Warfarin		100	129	129	6:46

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-3_Form2_QF1K_189S33_SJ1380996.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4 i
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	17-Oct-2011 **Time:** 12:26:09	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 51**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 46
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Bisphenol A	ND		488 (L)	
Furosemide	ND		39.1 (L)	
Gemfibrozil	ND		1.46 (L)	
Glipizide	ND		5.86 (L)	
Glyburide	ND		2.93 (L)	
Hydrochlorothiazide	NQ			
2-Hydroxy-ibuprofen	ND		78.1 (L)	
Ibuprofen	ND		14.6 (L)	
Naproxen	ND		2.93 (L)	
Triclocarban		4.16	2.93 (L)	9:19
Triclosan	ND		58.6 (L)	
Warfarin	ND		1.46 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-4_Form1A_QF1K_189S51_SJ1381007.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4 i
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	17-Oct-2011 **Time:** 12:26:09	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 51**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 46
Concentration Units:	ng absolute	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Bisphenol A		20000	18400	92.0	6:27
D6-Gemfibrozil		100	87.8	87.8	9:13
D11-Glipizide		400	490	122	6:24
D3-Glyburide		400	386	96.5	8:14
13C3-Ibuprofen		400	476	119	8:19
13C-D3-Naproxen		300	294	98.0	6:27
13C6-Triclocarban		50.0	35.4	70.7	9:21
13C12-Triclosan		400	382	95.4	9:30
D5-Warfarin		100	141	141	6:49

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-4_Form2_QF1K_189S51_SJ1381007.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 01:02:46	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 35**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Bisphenol A	ND		467 (L)	
Furosemide	ND		37.3 (L)	
Gemfibrozil	ND		1.40 (L)	
Glipizide	ND		5.60 (L)	
Glyburide	ND		2.80 (L)	
Hydrochlorothiazide	NQ			
2-Hydroxy-ibuprofen	ND		74.7 (L)	
Ibuprofen	ND		14.0 (L)	
Naproxen	ND		2.80 (L)	
Triclocarban		3.90	2.80 (L)	9:23
Triclosan	ND		56.0 (L)	
Warfarin	ND		1.40 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-5_Form1A_QF1K_189S35_SJ1380998.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 01:02:46	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 35**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng absolute	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
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LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Bisphenol A		20000	22500	112	6:27
D6-Gemfibrozil		100	96.3	96.3	9:13
D11-Glipizide		400	470	117	6:22
D3-Glyburide		400	419	105	8:14
13C3-Ibuprofen		400	393	98.2	8:19
13C-D3-Naproxen		300	281	93.6	6:24
13C6-Triclocarban		50.0	36.9	73.8	9:23
13C12-Triclosan		400	385	96.2	9:32
D5-Warfarin		100	124	124	6:46

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_L16978-5_Form2_QF1K_189S35_SJ1380998.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 23:24:00	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 30**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng/g		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Bisphenol A	ND		500 (L)	
Furosemide	ND		40.0 (L)	
Gemfibrozil	ND		1.50 (L)	
Glipizide	ND		6.00 (L)	
Glyburide	ND		3.00 (L)	
Hydrochlorothiazide	NQ			
2-Hydroxy-ibuprofen	ND		80.0 (L)	
Ibuprofen	ND		15.0 (L)	
Naproxen	ND		3.00 (L)	
Triclocarban	ND		3.00 (L)	
Triclosan	ND		60.0 (L)	
Warfarin	ND		1.50 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_WG37878-101_Form1A_QF1K_189S30_SJ1380992.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 23:24:00	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QF1K_189 S: 30**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17
Concentration Units:	ng absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D6-Bisphenol A		20000	21200	106	6:27
D6-Gemfibrozil		100	90.5	90.5	9:13
D11-Glipizide		400	458	115	6:22
D3-Glyburide		400	347	86.8	8:14
13C3-Ibuprofen		400	422	105	8:19
13C-D3-Naproxen		300	281	93.6	6:27
13C6-Triclocarban		50.0	25.7	51.3	9:23
13C12-Triclosan		400	328	82.1	9:30
D5-Warfarin		100	112	112	6:49

(1) Where applicable, custom lab flags have been used on this report.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_WG37878-101_Form2_QF1K_189S30_SJ1380992.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8A

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102
Matrix:	SOLID	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 20:26:28	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QF1K_189 S: 21**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
Bisphenol A		4010	3500	87.1	6:27
Furosemide		2000	1320	66.2	3:01
Gemfibrozil		75.0	79.2	106	9:15
Glipizide		300	286	95.5	6:27
Glyburide		150	147	97.9	8:14
Hydrochlorothiazide	NQ				
2-Hydroxy-ibuprofen		4010	4620	115	3:52
Ibuprofen		750	825	110	8:19
Naproxen		150	166	111	6:30
Triclocarban		150	155	103	9:23
Triclosan		3000	2580	85.9	9:30
Warfarin		75.0	86.9	116	6:52

(1) Where applicable, custom lab flags have been used on this report; NQ = data not quantifiable.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: FC-Form8A.xsl; Created: 17-Nov-2011 12:10:29; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEN_WG37878-102_Form8A_SJ1380981.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8B

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102
Matrix:	SOLID	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 20:26:28	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QF1K_189 S: 21**
Injection Volume (uL):	10	**Blank Data Filename:**	QF1K_189 S: 30
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QF1K_189 S: 17

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
D6-Bisphenol A		20000	22000	110	6:24
D6-Gemfibrozil		100	91.8	91.8	9:13
D11-Glipizide		400	401	100	6:24
D3-Glyburide		400	382	95.5	8:14
13C3-Ibuprofen		400	349	87.3	8:19
13C-D3-Naproxen		300	309	103	6:27
13C6-Triclocarban		50.0	18.2	36.4	9:21
13C12-Triclosan		400	312	77.9	9:32
D5-Warfarin		100	90.3	90.3	6:46

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: LC_PPC_LC_PPC075_AEN_WG37878-102_Form8B_SJ1380981.html; Workgroup: WG37878; Design ID: 1482]

AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
1,2,3,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD	1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF			1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls												
PCB 1 2-Chlorobiphenyl	7	7								7	7	
PCB 3 4-Chlorobiphenyl	7	7								7	7	
PCB 4 2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5 2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15 4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18 2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19 2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31 2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37 3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44 2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52 2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54 2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66 2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77 3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81 3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87 2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

AXYS Analytical Services Ltd.

Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

AXYS Analytical Services Ltd.

Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37879	***Date:*** 21-Nov-2011
Analysis Type: (BP4) Pharmaceutical & Personal Care Products	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520

Samples:

L16978-1	BQ5956-10R
L16978-2	BR3044-10R
L16978-3	BR3045-10R
L16978-4	BR3046-10R
L16978-5	BQ9606-10R

Blank: WG37879-101

Reference or Spike: WG37879-102

Duplicate:

Comments:

1. Data are not blank corrected.
2. At least 6 calibration points were used in quantification of the initial calibration (QG1K_188 S: 3 to S: 9) for all analytes. The lowest level calibration standard CS0 for Amphetamine was excluded from the initial calibration as the result did not meet method acceptance criteria. As a result, the CS1 level calibration was used as detection qualifier for this analyte in samples.
3. At least 5 calibration points were used in quantification of the initial calibration (QG1K_193 S: 3 to S: 9) for all the analytes. The lowest level calibration standard CS0 for Clonidine and Oxycodone were excluded from the initial calibrations as the results did not meet method acceptance criteria. As a result, the CS1 level calibration was used as detection qualifier for these analytes in samples.
4. In the OPR (AXYS ID: WG37879-102), Hydrocodone and Ranitidine were observed below the lower method control limits. Data may be considered similarly affected.
5. An instrumental interference was observed near the expected retention time for Amphetamine in samples BR3044-10R, BR3045-10R and BR3046-10R (AXYS IDs; L16978-2, -3 and -4). This target has been flagged 'NDR' on reports to indicate it is an estimated maximum possible concentration.
6. The recovery of D4-Clonidine in the Lab Blank (AXYS ID: WG37879-101) did not meet the method criteria; this compound is flagged with a 'V'. As the isotope dilution method of quantification produces data that are recovery corrected, the slight variances from the method acceptance criteria are deemed not to affect the quantification of these analytes. Percent surrogate recoveries are used as general method performance indicator only.
7. In all client samples, D3-Cimetidine was observed below the method control limit. In samples BQ5956-10R, BR3044-10R, BR3045-10R and BQ9606-10R (AXYS IDs: L16978-1, -2, -3 and-5) D3-Cimetidine was observed at considerably low levels; as a result native Cimetidine has been flagged with an 'H' on reports indicating that the value is provided for information only.

AXYS METHOD MLA-075 Rev 3

Form 3A
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 14-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_188 S: 3
CS1 Data Filename: QG1K_188 S: 4
CS2 Data Filename: QG1K_188 S: 5
CS3 Data Filename: QG1K_188 S: 6
CS4 Data Filename: QG1K_188 S: 7
CS5 Data Filename: QG1K_188 S: 8
CS6 Data Filename: QG1K_188 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERY (%)								
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
Albuterol		137	113	88.8	85.1	84.1	88.6	103		
Amphetamine			97.6	108	93.4	100	102	99.8		
Atenolol		95.1	120	107	102	80.8	92.4	102		
Atorvastatin		80.1	100	115	104	101	99.2			
Cimetidine		85.3	98.7	106	99.8	102	111	97.8		
Clonidine		98.7	105	116	97.9	81.3	100	101		
Codeine		106	111	99.7	91.1	92.8	98.8	101		
Cotinine		100	99.4	107	96.1	97.1	99.7	100		
Enalapril		106	113	110	84.1	90.8	93.7	102		
Hydrocodone		107	105	93.7	97.5	95.2	101			
Metformin		122	105	99.2	80.6	93.5	99.1	101		
Oxycodone		66.2	125	112	99.8	96.4	101			
Ranitidine		113	102	92.6	88.4	105	99.7			
Triamterene		91.9	128	99.4	95.4	80.8	105			

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: GENERIC-SPECS_PPC_LC_14-Oct-2011_QG1K__Form3A_GS43294.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3B
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 14-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_188 S: 3
CS1 Data Filename: QG1K_188 S: 4
CS2 Data Filename: QG1K_188 S: 5
CS3 Data Filename: QG1K_188 S: 6
CS4 Data Filename: QG1K_188 S: 7
CS5 Data Filename: QG1K_188 S: 8
CS6 Data Filename: QG1K_188 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERIES (%)								
LABELED COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
D3-Albuterol		92.5	93.8	113	113	101	110	76.4		
D6-Metformin		102	93.9	112	115	94.6	81.5			
D3-Cotinine		106	100	102	114	104	103	69.8		
D3-Cimetidine		100	94.4	91.9	109	95.5	105	104		
D5-Enalapril		105	94.6	87.0	108	101	115	88.7		
D6-Oxycodone		106	92.1	90.3	117	112	106	77.1		
D4-Clonidine		110	93.3	98.0	118	113	104	64.7		
D5-Amphetamine		110	108	105	109	99.8	106	61.8		
D6-Codeine		97.5	99.1	111	115	113	105	60.3		
D3-Hydrocodone		105	92.8	109	121	100	102	70.3		
D7-Atenolol		97.8	98.0	105	105	112	109	72.4		

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: GENERIC-SPECS_PPC_LC_14-Oct-2011_QG1K__Form3B_GS43294.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3C
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 14-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_188 S: 3
CS1 Data Filename: QG1K_188 S: 4
CS2 Data Filename: QG1K_188 S: 5
CS3 Data Filename: QG1K_188 S: 6
CS4 Data Filename: QG1K_188 S: 7
CS5 Data Filename: QG1K_188 S: 8
CS6 Data Filename: QG1K_188 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
Albuterol		8:19	8:19	8:19	8:19	8:19	8:19	8:19			8:19
Amphetamine			8:02	8:08	8:08	8:02	8:02	8:08			8:05
Atenolol		8:53	8:53	8:53	8:53	8:53	8:53	8:53			8:53
Atorvastatin		3:55	3:46	3:49	3:51	3:49	3:49				3:50
Cimetidine		4:52	4:55	4:52	4:50	4:57	4:57	4:55			4:54
Clonidine		6:57	6:57	6:57	6:57	6:57	6:57	6:57			6:57
Codeine		8:34	8:34	8:34	8:34	8:34	8:34	8:34			8:34
Cotinine		4:06	4:03	4:06	4:06	4:06	4:09	4:08			4:06
Enalapril		6:25	6:25	6:25	6:25	6:25	6:25	6:25			6:25
Hydrocodone		8:49	8:49	8:49	8:49	8:49	8:45				8:48
Metformin		9:34	9:34	9:34	9:34	9:34	9:38	9:34			9:35
Oxycodone		6:57	6:57	6:57	6:57	6:57	6:57				6:57
Ranitidine		8:53	8:53	8:53	8:53	8:49	8:49				8:52
Triamterene		5:18	5:21	5:21	5:21	5:24	5:21				5:21

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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AXYS METHOD MLA-075 Rev 3

Form 3D
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 14-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_188 S: 3
CS1 Data Filename: QG1K_188 S: 4
CS2 Data Filename: QG1K_188 S: 5
CS3 Data Filename: QG1K_188 S: 6
CS4 Data Filename: QG1K_188 S: 7
CS5 Data Filename: QG1K_188 S: 8
CS6 Data Filename: QG1K_188 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES								
LABELED COMPOUND	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
D3-Albuterol		8:19	8:19	8:19	8:19	8:19	8:19	8:19			8:19
D6-Metformin		9:38	9:38	9:38	9:38	9:38	9:38				9:38
D3-Cotinine		4:09	4:11	4:05	4:11	4:14	4:14	4:11			4:11
D3-Cimetidine		4:50	4:55	4:47	4:57	4:55	4:55	4:54			4:53
D5-Enalapril		6:25	6:25	6:21	6:25	6:25	6:25	6:25			6:24
D6-Oxycodone		7:14	7:19	7:19	7:19	7:19	7:14	7:19			7:18
D4-Clonidine		7:03	7:03	7:03	7:03	7:03	7:03	7:03			7:03
D5-Amphetamine		8:08	8:08	8:08	8:08	8:02	8:08	8:08			8:07
D6-Codeine		8:45	8:42	8:45	8:45	8:42	8:42	8:42			8:43
D3-Hydrocodone		9:00	9:00	9:04	9:00	9:00	9:00	9:00			9:01
D7-Atenolol		8:57	8:57	8:57	8:57	8:57	8:57	8:57			8:57

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: GENERIC-SPECS_PPC_LC_14-Oct-2011_QG1K__Form3D_GS43294.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3A
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 20-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_193 S: 3
CS1 Data Filename: QG1K_193 S: 4
CS2 Data Filename: QG1K_193 S: 5
CS3 Data Filename: QG1K_193 S: 6
CS4 Data Filename: QG1K_193 S: 7
CS5 Data Filename: QG1K_193 S: 8
CS6 Data Filename: QG1K_193 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERY (%)								
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
Albuterol		83.2	109	102	102	97.3	107	98.6		
Amphetamine		61.1	85.1	116	111	120	110	96.8		
Atenolol		90.9	128	103	76.7	100	102			
Atorvastatin		90.4	96.3	108	101	94.0	113	97.7		
Cimetidine		83.4	91.2	109	100	107	112	97.2		
Clonidine			84.8	125	102	92.9	93.0	102		
Codeine		120	104	91.7	90.0	87.8	107	99.4		
Cotinine		103	94.0	106	97.8	96.3	103	99.6		
Enalapril		116	98.0	110	85.1	92.8	98.1	101		
Hydrocodone		78.1	93.0	113	93.9	110	115	96.6		
Metformin		96.5	101	106	96.3	99.3	100			
Oxycodone			61.9	127	103	111	96.8			
Ranitidine		118	104	95.5	83.0	97.7	102			
Triamterene		125	94.2	105	83.8	88.0	104			

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form3A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_20-Oct-2011_QG1K__Form3A_GS43295.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3B
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 20-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_193 S: 3
CS1 Data Filename: QG1K_193 S: 4
CS2 Data Filename: QG1K_193 S: 5
CS3 Data Filename: QG1K_193 S: 6
CS4 Data Filename: QG1K_193 S: 7
CS5 Data Filename: QG1K_193 S: 8
CS6 Data Filename: QG1K_193 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERIES (%)								
LABELED COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
D3-Albuterol		107	92.0	104	99.8	94.4	115	87.4		
D6-Metformin		108	107	104	102	89.0	89.4			
D3-Cotinine		107	107	113	103	96.8	99.0	74.5		
D3-Cimetidine		99.0	99.0	99.7	96.5	93.5	105	107		
D5-Enalapril		106	109	98.5	97.0	96.9	105	87.8		
D6-Oxycodone		122	98.3	96.7	100	95.1	104	83.5		
D4-Clonidine		107	123	102	104	98.5	103	63.2		
D5-Amphetamine		108	106	106	110	96.3	103	70.5		
D6-Codeine		105	108	116	105	104	100	61.3		
D3-Hydrocodone		103	112	105	112	97.3	103	67.2		
D7-Atenolol		112	109	97.4	108	99.0	103	71.2		

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form3B.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_20-Oct-2011_QG1K__Form3B_GS43295.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3C
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 20-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_193 S: 3
CS1 Data Filename: QG1K_193 S: 4
CS2 Data Filename: QG1K_193 S: 5
CS3 Data Filename: QG1K_193 S: 6
CS4 Data Filename: QG1K_193 S: 7
CS5 Data Filename: QG1K_193 S: 8
CS6 Data Filename: QG1K_193 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
Albuterol		8:19	8:19	8:19	8:19	8:19	8:19	8:19			8:19
Amphetamine		8:02	8:02	8:02	8:02	8:02	8:02	8:02			8:02
Atenolol		8:53	8:53	8:53	8:53	8:53	8:49				8:52
Atorvastatin		3:55	3:57	3:55	3:54	3:55	3:55	3:57			3:55
Cimetidine		5:00	4:52	4:54	4:52	4:54	4:54	4:55			4:54
Clonidine			6:57	6:57	6:51	6:51	6:51	6:51			6:53
Codeine		8:34	8:30	8:30	8:34	8:30	8:30	8:30			8:31
Cotinine		4:08	4:00	4:03	4:00	4:05	4:05	4:05			4:04
Enalapril		6:25	6:28	6:28	6:25	6:25	6:25	6:25			6:26
Hydrocodone		8:45	8:45	8:45	8:45	8:45	8:45	8:42			8:45
Metformin		9:30	9:30	9:30	9:34	9:30	9:30				9:31
Oxycodone		6:51	7:03	7:03	7:03	7:08	7:03				7:02
Ranitidine		8:53	8:49	8:49	8:49	8:49	8:49				8:50
Triamterene		5:24	5:24	5:24	5:21	5:24	5:21				5:23

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: GENERIC-SPECS_PPC_LC_20-Oct-2011_QG1K__Form3C_GS43295.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3D
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 20-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: HILIC

CS0 Data Filename: QG1K_193 S: 3
CS1 Data Filename: QG1K_193 S: 4
CS2 Data Filename: QG1K_193 S: 5
CS3 Data Filename: QG1K_193 S: 6
CS4 Data Filename: QG1K_193 S: 7
CS5 Data Filename: QG1K_193 S: 8
CS6 Data Filename: QG1K_193 S: 9
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES								
LABELED COMPOUND	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
D3-Albuterol		8:19	8:19	8:19	8:19	8:19	8:19	8:19			8:19
D6-Metformin		9:34	9:34	9:34	9:34	9:34	9:34				9:34
D3-Cotinine		4:03	4:06	4:06	4:05	4:06	4:08	4:06			4:06
D3-Cimetidine		4:50	4:52	4:54	4:50	5:00	4:54	4:55			4:54
D5-Enalapril		6:25	6:25	6:25	6:25	6:28	6:25	6:25			6:25
D6-Oxycodone		7:19	7:19	7:19	7:19	7:19	7:19	7:19			7:19
D4-Clonidine		6:57	6:57	6:57	6:57	6:57	6:57	6:57			6:57
D5-Amphetamine		8:02	8:02	8:02	8:02	8:02	8:02	8:02			8:02
D6-Codeine		8:42	8:42	8:42	8:42	8:42	8:38	8:42			8:41
D3-Hydrocodone		9:00	9:00	8:57	8:57	8:57	8:57	9:00			8:58
D7-Atenolol		8:53	8:53	8:53	8:53	8:53	8:53	8:57			8:54

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form3D.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_20-Oct-2011_QG1K__Form3D_GS43295.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4A
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	14-Oct-2011	**VER Data Filename:**	QG1K_188 S: 12
Instrument ID:	LC MS/MS	**Analysis Date:**	14-Oct-2011
LC Column ID:	HILIC	**Analysis Time:**	15:55:06

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Albuterol		8:19	15.0	12.8	85.1
Amphetamine		8:02	75.0	72.7	96.9
Atenolol		8:53	30.0	26.0	86.8
Atorvastatin		3:49	75.0	85.0	113
Cimetidine		4:57	30.0	29.5	98.3
Clonidine		6:57	75.0	73.5	98.0
Codeine		8:34	150	122	81.2
Cotinine		4:09	75.0	69.5	92.6
Enalapril		6:25	15.0	14.8	98.8
Hydrocodone		8:49	75.0	79.0	105
Metformin		9:34	150	122	81.3
Oxycodone		6:57	30.0	26.7	89.1
Ranitidine		8:49	30.0	32.3	108
Triamterene		5:24	15.0	13.9	93.0

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QG1K_188S12__Form4A_SJ1380586.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4B
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	14-Oct-2011	**VER Data Filename:**	QG1K_188 S: 12
Instrument ID:	LC MS/MS	**Analysis Date:**	14-Oct-2011
LC Column ID:	HILIC	**Analysis Time:**	15:55:06

LABELED COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
D3-Albuterol		8:19	100	102	102
D6-Metformin		9:38	400	430	108
D3-Cotinine		4:09	60.0	62.4	104
D3-Cimetidine		4:54	30.0	31.7	106
D5-Enalapril		6:21	20.0	19.4	96.8
D6-Oxycodone		7:14	60.0	67.6	113
D4-Clonidine		7:03	400	440	110
D5-Amphetamine		8:08	20.0	20.0	100
D6-Codeine		8:42	200	264	132
D3-Hydrocodone		9:00	60.0	68.0	113
D7-Atenolol		8:57	60.0	65.0	108

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4B.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QG1K_188S12__Form4B_SJ1380586.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4A
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	20-Oct-2011	**VER Data Filename:**	QG1K_193 S: 25
Instrument ID:	LC MS/MS	**Analysis Date:**	20-Oct-2011
LC Column ID:	HILIC	**Analysis Time:**	10:04:44

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Albuterol		8:19	15.0	15.1	101
Amphetamine		8:02	75.0	62.9	83.9
Atenolol		8:53	30.0	25.8	86.1
Atorvastatin		3:55	75.0	87.8	117
Cimetidine		4:55	30.0	30.4	101
Clonidine		6:57	75.0	74.5	99.4
Codeine		8:30	150	152	101
Cotinine		4:06	75.0	68.7	91.6
Enalapril		6:25	15.0	15.1	101
Hydrocodone		8:42	75.0	85.6	114
Metformin		9:30	150	149	99.1
Oxycodone		7:08	30.0	32.5	108
Ranitidine		8:49	30.0	26.7	89.0
Triamterene		5:24	15.0	13.1	87.3

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QG1K_193S25__Form4A_SJ1380942.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4B
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	20-Oct-2011	**VER Data Filename:**	QG1K_193 S: 25
Instrument ID:	LC MS/MS	**Analysis Date:**	20-Oct-2011
LC Column ID:	HILIC	**Analysis Time:**	10:04:44

LABELED COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
D3-Albuterol		8:19	100	94.1	94.1
D6-Metformin		9:34	400	341	85.3
D3-Cotinine		4:05	60.0	51.5	85.9
D3-Cimetidine		4:54	30.0	24.6	81.9
D5-Enalapril		6:25	20.0	17.1	85.3
D6-Oxycodone		7:19	60.0	55.6	92.7
D4-Clonidine		7:03	400	352	88.0
D5-Amphetamine		8:02	20.0	19.3	96.4
D6-Codeine		8:42	200	193	96.4
D3-Hydrocodone		8:57	60.0	56.0	93.3
D7-Atenolol		8:53	60.0	55.7	92.9

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4B.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QG1K_193S25__Form4B_SJ1380942.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 18:51:59	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 21**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	33.0

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This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	ND		0.472 (S)	
Amphetamine	ND		4.81 (L)	
Atenolol	ND		0.940 (S)	
Atorvastatin	ND		1.44 (L)	
Cimetidine	ND H		0.577 (L)	
Clonidine	X			
Codeine	ND		2.89 (L)	
Cotinine	ND		1.44 (L)	
Enalapril	ND		0.289 (L)	
Hydrocodone	ND		1.44 (L)	
Metformin	ND		2.89 (L)	
Oxycodone	ND		0.577 (L)	
Ranitidine	ND		0.577 (L)	
Triamterene	X			

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; X = result reported separately; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_BEP_L16978-1_Form1A_QG1K_188S21_SJ1380599.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1 N
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	20-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	20-Oct-2011 **Time:** 13:21:21	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_193 S: 35**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	3	**Cal. Ver. Data Filename:**	QG1K_193 S: 25
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	33.0

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This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	X			
Amphetamine	X			
Atenolol	X			
Atorvastatin	X			
Cimetidine	X			
Clonidine	ND D		14.4 (L)	
Codeine	X			
Cotinine	X			
Enalapril	X			
Hydrocodone	X			
Metformin	X			
Oxycodone	X			
Ranitidine	X			
Triamterene	X			

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; D = dilution data; X = result reported separately.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-1_Form1A_QG1K_193S35_SJ1380946.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 18:51:59	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 21**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng absolute	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol		100	41.8	41.8	8:19
D6-Metformin		400	164	41.1	9:38
D3-Cotinine		60.0	68.8	115	4:05
D3-Cimetidine	V	30.0	1.18	3.94	4:47
D5-Enalapril		20.0	22.7	113	6:25
D6-Oxycodone		60.0	51.0	85.0	7:19
D4-Clonidine	X				
D5-Amphetamine		20.0	12.0	59.9	8:08
D6-Codeine		200	153	76.3	8:42
D3-Hydrocodone		60.0	55.1	91.9	9:00
D7-Atenolol		60.0	58.3	97.2	8:57

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits; X = result reported separately.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-1_Form2_QG1K_188S21_SJ1380599.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1 N
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	20-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	20-Oct-2011 **Time:** 13:21:21	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_193 S: 35**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	3	**Cal. Ver. Data Filename:**	QG1K_193 S: 25
Concentration Units:	ng absolute	**% Moisture:**	33.0

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This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol	X				
D6-Metformin	X				
D3-Cotinine	X				
D3-Cimetidine	X				
D5-Enalapril	X				
D6-Oxycodone	X				
D4-Clonidine	D	400	432	108	7:03
D5-Amphetamine	X				
D6-Codeine	X				
D3-Hydrocodone	X				
D7-Atenolol	X				

(1) Where applicable, custom lab flags have been used on this report; D = dilution data; X = result reported separately.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-1_Form2_QG1K_193S35_SJ1380946.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 19:11:44	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 22**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	37.6

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This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	ND		0.288 (L)	
Amphetamine	NDR	5.67	4.80 (L)	7:46
Atenolol	ND		0.579 (S)	
Atorvastatin	ND		1.44 (L)	
Cimetidine	ND H		0.576 (L)	
Clonidine	ND		1.44 (L)	
Codeine	ND		2.88 (L)	
Cotinine	ND		1.44 (L)	
Enalapril	ND		0.288 (L)	
Hydrocodone	ND		1.44 (L)	
Metformin	ND		5.28 (S)	
Oxycodone	ND		0.576 (L)	
Ranitidine	ND		0.576 (L)	
Triamterene	ND		0.408 (S)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-2_Form1A_QG1K_188S22_SJ1380600.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 19:11:44	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 22**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng absolute	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol		100	52.8	52.8	8:25
D6-Metformin		400	73.2	18.3	9:34
D3-Cotinine		60.0	56.8	94.7	4:08
D3-Cimetidine	V	30.0	1.84	6.13	4:57
D5-Enalapril		20.0	21.0	105	6:25
D6-Oxycodone		60.0	52.3	87.1	7:19
D4-Clonidine		400	430	108	7:03
D5-Amphetamine		20.0	10.9	54.3	8:02
D6-Codeine		200	149	74.6	8:42
D3-Hydrocodone		60.0	46.1	76.9	9:00
D7-Atenolol		60.0	49.9	83.1	8:57

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-2_Form2_QG1K_188S22_SJ1380600.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.06 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 19:31:19	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 23**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.7

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	ND		0.295 (S)	
Amphetamine	NDR	4.82	4.72 (L)	8:02
Atenolol	ND		0.734 (S)	
Atorvastatin	ND		1.41 (L)	
Cimetidine	ND H		0.566 (L)	
Clonidine	X			
Codeine	ND		2.83 (L)	
Cotinine	ND		1.41 (L)	
Enalapril	ND		0.283 (L)	
Hydrocodone	ND		1.41 (L)	
Metformin	ND		6.44 (S)	
Oxycodone	ND		0.566 (L)	
Ranitidine	ND		0.911 (S)	
Triamterene	X			

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; X = result reported separately; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

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Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-3_Form1A_QG1K_188S23_SJ1380601.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3 N
Matrix:	SOLID	**Sample Size:**	1.06 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	20-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	20-Oct-2011 **Time:** 14:00:41	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_193 S: 37**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	3	**Cal. Ver. Data Filename:**	QG1K_193 S: 25
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.7

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	X			
Amphetamine	X			
Atenolol	X			
Atorvastatin	X			
Cimetidine	X			
Clonidine	ND D		14.1 (L)	
Codeine	X			
Cotinine	X			
Enalapril	X			
Hydrocodone	X			
Metformin	X			
Oxycodone	X			
Ranitidine	X			
Triamterene	X			

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; D = dilution data; X = result reported separately.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

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Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-3_Form1A_QG1K_193S37_SJ1380948.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.06 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 19:31:19	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 23**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng absolute	**% Moisture:**	38.7

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LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol		100	53.2	53.2	8:19
D6-Metformin		400	92.6	23.2	9:38
D3-Cotinine		60.0	62.7	105	4:11
D3-Cimetidine	V	30.0	1.32	4.39	4:58
D5-Enalapril		20.0	20.5	103	6:25
D6-Oxycodone		60.0	51.1	85.2	7:19
D4-Clonidine	X				
D5-Amphetamine		20.0	10.7	53.5	8:02
D6-Codeine		200	142	70.8	8:42
D3-Hydrocodone		60.0	44.8	74.6	9:00
D7-Atenolol		60.0	53.4	89.0	8:57

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits; X = result reported separately.
(2) R(%) = percent recovery.

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Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-3_Form2_QG1K_188S23_SJ1380601.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3 N
Matrix:	SOLID	**Sample Size:**	1.06 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	20-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	20-Oct-2011 **Time:** 14:00:41	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_193 S: 37**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	3	**Cal. Ver. Data Filename:**	QG1K_193 S: 25
Concentration Units:	ng absolute	**% Moisture:**	38.7

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LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol	X				
D6-Metformin	X				
D3-Cotinine	X				
D3-Cimetidine	X				
D5-Enalapril	X				
D6-Oxycodone	X				
D4-Clonidine	D	400	373	93.2	7:03
D5-Amphetamine	X				
D6-Codeine	X				
D3-Hydrocodone	X				
D7-Atenolol	X				

(1) Where applicable, custom lab flags have been used on this report; D = dilution data; X = result reported separately.
(2) R(%) = percent recovery.

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Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-3_Form2_QG1K_193S37_SJ1380948.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.01 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 19:51:03	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 24**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	ND		0.375 (S)	
Amphetamine	NDR	6.16	4.97 (L)	8:14
Atenolol		0.768	0.660 (S)	8:49
Atorvastatin	ND		1.49 (L)	
Cimetidine	ND		0.597 (L)	
Clonidine	ND		1.49 (L)	
Codeine	ND		3.55 (S)	
Cotinine	ND		1.49 (L)	
Enalapril	ND		0.298 (L)	
Hydrocodone	ND		1.49 (L)	
Metformin	ND		4.74 (S)	
Oxycodone	ND		0.597 (L)	
Ranitidine	ND		0.612 (S)	
Triamterene	ND		0.445 (S)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NDR = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-4_Form1A_QG1K_188S24_SJ1380602.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.01 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 19:51:03	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 24**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng absolute	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol		100	55.5	55.5	8:25
D6-Metformin		400	154	38.4	9:38
D3-Cotinine		60.0	66.4	111	4:09
D3-Cimetidine	V	30.0	2.48	8.27	4:55
D5-Enalapril		20.0	22.6	113	6:25
D6-Oxycodone		60.0	48.0	80.0	7:19
D4-Clonidine		400	488	122	7:03
D5-Amphetamine		20.0	10.8	53.8	8:08
D6-Codeine		200	160	79.9	8:45
D3-Hydrocodone		60.0	61.8	103	9:00
D7-Atenolol		60.0	66.4	111	8:57

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_L16978-4_Form2_QG1K_188S24_SJ1380602.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.08 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 20:10:39	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 25**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	ND		0.279 (L)	
Amphetamine	ND		4.64 (L)	
Atenolol	ND		0.614 (S)	
Atorvastatin	ND		1.39 (L)	
Cimetidine	ND H		2.68 (S)	
Clonidine	ND		1.39 (L)	
Codeine	ND		2.79 (L)	
Cotinine	ND		1.39 (L)	
Enalapril	ND		0.279 (L)	
Hydrocodone	ND		1.39 (L)	
Metformin	ND		5.66 (S)	
Oxycodone	ND		0.557 (L)	
Ranitidine	ND		0.557 (L)	
Triamterene	ND		0.444 (S)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_BEP_L16978-5_Form1A_QG1K_188S25_SJ1380603.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.08 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 20:10:39	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 25**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng absolute	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol		100	57.4	57.4	8:25
D6-Metformin		400	62.5	15.6	9:34
D3-Cotinine		60.0	59.9	99.9	4:13
D3-Cimetidine	V	30.0	1.46	4.86	4:54
D5-Enalapril		20.0	20.3	102	6:25
D6-Oxycodone		60.0	47.3	78.8	7:19
D4-Clonidine		400	497	124	7:03
D5-Amphetamine		20.0	10.9	54.5	8:08
D6-Codeine		200	154	76.9	8:42
D3-Hydrocodone		60.0	52.2	87.0	9:00
D7-Atenolol		60.0	56.2	93.6	8:57

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_BEP_L16978-5_Form2_QG1K_188S25_SJ1380603.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37879-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 18:12:40	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 19**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng/g		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Albuterol	ND		0.300 (L)	
Amphetamine	ND		5.00 (L)	
Atenolol	ND		0.723 (S)	
Atorvastatin	ND		1.50 (L)	
Cimetidine	ND		0.600 (L)	
Clonidine	ND		1.50 (L)	
Codeine	ND		3.00 (L)	
Cotinine	ND		1.50 (L)	
Enalapril	ND		0.300 (L)	
Hydrocodone	ND		1.50 (L)	
Metformin	ND		3.44 (S)	
Oxycodone	ND		0.600 (L)	
Ranitidine	ND		0.600 (L)	
Triamterene	ND		0.312 (S)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_BEP_WG37879-101_Form1A_QG1K_188S19_SJ1380595.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37879-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 18:12:40	**Column ID:**	HILIC
Extract Volume (uL):	4000	**Sample Data Filename:**	**QG1K_188 S: 19**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12
Concentration Units:	ng absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
D3-Albuterol		100	67.5	67.5	8:25
D6-Metformin		400	130	32.5	9:38
D3-Cotinine		60.0	61.8	103	4:09
D3-Cimetidine		30.0	9.29	31.0	4:54
D5-Enalapril		20.0	23.2	116	6:25
D6-Oxycodone		60.0	41.8	69.6	7:19
D4-Clonidine	V	400	551	138	7:03
D5-Amphetamine		20.0	10.4	52.2	8:08
D6-Codeine		200	137	68.5	8:45
D3-Hydrocodone		60.0	48.3	80.4	9:00
D7-Atenolol		60.0	52.3	87.1	8:57

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 22-Nov-2011 16:23:12; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_BEP_WG37879-101_Form2_QG1K_188S19_SJ1380595.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8A

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37879-102
Matrix:	SOLID	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 16:54:01	**Column ID:**	HILIC
Extract Volume (uL):	4000	**OPR Data Filename:**	**QG1K_188 S: 15**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
Albuterol		15.0	14.9	99.0	8:19
Amphetamine		75.0	68.0	90.7	8:02
Atenolol		30.0	27.0	90.0	8:57
Atorvastatin		75.0	64.2	85.6	3:57
Cimetidine		30.0	26.5	88.2	4:50
Clonidine		75.0	83.3	111	6:57
Codeine		150	127	84.9	8:30
Cotinine		75.0	73.3	97.8	4:03
Enalapril		15.0	14.0	93.5	6:25
Hydrocodone	N	75.0	33.9	45.2	8:49
Metformin		150	123	82.1	9:34
Oxycodone		30.0	25.5	85.1	6:57
Ranitidine	N	30.0	6.17	20.6	8:49
Triamterene		15.0	12.7	84.8	5:21

(1) Where applicable, custom lab flags have been used on this report; N = authentic recovery is not within method/contract control limits.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: LC_PPC_LC_PPC075_BEP_WG37879-102_Form8A_SJ1380589.html; Workgroup: WG37879; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8B

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37879-102
Matrix:	SOLID	**Initial Calibration Date:**	14-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	14-Oct-2011 **Time:** 16:54:01	**Column ID:**	HILIC
Extract Volume (uL):	4000	**OPR Data Filename:**	**QG1K_188 S: 15**
Injection Volume (uL):	5.0	**Blank Data Filename:**	QG1K_188 S: 19
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QG1K_188 S: 12

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
D3-Albuterol		100	71.6	71.6	8:19
D6-Metformin		400	300	74.9	9:38
D3-Cotinine		60.0	57.7	96.1	4:05
D3-Cimetidine		30.0	17.2	57.3	4:54
D5-Enalapril		20.0	19.5	97.6	6:21
D6-Oxycodone		60.0	45.4	75.6	7:14
D4-Clonidine		400	458	115	7:03
D5-Amphetamine		20.0	10.5	52.4	8:02
D6-Codeine		200	146	72.9	8:42
D3-Hydrocodone		60.0	50.4	84.1	9:00
D7-Atenolol		60.0	49.8	83.0	8:57

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: LC_PPC_LC_PPC075_BEP_WG37879-102_Form8B_SJ1380589.html; Workgroup: WG37879; Design ID: 1482]

AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
1,2,3,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD	1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF			1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls												
PCB 1 2-Chlorobiphenyl	7	7								7	7	
PCB 3 4-Chlorobiphenyl	7	7								7	7	
PCB 4 2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5 2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15 4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18 2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19 2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31 2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37 3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44 2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52 2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54 2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66 2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77 3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81 3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87 2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

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Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

AXYS Analytical Services Ltd.

Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37878	***Date:*** 16-Nov-2011
Analysis Type: (AP1) Pharmaceutical & Personal Care Products	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520

Samples:

L16978-1	BQ5956-10R
L16978-2	BR3044-10R
L16978-3	BR3045-10R
L16978-4	BR3046-10R
L16978-5	BQ9606-10R

Blank: WG37878-101

Reference or Spike: WG37878-102

Duplicate:

Comments:

1. Data are not blank corrected. Oxolinic Acid and Sarafloxacin were detected in the Lab Blank (AXYS ID: WG37878-101) at levels slightly above their respective reporting limits. These targets were not detected in client samples; data are not considered affected.
2. At least 5 calibration points were used in quantification of the initial calibration (QA1J_152 S: 5 to S: 11) for all the analytes. The lowest level calibration standard CS0 for Clinafloxacin and Digoxigenin, were excluded from the initial calibration as results for these analytes did not meet method specifications. As a result, the CS1 level of the calibration was used as detection qualifier for these analytes in samples.
3. In the OPR (AXYS ID: WG37878-102), Azithromycin, Diphenhydramine and Ofloxacin were observed outside the method specifications and are flagged with an 'N' on reports. Data may be considered similarly affected.
4. In the OPR (AXYS ID: WG37878-102) 13C2-15N-Acetaminophan, 13C3-Caffeine and 13C2-Erythromycin-H_2O were observed above method specifications. Target analytes quantified by these surrogates were observed within method control limits. Data are not considered affected by these variances.
5. The recovery of several surrogates in client samples BQ5956-10R, BR3044-10R, BR3046-10R and BQ9606-10R (AXYS ID: L16978-1, -2, -4, -5) recovered above the upper control limit, these compounds are flagged with a 'V'. Targets were not detected in all client samples in this batch, and data are considered not significantly affected by this variance. Percent surrogate recoveries are used as general method performance indicator only.
6. In the Lab Blank (AXYS ID: WG37878-101),13C3-N15-Ciprofloxacin did not meet the method criteria; this compound is flagged with a 'V'. In all client samples, this surrogate was not recovered. All associated analytes are deemed not quantifiable and are flagged 'NQ' on reports.

AXYS METHOD MLA-075 Rev 3

Form 3A
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 12-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QA1J_152 S: 5
CS1 Data Filename: QA1J_152 S: 6
CS2 Data Filename: QA1J_152 S: 7
CS3 Data Filename: QA1J_152 S: 8
CS4 Data Filename: QA1J_152 S: 9
CS5 Data Filename: QA1J_152 S: 10
CS6 Data Filename: QA1J_152 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERY (%)								
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
Acetaminophen		107	99.2	101	88.4	104	100	100		
Azithromycin		119	91.7	91.2	99.6	97.5	101			
Caffeine		86.1	92.9	110	96.2	109	107	98.1		
Carbadox		96.6	97.7	114	89.5	102				
Carbamazepine		130	103	91.0	96.7	87.4	89.1	103		
Cefotaxime		140	79.0	88.2	89.1	104				
Ciprofloxacin		96.8	85.6	88.2	103	123	107	97.6		
Clarithromycin		85.5	97.7	114	98.6	106	98.4			
Clinafloxacin			135	86.3	81.7	94.8	103			
Cloxacillin		77.6	89.1	114	115	108	96.8			
Dehydronifedipine		135	84.8	84.8	92.2	103				
Diphenhydramine		101	92.7	97.0	109	100	99.3			
Diltiazem		117	86.0	93.0	105	99.7	99.9			
Digoxin		124	97.1	85.8	102	88.0	103			
Digoxigenin			116	94.3	92.9	94.6	102			
Enrofloxacin		111	98.8	94.3	89.7	105	103	99.4		
Erythromycin-H2O		108	72.6	110	95.5	109	107	98.3		
Flumequine		63.4	87.5	108	122	117	104	98.1		
Fluoxetine		135	110	96.1	77.2	89.6	88.1	103		
Lincomycin		131	92.2	89.0	91.3	93.9	102			
Lomefloxacin		93.0	95.4	104	99.0	108	101	99.4		
Miconazole		131	87.8	87.9	94.4	97.5	101			
Norfloxacin		89.0	81.3	98.7	115	122	93.4			
Norgestimate		134	89.6	78.7	95.1	103				
Ofloxacin		86.3	93.5	111	98.2	114	96.4			
Ormetoprim		68.9	92.9	113	118	111	95.7			
Oxacillin		109	101	112	111	84.9	77.0	105		
Oxolinic Acid		138	75.9	87.7	96.5	102				
Penicillin G		128	101	103	92.6	90.1	80.3	105		
Penicillin V		110	74.2	97.6	114	108	97.2			
Roxithromycin		91.6	103	114	90.9	99.8	101			
Sarafloxacin		87.4	97.9	106	97.4	115	96.4			
Sulfachloropyridazine		81.1	104	111	95.4	112	97.1	100		
Sulfadiazine		106	103	103	85.0	103	100			
Sulfadimethoxine		126	93.2	90.5	85.5	105				

COMPOUND	LAB FLAG [1]	PERCENT RECOVERY (%) CS0	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8
Sulfamerazine		115	99.0	105	81.6	97.8	102			
Sulfamethazine		111	88.4	112	85.6	103	100	100		
Sulfamethizole		131	104	93.7	73.0	95.4	103			
Sulfamethoxazole		123	87.9	100	87.9	100	101	100		
Sulfanilamide		111	105	116	74.1	101	90.6	102		
Sulfathiazole		120	96.6	94.9	83.7	105				
Thiabendazole		111	103	108	81.6	92.8	104	99.7		
Trimethoprim		123	89.3	101	89.2	101	95.9	101		
Tylosin		69.6	98.2	110	106	113	105	98.3		
Virginiamycin		121	96.4	88.0	96.5	96.8	101			
1,7-Dimethylxanthine		128	97.6	95.4	78.4	98.1	102			

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

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AXYS METHOD MLA-075 Rev 3

Form 3B
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 12-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QA1J_152 S: 5
CS1 Data Filename: QA1J_152 S: 6
CS2 Data Filename: QA1J_152 S: 7
CS3 Data Filename: QA1J_152 S: 8
CS4 Data Filename: QA1J_152 S: 9
CS5 Data Filename: QA1J_152 S: 10
CS6 Data Filename: QA1J_152 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERIES (%)								
LABELED COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
13C2-15N-Acetaminophen		96.8	94.2	90.4	95.3	94.1	112	117		
13C3-Caffeine		100	97.4	91.6	102	96.9	114	97.4		
13C3-N15-Ciprofloxacin		91.4	82.5	86.4	101	96.0	119	124		
13C2-Erythromycin-H2O		88.8	87.1	80.7	107	91.1	109	136		
D5-Fluoxetine		103	92.6	89.1	108	99.3	116	91.8		
13C6-Sulfamethazine		96.5	90.5	82.5	97.2	94.1	116	123		
13C6-Sulfamethoxazole		104	99.2	93.2	104	94.5	104	101		
D6-Thiabendazole		110	102	95.2	115	95.4	81.9			
13C3-Trimethoprim		107	105	95.8	89.4	95.6	110	96.9		

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: GENERIC-SPECS_PPC_LC_12-Oct-2011_QA1J__Form3B_GS43289.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3C
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 12-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QA1J_152 S: 5
CS1 Data Filename: QA1J_152 S: 6
CS2 Data Filename: QA1J_152 S: 7
CS3 Data Filename: QA1J_152 S: 8
CS4 Data Filename: QA1J_152 S: 9
CS5 Data Filename: QA1J_152 S: 10
CS6 Data Filename: QA1J_152 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
Acetaminophen		4:30	4:28	4:37	4:37	4:29	4:34	4:25			4:31
Azithromycin		13:26	13:26	13:26	13:26	13:26	13:26				13:26
Caffeine		9:19	9:19	9:19	9:19	9:19	9:19	9:19			9:19
Carbadox		10:32	10:32	10:32	10:32	10:32					10:32
Carbamazepine		15:23	15:23	15:23	15:23	15:23	15:23	15:23			15:23
Cefotaxime		10:05	10:05	10:05	10:05	10:05					10:05
Ciprofloxacin		10:48	10:48	10:48	10:48	10:48	10:48	10:48			10:48
Clarithromycin		17:28	17:24	17:24	17:24	17:24	17:24				17:25
Clinafloxacin			12:00	12:00	12:00	12:00	12:00				12:00
Cloxacillin		16:45	16:41	16:41	16:41	16:41	16:41				16:42
Dehydronifedipine		16:35	16:31	16:31	16:31	16:31					16:32
Diphenhydramine		14:24	14:24	14:24	14:24	14:24	14:24				14:24
Diltiazem		15:09	15:09	15:09	15:09	15:09	15:09				15:09
Digoxin		16:35	16:35	16:39	16:35	16:39	16:35				16:36
Digoxigenin			12:43	12:43	12:43	12:41	12:41				12:42
Enrofloxacin		11:13	11:13	11:13	11:13	11:13	11:13	11:13			11:13
Erythromycin-H2O		17:33	16:45	16:45	16:45	16:45	16:45	16:45			16:52
Flumequine		15:09	15:12	15:12	15:09	15:09	15:09	15:09			15:10
Fluoxetine		16:50	16:50	16:50	16:50	16:50	16:50	16:50			16:50
Lincomycin		9:19	9:19	9:19	9:19	9:19	9:19				9:19
Lomefloxacin		11:05	11:05	11:05	11:05	11:05	11:05	11:05			11:05
Miconazole		20:51	20:49	20:49	20:51	20:51	20:49				20:50
Norfloxacin		10:35	10:35	10:35	10:35	10:35	10:35				10:35
Norgestimate		21:48	21:43	21:43	21:43	21:43					21:44
Ofloxacin		10:32	10:32	10:32	10:32	10:32	10:29				10:32
Ormetoprim		10:29	10:29	10:29	10:29	10:29	10:29				10:29
Oxacillin		16:09	16:09	16:09	16:09	16:09	16:09	16:09			16:09
Oxolinic Acid		13:07	13:07	13:07	13:07	13:07					13:07
Penicillin G		14:21	14:21	14:21	14:21	14:21	14:21	14:18			14:21
Penicillin V		15:12	15:09	15:12	15:09	15:09	15:09				15:10
Roxithromycin		17:37	17:37	17:37	17:37	17:37	17:37				17:37
Sarafloxacin		11:46	11:48	11:48	11:48	11:48	11:48				11:48
Sulfachloropyridazine		10:55	10:55	10:58	10:58	10:58	10:55	10:55			10:56
Sulfadiazine		6:17	6:22	6:18	6:19	6:19	6:19				6:19
Sulfadimethoxine		13:16	13:16	13:16	13:16	13:16					13:16

COMPOUND	LAB FLAG [1]	RETENTION TIMES CS0	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8	MEAN RT
Sulfamerazine		8:51	8:54	8:54	8:54	8:51	8:51				8:53
Sulfamethazine		10:15	10:12	10:12	10:12	10:12	10:12	10:12			10:12
Sulfamethizole		10:05	10:05	10:05	10:05	10:05	10:05				10:05
Sulfamethoxazole		11:22	11:20	11:20	11:20	11:20	11:20	11:20			11:20
Sulfanilamide		2:09	2:09	2:09	2:09	2:09	2:08	2:08			2:09
Sulfathiazole		8:03	8:00	8:03	8:03	8:03					8:02
Thiabendazole		10:42	10:42	10:42	10:42	10:42	10:42	10:42			10:42
Trimethoprim		9:53	9:53	9:53	9:53	9:53	9:53	9:53			9:53
Tylosin		16:18	16:18	16:18	16:18	16:18	16:18	16:18			16:18
Virginiamycin		17:20	17:20	17:20	17:20	17:20	17:20				17:20
1,7-Dimethylxanthine		6:49	7:08	7:08	7:09	7:06	7:06				7:04

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

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Report Filename: GENERIC-SPECS_PPC_LC_12-Oct-2011_QA1J__Form3C_GS43289.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3D
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 12-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QA1J_152 S: 5
CS1 Data Filename: QA1J_152 S: 6
CS2 Data Filename: QA1J_152 S: 7
CS3 Data Filename: QA1J_152 S: 8
CS4 Data Filename: QA1J_152 S: 9
CS5 Data Filename: QA1J_152 S: 10
CS6 Data Filename: QA1J_152 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES								
LABELED COMPOUND	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
13C2-15N-Acetaminophen		4:27	4:37	4:29	4:30	4:33	4:33	4:23			4:30
13C3-Caffeine		9:19	9:19	9:19	9:19	9:19	9:19	9:19			9:19
13C3-N15-Ciprofloxacin		10:48	10:48	10:48	10:48	10:48	10:48	10:48			10:48
13C2-Erythromycin-H2O		16:45	16:45	16:45	16:45	16:45	16:45	16:45			16:45
D5-Fluoxetine		16:50	16:45	16:45	16:45	16:45	16:45	16:45			16:46
13C6-Sulfamethazine		10:12	10:12	10:12	10:12	10:12	10:12	10:12			10:12
13C6-Sulfamethoxazole		11:20	11:20	11:20	11:20	11:20	11:20	11:20			11:20
D6-Thiabendazole		10:35	10:35	10:35	10:35	10:35	10:35				10:35
13C3-Trimethoprim		9:53	9:53	9:53	9:53	9:53	9:53	9:53			9:53

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form3D.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_12-Oct-2011_QA1J__Form3D_GS43289.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4A
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	12-Oct-2011	**VER Data Filename:**	QA1J_152 S: 13
Instrument ID:	LC MS/MS	**Analysis Date:**	12-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	23:03:27

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Acetaminophen		4:25	750	667	88.9
Azithromycin		13:26	75.0	57.1	76.1
Caffeine		9:19	750	710	94.6
Carbadox		10:32	75.0	54.2	72.3
Carbamazepine		15:23	75.0	52.1	69.5
Cefotaxime		10:05	186	128	68.8
Ciprofloxacin		10:48	300	324	108
Clarithromycin		17:24	75.0	71.5	95.4
Clinafloxacin		12:00	300	235	78.5
Cloxacillin		16:41	150	136	91.0
Dehydronifedipine		16:31	30.0	23.9	79.8
Diphenhydramine		14:24	30.0	23.6	78.5
Diltiazem		15:09	15.0	12.2	81.3
Digoxin		16:35	300	242	80.7
Digoxigenin		12:41	300	220	73.5
Enrofloxacin		11:13	150	132	88.1
Erythromycin-H2O		16:45	15.0	14.3	95.0
Flumequine		15:09	75.0	70.1	93.4
Fluoxetine		16:50	75.0	59.1	78.7
Lincomycin		9:19	150	113	75.6
Lomefloxacin		11:05	150	127	84.8
Miconazole		20:49	75.0	56.9	75.9
Norfloxacin		10:35	750	934	125
Norgestimate		21:42	150	120	80.0
Ofloxacin		10:32	75.0	72.3	96.4
Ormetoprim		10:29	30.0	28.5	94.9
Oxacillin		16:09	150	123	81.8
Oxolinic Acid		13:07	30.0	23.2	77.2
Penicillin G		14:21	150	130	86.5
Penicillin V		15:09	150	147	98.1
Roxithromycin		17:37	15.0	12.5	83.5
Sarafloxacin		11:48	750	651	86.8
Sulfachloropyridazine		10:55	75.0	70.5	93.9
Sulfadiazine		6:17	75.0	64.1	85.4
Sulfadimethoxine		13:13	15.0	14.7	98.1

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Sulfamerazine		8:51	30.0	24.2	80.6
Sulfamethazine		10:12	30.0	25.9	86.2
Sulfamethizole		10:05	30.0	23.5	78.3
Sulfamethoxazole		11:18	30.0	26.3	87.8
Sulfanilamide		2:08	750	629	83.8
Sulfathiazole		8:03	75.0	70.2	93.6
Thiabendazole		10:42	75.0	67.4	89.8
Trimethoprim		9:53	75.0	64.6	86.2
Tylosin		16:18	300	291	97.0
Virginiamycin		17:20	150	115	76.6
1,7-Dimethylxanthine		7:05	3000	2540	84.5

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4A.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QA1J_152S13__Form4A_SJ1369825.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4B
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	12-Oct-2011	**VER Data Filename:**	QA1J_152 S: 13
Instrument ID:	LC MS/MS	**Analysis Date:**	12-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	23:03:27

LABELED COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
13C2-15N-Acetaminophen		4:33	200	278	139
13C3-Caffeine		9:19	300	350	117
13C3-N15-Ciprofloxacin		10:48	400	570	142
13C2-Erythromycin-H2O		16:45	100	118	118
D5-Fluoxetine		16:45	100	126	126
13C6-Sulfamethazine		10:12	100	116	116
13C6-Sulfamethoxazole		11:18	100	113	113
D6-Thiabendazole		10:35	100	117	117
13C3-Trimethoprim		9:53	100	130	130

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4B.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QA1J_152S13__Form4B_SJ1369825.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 04:22:02	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 22**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Acetaminophen	ND		14.6 (L)	
Azithromycin	ND		1.46 (L)	
Caffeine	ND		14.6 (L)	
Carbadox	ND		1.46 (L)	
Carbamazepine	ND		1.46 (L)	
Cefotaxime	ND		4.19 (S)	
Ciprofloxacin	NQ			
Clarithromycin	ND		1.46 (L)	
Clinafloxacin	NQ			
Cloxacillin	ND		2.92 (L)	
Dehydronifedipine	ND		0.585 (L)	
Diphenhydramine	ND		0.585 (L)	
Diltiazem	ND		0.292 (L)	
Digoxin	ND		5.85 (L)	
Digoxigenin	ND		21.1 (S)	
Enrofloxacin	NQ			
Erythromycin-H2O	ND		0.292 (L)	
Flumequine	ND		1.46 (L)	
Fluoxetine	ND		1.46 (L)	
Lincomycin	ND		2.92 (L)	
Lomefloxacin	NQ			
Miconazole	ND		1.46 (L)	
Norfloxacin	NQ			
Norgestimate	ND		4.31 (S)	
Ofloxacin	NQ			
Ormetoprim	ND		0.585 (L)	
Oxacillin	ND		2.92 (L)	
Oxolinic Acid	ND		0.585 (L)	
Penicillin G	ND		2.92 (L)	

This page is part of a total report that contains information necessary for accreditation compliance.
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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Penicillin V	ND		2.92 (L)	
Roxithromycin	ND		0.292 (L)	
Sarafloxacin	NQ			
Sulfachloropyridazine	ND		1.46 (L)	
Sulfadiazine	ND		1.46 (L)	
Sulfadimethoxine	ND		0.292 (L)	
Sulfamerazine	ND		0.585 (L)	
Sulfamethazine	ND		0.585 (L)	
Sulfamethizole	ND		0.585 (L)	
Sulfamethoxazole	ND		0.585 (L)	
Sulfanilamide	ND		14.6 (L)	
Sulfathiazole	ND		1.46 (L)	
Thiabendazole	ND		1.46 (L)	
Trimethoprim	ND		1.46 (L)	
Tylosin	ND		5.85 (L)	
Virginiamycin	ND		2.92 (L)	
1,7-Dimethylxanthine [3]	ND		58.5 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with Theophylline, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-1_Form1A_QA1J_152S22_SJ1369838.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 04:22:02	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 22**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng absolute	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
13C2-15N-Acetaminophen	V	200	439	219	4:23
13C3-Caffeine		300	342	114	9:19
13C3-N15-Ciprofloxacin	NQ				
13C2-Erythromycin-H2O		100	91.7	91.7	16:45
D5-Fluoxetine		100	43.9	43.9	16:45
13C6-Sulfamethazine		100	131	131	10:12
13C6-Sulfamethoxazole		100	112	112	11:18
D6-Thiabendazole		100	104	104	10:35
13C3-Trimethoprim		100	118	118	9:53

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits; NQ = data not quantifiable.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-1_Form2_QA1J_152S22_SJ1369838.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 04:57:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 23**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Acetaminophen	ND		14.4 (L)	
Azithromycin	ND		1.44 (L)	
Caffeine	ND		14.4 (L)	
Carbadox	ND		1.44 (L)	
Carbamazepine	ND		1.44 (L)	
Cefotaxime	ND		3.59 (S)	
Ciprofloxacin	NQ			
Clarithromycin	ND		1.44 (L)	
Clinafloxacin	NQ			
Cloxacillin	ND		2.88 (L)	
Dehydronifedipine	ND		0.576 (L)	
Diphenhydramine	ND		0.576 (L)	
Diltiazem	ND		0.288 (L)	
Digoxin	ND		5.76 (L)	
Digoxigenin	ND		21.7 (S)	
Enrofloxacin	NQ			
Erythromycin-H2O	ND		0.288 (L)	
Flumequine	ND		1.44 (L)	
Fluoxetine	ND		1.44 (L)	
Lincomycin	ND		2.88 (L)	
Lomefloxacin	NQ			
Miconazole		1.47	1.44 (L)	20:49
Norfloxacin	NQ			
Norgestimate	ND		3.89 (S)	
Ofloxacin	NQ			
Ormetoprim	ND		0.576 (L)	
Oxacillin	ND		2.88 (L)	
Oxolinic Acid	ND		0.576 (L)	
Penicillin G	ND		2.88 (L)	

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Penicillin V	ND		2.88 (L)	
Roxithromycin	ND		0.288 (L)	
Sarafloxacin	NQ			
Sulfachloropyridazine	ND		1.44 (L)	
Sulfadiazine	ND		1.44 (L)	
Sulfadimethoxine	ND		0.288 (L)	
Sulfamerazine	ND		0.576 (L)	
Sulfamethazine	ND		0.576 (L)	
Sulfamethizole	ND		0.576 (L)	
Sulfamethoxazole	ND		0.576 (L)	
Sulfanilamide	ND		14.4 (L)	
Sulfathiazole	ND		1.44 (L)	
Thiabendazole	ND		1.44 (L)	
Trimethoprim	ND		1.44 (L)	
Tylosin	ND		5.76 (L)	
Virginiamycin	ND		2.88 (L)	
1,7-Dimethylxanthine [3]	ND		57.6 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with Theophylline, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-2_Form1A_QA1J_152S23_SJ1369839.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 04:57:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 23**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng absolute	**% Moisture:**	37.6

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LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
13C2-15N-Acetaminophen	V	200	413	206	4:20
13C3-Caffeine		300	396	132	9:19
13C3-N15-Ciprofloxacin	NQ				
13C2-Erythromycin-H2O	V	100	139	139	16:45
D5-Fluoxetine	V	100	182	182	16:45
13C6-Sulfamethazine		100	117	117	10:12
13C6-Sulfamethoxazole		100	105	105	11:18
D6-Thiabendazole		100	105	105	10:35
13C3-Trimethoprim	V	100	144	144	9:53

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits; NQ = data not quantifiable.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-2_Form2_QA1J_152S23_SJ1369839.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 05:32:48	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 24**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.7

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Acetaminophen	ND		13.7 (L)	
Azithromycin	ND		1.37 (L)	
Caffeine	ND		13.7 (L)	
Carbadox	ND		1.37 (L)	
Carbamazepine	ND		1.37 (L)	
Cefotaxime	ND		3.59 (S)	
Ciprofloxacin	NQ			
Clarithromycin	ND		1.37 (L)	
Clinafloxacin	NQ			
Cloxacillin	ND		2.73 (L)	
Dehydronifedipine	ND		0.547 (L)	
Diphenhydramine	ND		0.547 (L)	
Diltiazem	ND		0.273 (L)	
Digoxin	ND		5.47 (L)	
Digoxigenin	ND		18.2 (L)	
Enrofloxacin	NQ			
Erythromycin-H2O	ND		0.273 (L)	
Flumequine	ND		1.37 (L)	
Fluoxetine	ND		1.37 (L)	
Lincomycin	ND		2.73 (L)	
Lomefloxacin	NQ			
Miconazole	ND		1.37 (L)	
Norfloxacin	NQ			
Norgestimate	ND		4.00 (S)	
Ofloxacin	NQ			
Ormetoprim	ND		0.547 (L)	
Oxacillin	ND		2.73 (L)	
Oxolinic Acid	ND		0.547 (L)	
Penicillin G	ND		2.73 (L)	

This page is part of a total report that contains information necessary for accreditation compliance.
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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Penicillin V	ND		2.73 (L)	
Roxithromycin	ND		0.273 (L)	
Sarafloxacin	NQ			
Sulfachloropyridazine	ND		1.37 (L)	
Sulfadiazine	ND		1.37 (L)	
Sulfadimethoxine	ND		0.273 (L)	
Sulfamerazine	ND		0.547 (L)	
Sulfamethazine	ND		0.547 (L)	
Sulfamethizole	ND		0.547 (L)	
Sulfamethoxazole	ND		0.547 (L)	
Sulfanilamide	ND		13.7 (L)	
Sulfathiazole	ND		1.37 (L)	
Thiabendazole	ND		1.37 (L)	
Trimethoprim	ND		1.37 (L)	
Tylosin	ND		5.47 (L)	
Virginiamycin	ND		2.73 (L)	
1,7-Dimethylxanthine [3]	ND		54.7 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with Theophylline, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-3_Form1A_QA1J_152S24_SJ1369840.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 05:32:48	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 24**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng absolute	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
13C2-15N-Acetaminophen		200	238	119	4:21
13C3-Caffeine		300	366	122	9:19
13C3-N15-Ciprofloxacin	NQ				
13C2-Erythromycin-H2O		100	123	123	16:45
D5-Fluoxetine		100	136	136	16:45
13C6-Sulfamethazine		100	124	124	10:12
13C6-Sulfamethoxazole		100	111	111	11:18
D6-Thiabendazole		100	115	115	10:35
13C3-Trimethoprim		100	132	132	9:53

(1) Where applicable, custom lab flags have been used on this report; NQ = data not quantifiable.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-3_Form2_QA1J_152S24_SJ1369840.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 06:08:11	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 25**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Acetaminophen	ND		14.6 (L)	
Azithromycin	ND		1.46 (L)	
Caffeine	ND		14.6 (L)	
Carbadox	ND		1.46 (L)	
Carbamazepine		2.22	1.46 (L)	15:20
Cefotaxime	ND		3.95 (S)	
Ciprofloxacin	NQ			
Clarithromycin	ND		1.46 (L)	
Clinafloxacin	NQ			
Cloxacillin	ND		2.93 (L)	
Dehydronifedipine	ND		0.586 (L)	
Diphenhydramine	ND		0.586 (L)	
Diltiazem	ND		0.293 (L)	
Digoxin	ND		5.86 (L)	
Digoxigenin	ND		25.7 (S)	
Enrofloxacin	NQ			
Erythromycin-H2O	ND		0.293 (L)	
Flumequine	ND		1.46 (L)	
Fluoxetine	ND		1.48 (S)	
Lincomycin	ND		2.93 (L)	
Lomefloxacin	NQ			
Miconazole	ND		1.46 (L)	
Norfloxacin	NQ			
Norgestimate	ND		4.09 (S)	
Ofloxacin	NQ			
Ormetoprim	ND		0.586 (L)	
Oxacillin	ND		2.93 (L)	
Oxolinic Acid	ND		0.586 (L)	
Penicillin G	ND		2.93 (L)	

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Penicillin V	ND		2.93 (L)	
Roxithromycin	ND		0.293 (L)	
Sarafloxacin	NQ			
Sulfachloropyridazine	ND		1.46 (L)	
Sulfadiazine	ND		1.46 (L)	
Sulfadimethoxine	ND		0.293 (L)	
Sulfamerazine	ND		0.586 (L)	
Sulfamethazine	ND		0.586 (L)	
Sulfamethizole	ND		0.586 (L)	
Sulfamethoxazole	ND		0.586 (L)	
Sulfanilamide	ND		14.6 (L)	
Sulfathiazole	ND		1.46 (L)	
Thiabendazole	ND		1.46 (L)	
Trimethoprim	ND		1.46 (L)	
Tylosin	ND		5.86 (L)	
Virginiamycin	ND		2.93 (L)	
1,7-Dimethylxanthine [3]	ND		58.6 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with Theophylline, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-4_Form1A_QA1J_152S25_SJ1369841.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 06:08:11	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 25**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng absolute	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
13C2-15N-Acetaminophen	V	200	419	210	4:25
13C3-Caffeine		300	376	125	9:19
13C3-N15-Ciprofloxacin	NQ				
13C2-Erythromycin-H2O		100	116	116	16:45
D5-Fluoxetine		100	47.6	47.6	16:45
13C6-Sulfamethazine		100	125	125	10:12
13C6-Sulfamethoxazole		100	113	113	11:18
D6-Thiabendazole		100	107	107	10:35
13C3-Trimethoprim		100	125	125	9:53

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits; NQ = data not quantifiable.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-4_Form2_QA1J_152S25_SJ1369841.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 06:43:34	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 26**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Acetaminophen	ND		14.0 (L)	
Azithromycin	ND		1.40 (L)	
Caffeine	ND		14.0 (L)	
Carbadox	ND		1.40 (L)	
Carbamazepine		1.49	1.40 (L)	15:20
Cefotaxime	ND		3.88 (S)	
Ciprofloxacin	NQ			
Clarithromycin	ND		1.40 (L)	
Clinafloxacin	NQ			
Cloxacillin	ND		2.80 (L)	
Dehydronifedipine	ND		0.560 (L)	
Diphenhydramine	ND		0.560 (L)	
Diltiazem	ND		0.280 (L)	
Digoxin	ND		5.60 (L)	
Digoxigenin	ND		22.5 (S)	
Enrofloxacin	NQ			
Erythromycin-H2O	ND		0.280 (L)	
Flumequine	ND		1.40 (L)	
Fluoxetine	ND		1.40 (L)	
Lincomycin	ND		2.80 (L)	
Lomefloxacin	NQ			
Miconazole		1.56	1.40 (L)	20:49
Norfloxacin	NQ			
Norgestimate	ND		4.66 (S)	
Ofloxacin	NQ			
Ormetoprim	ND		0.560 (L)	
Oxacillin	ND		2.80 (L)	
Oxolinic Acid	ND		0.560 (L)	
Penicillin G	ND		2.80 (L)	

This page is part of a total report that contains information necessary for accreditation compliance.
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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Penicillin V	ND		2.80 (L)	
Roxithromycin	ND		0.280 (L)	
Sarafloxacin	NQ			
Sulfachloropyridazine	ND		1.40 (L)	
Sulfadiazine	ND		1.40 (L)	
Sulfadimethoxine	ND		0.280 (L)	
Sulfamerazine	ND		0.560 (L)	
Sulfamethazine	ND		0.560 (L)	
Sulfamethizole	ND		0.560 (L)	
Sulfamethoxazole	ND		0.560 (L)	
Sulfanilamide	ND		14.0 (L)	
Sulfathiazole	ND		1.40 (L)	
Thiabendazole	ND		1.40 (L)	
Trimethoprim	ND		1.40 (L)	
Tylosin	ND		5.60 (L)	
Virginiamycin	ND		2.80 (L)	
1,7-Dimethylxanthine [3]	ND		56.0 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; NQ = data not quantifiable.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with Theophylline, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-5_Form1A_QA1J_152S26_SJ1369842.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 06:43:34	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 26**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng absolute	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
13C2-15N-Acetaminophen	V	200	427	214	4:30
13C3-Caffeine		300	407	136	9:19
13C3-N15-Ciprofloxacin	NQ				
13C2-Erythromycin-H2O		100	126	126	16:45
D5-Fluoxetine		100	108	108	16:45
13C6-Sulfamethazine		100	128	128	10:12
13C6-Sulfamethoxazole		100	111	111	11:18
D6-Thiabendazole		100	108	108	10:35
13C3-Trimethoprim		100	132	132	9:53

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits; NQ = data not quantifiable.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_L16978-5_Form2_QA1J_152S26_SJ1369842.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 03:11:09	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 20**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng/g		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Acetaminophen	ND		15.0 (L)	
Azithromycin	ND		1.50 (L)	
Caffeine	ND		15.0 (L)	
Carbadox	ND		1.50 (L)	
Carbamazepine	ND		1.50 (L)	
Cefotaxime	ND		4.90 (S)	
Ciprofloxacin	ND		6.00 (L)	
Clarithromycin	ND		1.50 (L)	
Clinafloxacin	ND		79.8 (S)	
Cloxacillin	ND		3.00 (L)	
Dehydronifedipine	ND		0.600 (L)	
Diphenhydramine	ND		0.600 (L)	
Diltiazem	ND		0.300 (L)	
Digoxin	ND		6.00 (L)	
Digoxigenin	ND		33.4 (S)	
Enrofloxacin	ND		7.23 (S)	
Erythromycin-H2O	ND		0.300 (L)	
Flumequine	ND		1.50 (L)	
Fluoxetine	ND		1.50 (L)	
Lincomycin	ND		3.00 (L)	
Lomefloxacin	ND		23.3 (S)	
Miconazole	ND		1.50 (L)	
Norfloxacin	ND		15.0 (L)	
Norgestimate	ND		5.21 (S)	
Ofloxacin	ND		5.28 (S)	
Ormetoprim	ND		0.600 (L)	
Oxacillin	ND		3.00 (L)	
Oxolinic Acid		0.618	0.600 (L)	13:07
Penicillin G	ND		3.00 (L)	

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Penicillin V	ND		3.00 (L)	
Roxithromycin	ND		0.300 (L)	
Sarafloxacin		40.4	37.4 (S)	11:48
Sulfachloropyridazine	ND		1.50 (L)	
Sulfadiazine	ND		1.50 (L)	
Sulfadimethoxine	ND		0.300 (L)	
Sulfamerazine	ND		0.600 (L)	
Sulfamethazine	ND		0.600 (L)	
Sulfamethizole	ND		0.600 (L)	
Sulfamethoxazole	ND		0.600 (L)	
Sulfanilamide	ND		15.0 (L)	
Sulfathiazole	ND		1.50 (L)	
Thiabendazole	ND		1.50 (L)	
Trimethoprim	ND		1.50 (L)	
Tylosin	ND		6.00 (L)	
Virginiamycin	ND		3.00 (L)	
1,7-Dimethylxanthine [3]	ND		60.0 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with Theophylline, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_WG37878-101_Form1A_QA1J_152S20_SJ1369834.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 03:11:09	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QA1J_152 S: 20**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13
Concentration Units:	ng absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
13C2-15N-Acetaminophen		200	176	88.0	4:32
13C3-Caffeine		300	245	81.7	9:19
13C3-N15-Ciprofloxacin	V	400	18.7	4.67	10:48
13C2-Erythromycin-H2O		100	67.6	67.6	16:45
D5-Fluoxetine		100	63.8	63.8	16:45
13C6-Sulfamethazine		100	57.9	57.9	10:12
13C6-Sulfamethoxazole		100	59.7	59.7	11:18
D6-Thiabendazole		100	55.9	55.9	10:35
13C3-Trimethoprim		100	55.9	55.9	9:53

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_WG37878-101_Form2_QA1J_152S20_SJ1369834.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8A

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102
Matrix:	SOLID	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 00:49:38	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QA1J_152 S: 16**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
Acetaminophen		750	667	89.0	4:27
Azithromycin	N	75.0	7.34	9.8	13:26
Caffeine		750	720	96.0	9:19
Carbadox		75.0	89.7	120	10:32
Carbamazepine		75.0	77.3	103	15:20
Cefotaxime		186	233	125	10:05
Ciprofloxacin		300	252	83.9	10:48
Clarithromycin		75.0	68.5	91.3	17:24
Clinafloxacin		300	404	135	12:00
Cloxacillin		150	171	114	16:41
Dehydronifedipine		30.0	43.4	145	16:31
Diphenhydramine	N	30.0	20.9	69.6	14:24
Diltiazem		15.0	11.5	76.5	15:09
Digoxin		300	366	122	16:35
Digoxigenin		300	348	116	12:43
Enrofloxacin		150	229	153	11:13
Erythromycin-H2O		15.0	15.1	101	16:45
Flumequine		75.0	76.1	101	15:12
Fluoxetine		75.0	49.4	65.9	16:50
Lincomycin		150	132	87.9	9:19
Lomefloxacin		150	447	298	11:05
Miconazole		75.0	43.7	58.2	20:49
Norfloxacin		750	743	99.0	10:35
Norgestimate		150	169	113	21:43
Ofloxacin	N	75.0	202	270	10:32
Ormetoprim		30.0	24.5	81.8	10:29
Oxacillin		150	117	78.1	16:09
Oxolinic Acid		30.0	28.9	96.3	13:07
Penicillin G		150	95.8	63.9	14:21
Penicillin V		150	173	116	15:09
Roxithromycin		15.0	10.9	72.7	17:37
Sarafloxacin		750	958	128	11:48
Sulfachloropyridazine		75.0	71.2	94.9	10:55
Sulfadiazine		75.0	71.7	95.6	6:17
Sulfadimethoxine		15.0	14.2	95.0	13:13

COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
Sulfamerazine		30.0	25.9	86.4	8:51
Sulfamethazine		30.0	24.9	83.1	10:12
Sulfamethizole		30.0	21.3	71.0	10:05
Sulfamethoxazole		30.0	25.6	85.5	11:18
Sulfanilamide		750	563	75.1	2:48
Sulfathiazole		75.0	56.0	74.7	8:00
Thiabendazole		75.0	68.4	91.2	10:42
Trimethoprim		75.0	64.2	85.5	9:53
Tylosin		300	309	103	16:18
Virginiamycin		150	183	122	17:20
1,7-Dimethylxanthine [2]		3000	3910	130	7:05

(1) Where applicable, custom lab flags have been used on this report; N = authentic recovery is not within method/contract control limits.
(2) Co-elutes with Theophylline, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: FC-Form8A.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_WG37878-102_Form8A_SJ1369828.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8B

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102
Matrix:	SOLID	**Initial Calibration Date:**	12-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	13-Oct-2011 **Time:** 00:49:38	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QA1J_152 S: 16**
Injection Volume (uL):	10	**Blank Data Filename:**	QA1J_152 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QA1J_152 S: 13

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
13C2-15N-Acetaminophen	V	200	415	208	4:36
13C3-Caffeine	V	300	506	169	9:19
13C3-N15-Ciprofloxacin		400	67.0	16.8	10:45
13C2-Erythromycin-H2O	V	100	134	134	16:45
D5-Fluoxetine		100	129	129	16:45
13C6-Sulfamethazine		100	123	123	10:12
13C6-Sulfamethoxazole		100	126	126	11:18
D6-Thiabendazole		100	112	112	10:35
13C3-Trimethoprim		100	121	121	9:53

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: FC-Form8B.xsl; Created: 16-Nov-2011 13:16:03; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEP_WG37878-102_Form8B_SJ1369828.html; Workgroup: WG37878; Design ID: 1482]

AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
1,2,3,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD	1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD			1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF			1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls												
PCB 1 2-Chlorobiphenyl	7	7								7	7	
PCB 3 4-Chlorobiphenyl	7	7								7	7	
PCB 4 2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5 2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15 4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18 2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19 2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31 2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37 3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44 2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52 2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54 2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66 2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77 3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81 3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87 2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

AXYS Analytical Services Ltd.

Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

AXYS Analytical Services Ltd.

Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

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TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

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TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

AXYS | Axys Analytical Services Ltd
2045 Mills Road West
SIDNEY, BRITISH COLUMBIA, CANADA V8L 5X2
TEL 250-655-5800 FAX 250-655-5811
www.axysanalytical.com

AXYS Client No.: 2520

Client Address: Maxxam Analytics
1104-4464 Markham Rd
Victoria, BC, CA, V8Z 7X8

The AXYS contact for these data is Kalai Pillay.

BATCH SUMMARY

Batch ID: WG37878	***Date:*** 21-Nov-2011
Analysis Type: (AP5) Pharmaceutical & Personal Care Products	***Matrix Type:*** Solid

BATCH MAKEUP

Contract: 2520

Samples:

L16978-1	BQ5956-10R
L16978-2	BR3044-10R
L16978-3	BR3045-10R
L16978-4	BR3046-10R
L16978-5	BQ9606-10R

Blank: WG37878-101

Reference or Spike: WG37878-102

Duplicate:

Comments:

1. Data are not blank corrected.
2. At least 5 calibration points were used in quantification of the initial calibration (QE1Q_073 S: 5 to S: 11) for all the analytes. The lowest level calibration standard CS0 for Benztropine and DEET were excluded from the initial calibration as results did not meet method criteria. As a result, the CS1 level calibration was used as detection qualifier for these analytes in samples.
3. In the OPR, (AXYS ID: WG37878-102) Alprazolam, 10-hydroxy-amitriptyline and Trenbolone were observed above the upper control limits. These analytes were not detected in client samples; data are not affected by these variances.
4. The recovery of d5-Norfluoxetine in samples BQ5956-10R and 'BR3046-10R (AXYS ID: L16978-1 and -4) did not meet the method criteria; this compound is flagged with a 'V'. As the isotope dilution method of quantification produces data that are recovery corrected, the slight variances from the method acceptance criteria are deemed not to affect the quantification of these analytes. Percent surrogate recoveries are used as general method performance indicator only.
5. The recovery of d6-Paroxetine in sample BQ5956-10R (AXYS ID: L16978-1) did not meet the method criteria; this compound is flagged with a 'V'. As the isotope dilution method of quantification produces data that are recovery corrected, the slight variances from the method acceptance criteria are deemed not to affect the quantification of these analytes. Percent surrogate recoveries are used as general method performance indicator only.
6. In samples BQ5956, BR3045-10R and BR3046-10R (AXYD ID: L16978-1, -3 and -4) d3-Benztropine was observed below the lower method specification. Results for Benztropine in these samples are reported for information only (indicated by an 'H' on reports).

AXYS METHOD MLA-075 Rev 3

Form 3A
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QE1Q_073 S: 5
CS1 Data Filename: QE1Q_073 S: 6
CS2 Data Filename: QE1Q_073 S: 7
CS3 Data Filename: QE1Q_073 S: 8
CS4 Data Filename: QE1Q_073 S: 9
CS5 Data Filename: QE1Q_073 S: 10
CS6 Data Filename: QE1Q_073 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERY (%)								
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
Alprazolam		113	80.1	115	94.5	97.4	98.6	101		
Amitriptyline		136	100	94.2	92.1	80.8	93.1	104		
Amlodipine		120	88.4	86.9	101	96.1	112	96.4		
Benzoylecgonine		118	91.1	101	93.1	91.2	108	98.3		
Benztropine			124	84.9	101	94.3	92.7	103		
Betamethasone		117	96.6	101	107	72.5	105	100		
Cocaine		133	82.7	97.6	99.3	86.0	100	101		
DEET			128	110	85.5	79.5	92.5	104		
Desmethyldiltiazem		102	92.0	105	108	89.4	105	99.0		
Diazepam		97.4	78.2	105	112	102	109	96.6		
Fluocinonide		112	113	107	86.3	84.0	93.7	104		
Fluticasone propionate		121	82.7	90.5	107	98.6				
Hydrocortisone		103	70.5	127	101	98.6				
10-hydroxy-amitriptyline		139	83.5	94.5	90.5	90.1	102	100		
Meprobamate		122	106	94.6	87.4	86.3	104			
Methylprednisolone		63.7	108	117	111	95.3	107	97.7		
Metoprolol		136	77.8	109	85.3	86.1	107	99.3		
Norfluoxetine		123	89.6	102	93.4	89.4	102	100		
Norverapamil		136	95.2	87.8	93.0	86.1	101	101		
Paroxetine		124	99.1	84.2	99.0	92.2	101	101		
Prednisolone		119	82.0	99.3	105	84.6	113	96.8		
Prednisone		123	111	90.7	86.7	80.7	109	99.0		
Promethazine		107	96.6	105	97.0	91.3	103	99.6		
Propoxyphene		118	87.7	94.6	107	92.0	101	100		
Propranolol		71.5	98.2	110	111	95.3	121	93.2		
Sertraline		117	98.4	94.8	96.4	87.3	108	98.6		
Simvastatin		109	96.5	98.3	88.2	96.3	117	94.9		
Theophylline		106	104	109	92.4	96.1	89.3	104		
Trenbolone		107	73.5	125	101	94.7	97.3	101		
Trenbolone acetate		117	98.4	99.2	92.6	90.2	103			
Valsartan		136	87.3	95.6	89.1	88.1	104			
Verapamil		106	98.7	101	107	88.5	98.0	101		

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: GENERIC-SPECS_PPC_LC_15-Oct-2011_QE1Q__Form3A_GS43353.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3B
PHARMACEUTICAL INITIAL CALIBRATION PERCENT RECOVERIES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QE1Q_073 S: 5
CS1 Data Filename: QE1Q_073 S: 6
CS2 Data Filename: QE1Q_073 S: 7
CS3 Data Filename: QE1Q_073 S: 8
CS4 Data Filename: QE1Q_073 S: 9
CS5 Data Filename: QE1Q_073 S: 10
CS6 Data Filename: QE1Q_073 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		PERCENT RECOVERIES (%)								
LABELED COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
d5-Alprazolam		87.6	108	105	92.6	108	101	97.1		
d6-Amitriptyline		88.1	105	108	83.0	111	101	104		
d8-Benzoylecgonine		91.9	101	105	87.1	101	101	113		
d3-Benztropine		81.9	104	112	90.7	104	103	104		
d3-Cocaine		84.0	102	114	87.5	101	99.7	112		
d7-DEET		91.6	108	105	94.5	110	98.1	92.5		
d5-Diazepam		86.0	107	107	83.2	106	99.5	112		
d4-Hydrocortisone		70.7	103	114	87.9	119	108	98.1		
d2-Methylprednisolone		90.8	103	103	85.0	106	96.7	116		
d7-Metoprolol		88.2	105	111	95.1	109	92.7	99.5		
d5-Norfluoxetine		87.6	105	112	87.0	106	90.7	112		
d6-Paroxetine		93.3	104	116	93.3	104	93.2	95.8		
d4-Promethazine		83.1	102	104	86.3	113	101	111		
d5-Propoxyphene		88.4	102	111	88.8	106	96.7	106		
d7-Propranolol		92.7	99.2	113	86.7	108	94.5	106		
13C1-15N2-Theophylline		95.5	113	119	96.3	108	93.7	74.2		

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: GENERIC-SPECS_PPC_LC_15-Oct-2011_QE1Q__Form3B_GS43353.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 3C
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QE1Q_073 S: 5
CS1 Data Filename: QE1Q_073 S: 6
CS2 Data Filename: QE1Q_073 S: 7
CS3 Data Filename: QE1Q_073 S: 8
CS4 Data Filename: QE1Q_073 S: 9
CS5 Data Filename: QE1Q_073 S: 10
CS6 Data Filename: QE1Q_073 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES									
COMPOUND	**LAB FLAG [1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
Alprazolam		23:21	23:26	23:26	23:26	23:26	23:21	23:21			23:24
Amitriptyline		22:15	22:15	22:15	22:15	22:15	22:15	22:15			22:15
Amlodipine		23:35	23:39	23:39	23:39	23:39	23:39	23:39			23:38
Benzoylecgonine		5:31	5:24	5:31	5:38	5:27	5:31	5:31			5:30
Benztropine			22:40	22:45	22:45	22:45	22:45	22:45			22:44
Betamethasone		21:35	21:41	21:35	21:41	21:35	21:35	21:41			21:38
Cocaine		8:49	8:49	8:46	9:00	8:53	8:49	8:53			8:51
DEET			20:45	20:45	20:51	20:45	20:45	20:45			20:46
Desmethyldiltiazem		18:46	18:46	18:44	18:46	18:46	18:46	18:46			18:46
Diazepam		29:28	29:26	29:26	29:28	29:24	29:24	29:24			29:26
Fluocinonide		35:24	35:13	35:19	35:20	35:17	35:17	35:17			35:18
Fluticasone propionate		37:56	37:56	37:58	37:58	37:56					37:57
Hydrocortisone		17:51	17:42	17:42	17:51	17:42					17:46
10-hydroxy-amitriptyline		11:54	11:58	12:01	12:01	11:58	11:58	11:58			11:58
Meprobamate		11:23	11:20	11:20	11:20	11:20	11:20				11:21
Methylprednisolone		21:41	21:47	21:41	21:41	21:41	21:41	21:41			21:42
Metoprolol		8:19	8:05	8:12	8:12	8:12	8:12	8:12			8:12
Norfluoxetine		24:34	24:34	24:34	24:39	24:34	24:39	24:39			24:36
Norverapamil		20:55	20:50	20:55	20:55	20:55	20:55	20:55			20:54
Paroxetine		20:28	20:28	20:28	20:34	20:28	20:28	20:28			20:29
Prednisolone		17:42	17:44	17:39	17:37	17:39	17:39	17:37			17:40
Prednisone		16:49	16:51	16:56	16:53	16:53	16:53	16:53			16:53
Promethazine		18:37	18:37	18:37	18:39	18:37	18:39	18:39			18:38
Propoxyphene		21:41	21:41	21:41	21:47	21:41	21:41	21:47			21:43
Propranolol		14:35	14:35	14:35	14:35	14:35	14:35	14:35			14:35
Sertraline		26:04	26:06	26:06	26:09	26:06	26:06	26:04			26:06
Simvastatin		39:59	40:02	40:02	40:02	40:00	40:00	39:59			40:01
Theophylline		2:36	2:29	2:29	2:29	2:33	2:33	2:33			2:32
Trenbolone		22:31	22:36	22:31	22:31	22:31	22:31	22:31			22:32
Trenbolone acetate		37:35	37:33	37:37	37:37	37:35	37:35				37:35
Valsartan		32:11	32:14	32:18	32:16	32:14	32:11				32:14
Verapamil		21:24	21:18	21:18	21:24	21:24	21:24	21:24			21:22

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

AXYS METHOD MLA-075 Rev 3

Form 3D
PHARMACEUTICAL INITIAL CALIBRATION RETENTION TIMES

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 15-Oct-2011

Instrument ID: LC MS/MS

LC Column ID: C18MS

CS0 Data Filename: QE1Q_073 S: 5
CS1 Data Filename: QE1Q_073 S: 6
CS2 Data Filename: QE1Q_073 S: 7
CS3 Data Filename: QE1Q_073 S: 8
CS4 Data Filename: QE1Q_073 S: 9
CS5 Data Filename: QE1Q_073 S: 10
CS6 Data Filename: QE1Q_073 S: 11
CS7 Data Filename: N/A
CS8 Data Filename: N/A

		RETENTION TIMES								
LABELED COMPOUND	**LAB FLAG[1]**	**CS0**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**MEAN RT**
d5-Alprazolam		23:08	23:08	23:08	23:12	23:12	23:12	23:08			23:10
d6-Amitriptyline		22:10	22:10	22:10	22:15	22:15	22:10	22:15			22:12
d8-Benzoylecgonine		5:21	5:14	5:27	5:24	5:21	5:17	5:17			5:20
d3-Benztropine		22:40	22:40	22:40	22:45	22:45	22:40	22:45			22:42
d3-Cocaine		8:53	8:53	8:49	8:56	8:49	8:53	8:56			8:53
d7-DEET		20:28	20:28	20:28	20:34	20:28	20:28	20:34			20:30
d5-Diazepam		29:08	29:08	29:10	29:12	29:08	29:08	29:08			29:09
d4-Hydrocortisone		17:42	17:42	17:42	17:46	17:42	17:42	17:46			17:43
d2-Methylprednisolone		21:41	21:41	21:41	21:41	21:41	21:41	21:41			21:41
d7-Metoprolol		8:08	8:08	8:05	8:05	8:08	8:05	8:01			8:06
d5-Norfluoxetine		24:34	24:30	24:34	24:34	24:34	24:34	24:34			24:33
d6-Paroxetine		20:22	20:22	20:22	20:28	20:22	20:22	20:22			20:23
d4-Promethazine		18:30	18:30	18:30	18:32	18:30	18:30	18:30			18:30
d5-Propoxyphene		21:35	21:35	21:35	21:35	21:35	21:35	21:35			21:35
d7-Propranolol		14:21	14:21	14:21	14:21	14:21	14:21	14:21			14:21
13C1-15N2-Theophylline		2:33	2:33	2:29	2:29	2:33	2:29	2:29			2:31

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form3D.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_15-Oct-2011_QE1Q__Form3D_GS43353.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4A
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	15-Oct-2011	**VER Data Filename:**	QE1Q_073 S: 14
Instrument ID:	LC MS/MS	**Analysis Date:**	15-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	20:37:26

COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
Alprazolam		23:26	15.0	15.1	101
Amitriptyline		22:15	15.0	13.3	88.8
Amlodipine		23:39	72.0	74.7	104
Benzoylecgonine		5:27	15.0	14.2	94.7
Benztropine		22:45	15.0	13.6	90.9
Betamethasone		21:35	75.0	72.8	97.1
Cocaine		8:56	7.50	6.74	89.8
DEET		20:45	7.50	6.70	89.3
Desmethyldiltiazem		18:46	7.50	7.99	107
Diazepam		29:24	15.0	16.1	107
Fluocinonide		35:17	300	265	88.3
Fluticasone propionate		37:58	100	108	108
Hydrocortisone		17:44	3000	3080	103
10-hydroxy-amitriptyline		12:01	7.50	7.03	93.8
Meprobamate		11:20	200	168	84.1
Methylprednisolone		21:41	200	186	93.1
Metoprolol		8:12	75.0	67.1	89.5
Norfluoxetine		24:39	75.0	70.7	94.2
Norverapamil		20:55	7.50	6.90	92.0
Paroxetine		20:28	200	190	95.2
Prednisolone		17:37	300	317	106
Prednisone		16:53	1000	901	90.1
Promethazine		18:39	20.0	19.0	95.3
Propoxyphene		21:41	15.0	14.8	98.8
Propranolol		14:35	100	111	111
Sertraline		26:06	20.0	20.3	102
Simvastatin		40:02	1000	777	77.7
Theophylline		2:29	3000	3020	101
Trenbolone		22:31	200	205	103
Trenbolone acetate		37:35	15.0	13.5	90.3
Valsartan		32:11	200	164	82.1
Verapamil		21:24	7.50	6.90	92.0

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4A.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QE1Q_073S14__Form4A_SJ1382667.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 4B
PHARMACEUTICAL CALIBRATION VERIFICATION

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	15-Oct-2011	**VER Data Filename:**	QE1Q_073 S: 14
Instrument ID:	LC MS/MS	**Analysis Date:**	15-Oct-2011
LC Column ID:	C18MS	**Analysis Time:**	20:37:26

LABELED COMPOUND	LAB FLAG [1]	RETENTION TIME	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
d5-Alprazolam		23:08	40.0	37.9	94.7
d6-Amitriptyline		22:15	40.0	34.0	85.1
d8-Benzoylecgonine		5:17	40.0	34.8	86.9
d3-Benztropine		22:45	20.0	17.7	88.3
d3-Cocaine		8:53	40.0	34.8	86.9
d7-DEET		20:28	40.0	34.5	86.2
d5-Diazepam		29:10	40.0	35.1	87.9
d2-Methylprednisolone		21:41	2000	1920	96.1
d7-Metoprolol		8:05	400	364	91.0
d5-Norfluoxetine		24:34	200	184	92.2
d6-Paroxetine		20:28	100	95.0	95.0
d4-Promethazine		18:30	100	85.0	85.0
d5-Propoxyphene		21:35	60.0	53.0	88.4
d7-Propranolol		14:21	400	326	81.5
13C1-15N2-Theophylline		2:29	2000	1720	85.9
d4-Hydrocortisone		17:44	6750	6080	90.1

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form4B.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: GENERIC-SPECS_PPC_LC_QE1Q_073S14__Form4B_SJ1382667.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1 i
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 02:49:34	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 22**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Alprazolam	ND		0.292 (L)	
Amitriptyline	ND		0.431 (S)	
Amlodipine	ND		1.40 (L)	
Benzoylecgonine	ND		0.292 (L)	
Benztropine	ND H		0.975 (L)	
Betamethasone	ND		1.71 (S)	
Cocaine	ND		0.146 (L)	
DEET		1.68	0.487 (L)	20:51
Desmethyldiltiazem	ND		0.146 (L)	
Diazepam	ND		0.292 (L)	
Fluocinonide	ND		5.85 (L)	
Fluticasone propionate	ND		1.95 (L)	
Hydrocortisone	ND		58.5 (L)	
10-hydroxy-amitriptyline	ND		0.146 (L)	
Meprobamate	ND		3.90 (L)	
Methylprednisolone	ND		3.90 (L)	
Metoprolol	ND		1.56 (S)	
Norfluoxetine	ND		1.46 (L)	
Norverapamil	ND		0.146 (L)	
Paroxetine	ND		3.90 (L)	
Prednisolone	ND		5.85 (L)	
Prednisone	ND		27.3 (S)	
Promethazine	ND		0.390 (L)	
Propoxyphene	ND		0.292 (L)	
Propranolol	ND		1.95 (L)	
Sertraline	ND		0.390 (L)	
Simvastatin	ND		19.5 (L)	
Theophylline [3]	ND		58.5 (L)	
Trenbolone	ND		3.90 (L)	

This page is part of a total report that contains information necessary for accreditation compliance.
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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Trenbolone acetate	ND		0.292 (L)	
Valsartan	ND		3.90 (L)	
Verapamil	ND		0.146 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with 1,7-Dimethylxanthine, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-1_Form1A_QE1Q_073S22_SJ1382679.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BQ5956-10R
Sample Collection:
27-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192006		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-1 i
Matrix:	SOLID	**Sample Size:**	1.03 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 02:49:34	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 22**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng absolute	**% Moisture:**	33.0

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
d5-Alprazolam		40.0	32.8	82.0	23:17
d6-Amitriptyline		40.0	15.2	38.0	22:21
d8-Benzoylecgonine		40.0	40.0	100	5:17
d3-Benztropine	V	20.0	0.291	1.46	22:49
d3-Cocaine		40.0	21.3	53.3	9:00
d7-DEET		40.0	32.9	82.3	20:34
d5-Diazepam		40.0	41.1	103	29:15
d2-Methylprednisolone		2000	2290	114	21:47
d7-Metoprolol		400	244	60.9	8:12
d5-Norfluoxetine	V	200	34.1	17.1	24:39
d6-Paroxetine	V	100	6.35	6.35	20:34
d4-Promethazine		100	29.8	29.8	18:39
d5-Propoxyphene		60.0	33.0	55.0	21:41
d7-Propranolol		400	120	30.1	14:25
13C1-15N2-Theophylline		2000	1870	93.5	2:29
d4-Hydrocortisone		6750	6310	93.5	17:48

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-1_Form2_QE1Q_073S22_SJ1382679.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2 i
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 03:35:59	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 23**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Alprazolam	ND		0.288 (L)	
Amitriptyline	ND		0.288 (L)	
Amlodipine	ND		1.38 (L)	
Benzoylecgonine	ND		0.288 (L)	
Benztropine	ND		0.960 (L)	
Betamethasone	ND		1.44 (L)	
Cocaine	ND		0.144 (L)	
DEET		1.55	0.480 (L)	20:51
Desmethyldiltiazem	ND		0.144 (L)	
Diazepam	ND		0.288 (L)	
Fluocinonide	ND		5.76 (L)	
Fluticasone propionate	ND		1.92 (L)	
Hydrocortisone	ND		57.6 (L)	
10-hydroxy-amitriptyline	ND		0.144 (L)	
Meprobamate	ND		3.84 (L)	
Methylprednisolone	ND		3.84 (L)	
Metoprolol	ND		1.44 (L)	
Norfluoxetine	ND		1.44 (L)	
Norverapamil	ND		0.144 (L)	
Paroxetine	ND		3.84 (L)	
Prednisolone	ND		5.76 (L)	
Prednisone	ND		19.2 (L)	
Promethazine	ND		0.384 (L)	
Propoxyphene	ND		0.288 (L)	
Propranolol	ND		1.92 (L)	
Sertraline	ND		0.384 (L)	
Simvastatin	ND		19.2 (L)	
Theophylline [3]	ND		57.6 (L)	
Trenbolone	ND		3.84 (L)	

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Trenbolone acetate	ND		0.288 (L)	
Valsartan	ND		3.84 (L)	
Verapamil	ND		0.144 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with 1,7-Dimethylxanthine, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-2_Form1A_QE1Q_073S23_SJ1382680.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3044-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-2 i
Matrix:	SOLID	**Sample Size:**	1.04 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 03:35:59	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 23**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng absolute	**% Moisture:**	37.6

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
d5-Alprazolam		40.0	26.1	65.3	23:17
d6-Amitriptyline		40.0	31.9	79.7	22:21
d8-Benzoylecgonine		40.0	38.2	95.4	5:17
d3-Benztropine	V	20.0	3.56	17.8	22:49
d3-Cocaine		40.0	30.4	76.1	8:56
d7-DEET		40.0	29.1	72.8	20:33
d5-Diazepam		40.0	42.1	105	29:12
d2-Methylprednisolone		2000	2250	113	21:47
d7-Metoprolol		400	353	88.2	8:12
d5-Norfluoxetine		200	142	71.1	24:39
d6-Paroxetine		100	67.2	67.2	20:33
d4-Promethazine		100	55.4	55.4	18:34
d5-Propoxyphene		60.0	52.6	87.7	21:41
d7-Propranolol		400	366	91.5	14:25
13C1-15N2-Theophylline		2000	1860	93.2	2:29
d4-Hydrocortisone		6750	6610	97.9	17:44

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-2_Form2_QE1Q_073S23_SJ1382680.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3 i
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 04:22:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 24**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Alprazolam	ND		0.273 (L)	
Amitriptyline	ND		0.296 (S)	
Amlodipine	ND		1.31 (L)	
Benzoylecgonine	ND		0.273 (L)	
Benztropine	ND H		0.911 (L)	
Betamethasone	ND		1.44 (S)	
Cocaine	ND		0.137 (L)	
DEET		1.46	0.456 (L)	20:51
Desmethyldiltiazem	ND		0.137 (L)	
Diazepam	ND		0.273 (L)	
Fluocinonide	ND		5.47 (L)	
Fluticasone propionate	ND		1.82 (L)	
Hydrocortisone	ND		54.7 (L)	
10-hydroxy-amitriptyline	ND		0.137 (L)	
Meprobamate	ND		3.65 (L)	
Methylprednisolone	ND		3.65 (L)	
Metoprolol	ND		1.37 (L)	
Norfluoxetine	ND		1.37 (L)	
Norverapamil	ND		0.137 (L)	
Paroxetine	ND		3.65 (L)	
Prednisolone	ND		5.47 (L)	
Prednisone	ND		20.8 (S)	
Promethazine	ND		0.365 (L)	
Propoxyphene	ND		0.273 (L)	
Propranolol	ND		1.82 (L)	
Sertraline	ND		0.365 (L)	
Simvastatin	ND		18.2 (L)	
Theophylline [3]	ND		54.7 (L)	
Trenbolone	ND		3.65 (L)	

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Trenbolone acetate	ND		0.273 (L)	
Valsartan	ND		3.65 (L)	
Verapamil	ND		0.137 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with 1,7-Dimethylxanthine, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-3_Form1A_QE1Q_073S24_SJ1382681.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3045-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-3 i
Matrix:	SOLID	**Sample Size:**	1.10 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 04:22:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 24**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng absolute	**% Moisture:**	38.7

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
d5-Alprazolam		40.0	28.1	70.2	23:17
d6-Amitriptyline		40.0	18.9	47.2	22:21
d8-Benzoylecgonine		40.0	36.4	91.0	5:24
d3-Benztropine	V	20.0	0.900	4.50	22:49
d3-Cocaine		40.0	16.8	41.9	8:46
d7-DEET		40.0	28.8	72.0	20:34
d5-Diazepam		40.0	38.9	97.1	29:12
d2-Methylprednisolone		2000	2410	120	21:47
d7-Metoprolol		400	359	89.7	8:08
d5-Norfluoxetine		200	98.7	49.3	24:39
d6-Paroxetine		100	13.8	13.8	20:34
d4-Promethazine		100	26.2	26.2	18:37
d5-Propoxyphene		60.0	24.3	40.5	21:41
d7-Propranolol		400	290	72.5	14:25
13C1-15N2-Theophylline		2000	830	41.5	2:33
d4-Hydrocortisone		6750	6960	103	17:46

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

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Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-3_Form2_QE1Q_073S24_SJ1382681.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 05:08:59	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 25**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Alprazolam	ND		0.293 (L)	
Amitriptyline	ND		0.293 (L)	
Amlodipine	ND		1.41 (L)	
Benzoylecgonine	ND		0.293 (L)	
Benztropine	ND H		0.976 (L)	
Betamethasone	ND		1.46 (L)	
Cocaine	ND		0.146 (L)	
DEET		2.27	0.488 (L)	20:51
Desmethyldiltiazem	ND		0.146 (L)	
Diazepam	ND		0.293 (L)	
Fluocinonide	ND		5.86 (L)	
Fluticasone propionate	ND		1.95 (L)	
Hydrocortisone	ND		58.6 (L)	
10-hydroxy-amitriptyline	ND		0.158 (S)	
Meprobamate	ND		3.91 (L)	
Methylprednisolone	ND		3.91 (L)	
Metoprolol	ND		2.34 (S)	
Norfluoxetine	ND		1.46 (L)	
Norverapamil	ND		0.146 (L)	
Paroxetine	ND		3.91 (L)	
Prednisolone	ND		6.61 (S)	
Prednisone	ND		63.3 (S)	
Promethazine	ND		0.391 (L)	
Propoxyphene	ND		0.293 (L)	
Propranolol	ND		1.95 (L)	
Sertraline	ND		0.391 (L)	
Simvastatin	ND		19.5 (L)	
Theophylline [3]	ND		58.6 (L)	
Trenbolone	ND		3.91 (L)	

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Trenbolone acetate	ND		0.293 (L)	
Valsartan	ND		3.91 (L)	
Verapamil		0.152	0.146 (L)	21:18

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with 1,7-Dimethylxanthine, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-4_Form1A_QE1Q_073S25_SJ1382682.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
BR3046-10R
Sample Collection:
29-Sep-2011

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B193099		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-4
Matrix:	SOLID	**Sample Size:**	1.02 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 05:08:59	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 25**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng absolute	**% Moisture:**	38.3

This page is part of a total report that contains information necessary for accreditation compliance.
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LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
d5-Alprazolam		40.0	27.0	67.4	23:12
d6-Amitriptyline		40.0	16.6	41.5	22:21
d8-Benzoylecgonine		40.0	32.3	80.8	5:14
d3-Benztropine	V	20.0	0.661	3.30	22:49
d3-Cocaine		40.0	20.6	51.6	9:00
d7-DEET		40.0	28.4	71.0	20:34
d5-Diazepam		40.0	36.0	89.9	29:12
d2-Methylprednisolone		2000	2230	112	21:47
d7-Metoprolol		400	247	61.9	8:01
d5-Norfluoxetine	V	200	35.1	17.6	24:39
d6-Paroxetine		100	8.15	8.15	20:28
d4-Promethazine		100	37.5	37.5	18:34
d5-Propoxyphene		60.0	35.9	59.9	21:41
d7-Propranolol		400	100	25.0	14:25
13C1-15N2-Theophylline		2000	1820	90.8	2:29
d4-Hydrocortisone		6750	6010	89.0	17:46

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-4_Form2_QE1Q_073S25_SJ1382682.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 05:55:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 26**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng/g (dry weight basis)	**% Moisture:**	41.1

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Alprazolam	ND		0.280 (L)	
Amitriptyline		0.431	0.305 (S)	22:21
Amlodipine	ND		1.34 (L)	
Benzoylecgonine	ND		0.280 (L)	
Benztropine	ND H		0.934 (L)	
Betamethasone	ND		1.40 (L)	
Cocaine	ND		0.140 (L)	
DEET		1.64	0.467 (L)	20:51
Desmethyldiltiazem	ND		0.140 (L)	
Diazepam	ND		0.280 (L)	
Fluocinonide	ND		5.60 (L)	
Fluticasone propionate	ND		1.87 (L)	
Hydrocortisone	ND		56.0 (L)	
10-hydroxy-amitriptyline	ND		0.140 (L)	
Meprobamate	ND		3.73 (L)	
Methylprednisolone	ND		3.73 (L)	
Metoprolol	ND		1.40 (L)	
Norfluoxetine	ND		1.40 (L)	
Norverapamil	ND		0.140 (L)	
Paroxetine	ND		3.73 (L)	
Prednisolone	ND		5.60 (L)	
Prednisone	ND		31.0 (S)	
Promethazine	ND		0.373 (L)	
Propoxyphene	ND		0.280 (L)	
Propranolol	ND		1.87 (L)	
Sertraline	ND		0.373 (L)	
Simvastatin	ND		18.7 (L)	
Theophylline [3]	ND		56.0 (L)	
Trenbolone	ND		3.73 (L)	

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Trenbolone acetate	ND		0.280 (L)	
Valsartan	ND		3.73 (L)	
Verapamil	ND		0.140 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL; H = concentration is estimated.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with 1,7-Dimethylxanthine, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-5_Form1A_QE1Q_073S26_SJ1382683.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 2

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
BQ9606-10R
Sample Collection:
28-Sep-2011

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	B192596		
Contract No.:	2520	**Lab Sample I.D.:**	L16978-5
Matrix:	SOLID	**Sample Size:**	1.07 g (dry)
Sample Receipt Date:	03-Oct-2011	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 05:55:25	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 26**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng absolute	**% Moisture:**	41.1

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
d5-Alprazolam		40.0	30.1	75.4	23:12
d6-Amitriptyline		40.0	22.1	55.2	22:21
d8-Benzoylecgonine		40.0	35.3	88.3	5:14
d3-Benztropine	V	20.0	1.00	5.02	22:49
d3-Cocaine		40.0	25.7	64.3	9:00
d7-DEET		40.0	26.5	66.1	20:34
d5-Diazepam		40.0	39.4	98.6	29:12
d2-Methylprednisolone		2000	2250	112	21:47
d7-Metoprolol		400	351	87.8	8:12
d5-Norfluoxetine		200	56.4	28.2	24:39
d6-Paroxetine		100	10.4	10.4	20:34
d4-Promethazine		100	41.3	41.3	18:34
d5-Propoxyphene		60.0	41.7	69.5	21:41
d7-Propranolol		400	282	70.5	14:25
13C1-15N2-Theophylline		2000	1660	82.9	2:29
d4-Hydrocortisone		6750	5750	85.2	17:44

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_L16978-5_Form2_QE1Q_073S26_SJ1382683.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 1A

PHARMACEUTICALS ANALYSIS REPORT

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101 i2
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 01:16:34	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 20**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng/g		

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This test is not CALA accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Alprazolam	ND		0.300 (L)	
Amitriptyline	ND		0.471 (S)	
Amlodipine	ND		1.44 (L)	
Benzoylecgonine	ND		0.300 (L)	
Benztropine	ND		1.00 (L)	
Betamethasone	ND		1.59 (S)	
Cocaine	ND		0.150 (L)	
DEET	ND		0.500 (L)	
Desmethyldiltiazem	ND		0.150 (L)	
Diazepam	ND		0.300 (L)	
Fluocinonide	ND		6.00 (L)	
Fluticasone propionate	ND		2.00 (L)	
Hydrocortisone	ND		60.0 (L)	
10-hydroxy-amitriptyline	ND		0.150 (L)	
Meprobamate	ND		4.00 (L)	
Methylprednisolone	ND		4.00 (L)	
Metoprolol	ND		1.50 (L)	
Norfluoxetine	ND		1.50 (L)	
Norverapamil	ND		0.150 (L)	
Paroxetine	ND		4.00 (L)	
Prednisolone	ND		6.84 (S)	
Prednisone	ND		43.0 (S)	
Promethazine	ND		0.400 (L)	
Propoxyphene	ND		0.300 (L)	
Propranolol	ND		2.00 (L)	
Sertraline	ND		0.400 (L)	
Simvastatin	ND		20.0 (L)	
Theophylline [3]	ND		60.0 (L)	
Trenbolone	ND		4.00 (L)	

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COMPOUND	LAB FLAG [1]	CONC. FOUND	REPORTING LIMIT (RL)[2]	RETENTION TIME
Trenbolone acetate	ND		0.300 (L)	
Valsartan	ND		4.00 (L)	
Verapamil	ND		0.150 (L)	

(1) Where applicable, custom lab flags have been used on this report; ND = not detected at RL.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = contract defined limit.
(3) Co-elutes with 1,7-Dimethylxanthine, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form1A.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_WG37878-101_Form1A_QE1Q_073S20_SJ1382675.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

CLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

Form 2

PHARMACEUTICALS ANALYSIS REPORT

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.	N/A		
Contract No.:	2520	**Lab Sample I.D.:**	WG37878-101 i2
Matrix:	SOLID	**Sample Size:**	1.00 g
Sample Receipt Date:	N/A	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	16-Oct-2011 **Time:** 01:16:34	**Column ID:**	C18MS
Extract Volume (uL):	4000	**Sample Data Filename:**	**QE1Q_073 S: 20**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14
Concentration Units:	ng absolute		

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not CALA accredited. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC.	CONC. FOUND	R(%) [2]	RETENTION TIME
d5-Alprazolam	V	40.0	14.4	36.0	23:12
d6-Amitriptyline		40.0	8.76	21.9	22:15
d8-Benzoylecgonine		40.0	19.0	47.5	5:14
d3-Benztropine		20.0	4.67	23.4	22:49
d3-Cocaine		40.0	15.7	39.2	8:56
d7-DEET		40.0	18.3	45.6	20:34
d5-Diazepam		40.0	17.8	44.5	29:12
d2-Methylprednisolone		2000	1080	54.2	21:41
d7-Metoprolol		400	188	46.9	8:12
d5-Norfluoxetine		200	59.7	29.8	24:39
d6-Paroxetine		100	9.78	9.78	20:28
d4-Promethazine		100	7.45	7.45	18:32
d5-Propoxyphene		60.0	26.7	44.5	21:41
d7-Propranolol		400	114	28.6	14:21
13C1-15N2-Theophylline		2000	834	41.7	2:29
d4-Hydrocortisone		6750	4030	59.7	17:44

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.
(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

For Axys Internal Use Only [XSL Template: FC-Form2.xsl; Created: 21-Nov-2011 14:43:01; Application: XMLTransformer-1.12.1;
Report Filename: LC_PPC_LC_PPC075_AEPX_WG37878-101_Form2_QE1Q_073S20_SJ1382675.html; Workgroup: WG37878; Design ID: 1482]

AXYS METHOD MLA-075 Rev 3

Form 8A

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102 i
Matrix:	SOLID	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 22:57:00	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QE1Q_073 S: 17**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
Alprazolam	N	15.0	19.8	132	23:26
Amitriptyline		15.0	14.6	97.6	22:15
Amlodipine		72.0	49.1	68.2	23:39
Benzoylecgonine		15.0	15.8	105	5:24
Benztropine		15.0	17.8	119	22:45
Betamethasone		75.0	176	235	21:41
Cocaine		7.50	7.10	94.7	8:42
DEET		7.50	6.84	91.2	20:45
Desmethyldiltiazem		7.50	17.8	237	18:48
Diazepam		15.0	15.5	103	29:26
Fluocinonide		300	420	140	35:15
Fluticasone propionate		100	106	106	37:58
Hydrocortisone		3000	4080	136	17:46
10-hydroxy-amitriptyline	N	7.50	9.88	132	11:58
Meprobamate		200	229	114	11:16
Methylprednisolone		200	180	90.2	21:41
Metoprolol		75.0	78.1	104	8:12
Norfluoxetine		75.0	73.5	98.1	24:39
Norverapamil		7.50	4.23	56.4	20:55
Paroxetine		200	242	121	20:34
Prednisolone		300	599	200	17:39
Prednisone		1000	1560	156	16:53
Promethazine		20.0	19.8	99.1	18:39
Propoxyphene		15.0	17.3	115	21:47
Propranolol		100	111	111	14:35
Sertraline		20.0	14.9	74.6	26:06
Simvastatin		1000	1220	122	40:02
Theophylline [2]		3000	5620	187	2:29
Trenbolone	N	200	331	165	22:31
Trenbolone acetate		15.0	22.2	148	37:35
Valsartan		200	188	94.2	32:11
Verapamil		7.50	6.25	83.3	21:24

(1) Where applicable, custom lab flags have been used on this report; N = authentic recovery is not within method/contract control limits.
(2) Co-elutes with 1,7-Dimethylxanthine, maximum possible concentration is reported.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.
Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

AXYS METHOD MLA-075 Rev 3

Form 8B

PHARMACEUTICALS ONGOING PRECISION AND RECOVERY (OPR)

AXYS ANALYTICAL SERVICES
2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	2520	**Lab Sample I.D.:**	WG37878-102 i
Matrix:	SOLID	**Initial Calibration Date:**	15-Oct-2011
Extraction Date:	07-Oct-2011	**Instrument ID:**	LC MS/MS
Analysis Date:	15-Oct-2011 **Time:** 22:57:00	**Column ID:**	C18MS
Extract Volume (uL):	4000	**OPR Data Filename:**	**QE1Q_073 S: 17**
Injection Volume (uL):	15	**Blank Data Filename:**	QE1Q_073 S: 20
Dilution Factor:	N/A	**Cal. Ver. Data Filename:**	QE1Q_073 S: 14

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

LABELED COMPOUND	LAB FLAG [1]	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RETENTION TIME
d5-Alprazolam		40.0	25.7	64.2	23:12
d6-Amitriptyline		40.0	18.3	45.8	22:15
d8-Benzoylecgonine		40.0	38.5	96.3	5:17
d3-Benztropine		20.0	10.5	52.6	22:45
d3-Cocaine		40.0	31.6	78.9	8:56
d7-DEET		40.0	31.8	79.5	20:28
d5-Diazepam		40.0	36.2	90.6	29:08
d2-Methylprednisolone		2000	2130	106	21:41
d7-Metoprolol		400	348	87.1	7:58
d5-Norfluoxetine		200	129	64.6	24:34
d6-Paroxetine		100	28.3	28.3	20:28
d4-Promethazine		100	23.6	23.6	18:32
d5-Propoxyphene		60.0	50.9	84.9	21:41
d7-Propranolol		400	220	55.0	14:21
13C1-15N2-Theophylline		2000	2080	104	2:33
d4-Hydrocortisone		6750	6690	99.1	17:44

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Kristina Coleman_____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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Report Filename: LC_PPC_LC_PPC075_AEPX_WG37878-102_Form8B_SJ1382670.html; Workgroup: WG37878; Design ID: 1482]

AXYS Analytical Services Ltd.

Table 1a
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Chlorinated Dioxins/Furans, Chlorinated Pesticides, PCBs and PAHs

Matrix Codes for Table 1a

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613B	MLA-017, performance based implementation of EPA1613B (GC/HRMS)
2	EPA 8290	MLA-017, performance based implementation of EPA 8290 (GC/HRMS)
3	AXYS MLA-017	MLA-017, performance based implementation of EPA 1613B, 8290 (GC/HRMS)
4	EPA 608	MLA-007, performance based implementation of EPA 608 (GC/ECD)
5	EPA 8270C or 8270D	MLA-007, performance based **modification** of 8270C/D (GC/LRMS)
6	EPA 8081A or 8081B	MLA-007, performance based implementation of EPA 8081A/B (GC/ECD)
7	EPA 1668A	MLA-010, performance based implementation of EPA 1668A (GC/HRMS)
8	SM 6630B	MLA-007, performance based implementation of SM 18-20 6630B (GC/ECD)
9	EPA 1625B	MLA-021, performance based **modification** of EPA 1625B (GC/LRMS)
11	EPA 625	MLA-007, performance based **modification** of EPA 625 (GC/LRMS)
20	EPA 8270C or 8270D	MLA-021, performance based **modification** of EPA 8270C/D (GC/LRMS)

TABLE 1	**New York State Department of Health**		**California Department of Public Health**		**State of Florida Department of Health**				**State of New Jersey Department of Environmental Protection**			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NPW	**S**	**NPW**	**S**	**Dr. W**	**NPW**	**S**	**T**	**Dr. W**	**NPW**	**S**	**T**
PCDD/F - Polychlorinated Dioxins and Furans												
Dioxins			1									
Dioxins and Dibenzofurans				2								
1,2,3,4,6,7,8-HpCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,6,7,8-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8,9-HpCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,4,7,8-HxCDF			1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,6,7,8-HxCDD			1	2		1, 2, 3	2, 3	2, 3		1	2	2

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
1,2,3,6,7,8-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8,9-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
1,2,3,7,8-PeCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,6,7,8-HxCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,4,7,8-PeCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDD		1		1	2		1, 2, 3	2, 3	2, 3		1	2	2
2,3,7,8-TCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDD				1	2		1, 2, 3	2, 3	2, 3		1	2	2
OCDF				1	2		1, 2, 3	2, 3	2, 3		1	2	2
Total TCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total TCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total PeCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total HxCDF				1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDD				1			1, 2, 3	2, 3	2, 3			2	2
Total HpCDF				1			1, 2, 3	2, 3	2, 3			2	2
PCBs – Polychlorinated biphenyls													
PCB 1	2-Chlorobiphenyl	7	7								7	7	
PCB 3	4-Chlorobiphenyl	7	7								7	7	
PCB 4	2,2'-Dichlorobiphenyl	7	7								7	7	
PCB 5	2,3-Dichlorobiphenyl	7	7								7	7	
PCB 15	4,4'-Dichlorobiphenyl	7	7								7	7	
PCB 18	2,2',5-Trichlorobiphenyl	7	7								7	7	
PCB 19	2,2',6-Trichlorobiphenyl	7	7								7	7	
PCB 31	2,4',5-Trichlorobiphenyl	7	7								7	7	
PCB 37	3,4,4'-Trichlorobiphenyl	7	7								7	7	
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	7	7								7	7	
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	7	7								7	7	
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	7	7								7	7	
PCB 81	3,4,4',5-Tetrachlorobiphenyl	7	7								7	7	
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	7	7								7	7	

AXYS Analytical Services Ltd.

TABLE 1		New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
		Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
		NPW	S	NPW	S	Dr. W	NPW	S	T	Dr. W	NPW	S	T
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	7	7								7	7	
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	7	7								7	7	
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	7	7								7	7	
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	7	7								7	7	
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	7	7								7	7	
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl										7	7	
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	7	7								7	7	
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	7	7								7	7	
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	7	7								7	7	
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl		7								7		
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	7	7								7	7	
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	7	7								7	7	
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	7	7								7	7	
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	7	7								7	7	
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	7	7								7	7	
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	7	7								7	7	
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7	7								7	7	
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7	7								7		
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7	7								7	7	
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7	7								7	7	
PCB 209	Decachlorobiphenyl	7	7								7	7	
Aroclor 1260		7, 11	5, 7	11	5								
Aroclor 1254		7, 11	5, 7	11	5								
Aroclor 1221		7, 11	5, 7	11	5								
Aroclor 1232		7, 11	5, 7	11	5								
Aroclor 1248		7, 11	5, 7	11	5								
Aroclor 1016		7, 11	5, 7	11	5								
Aroclor 1242		7, 11	5, 7	11	5								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Pesticides												
4,4'-DDD	11	5	11	5								
4,4'-DDE	11	5	11	5								
4,4'-DDT	11	5	11	5								
Aldrin	11	5	11	5								
Alpha-HCH	11	5	11	5								
Beta-HCH	11	5	11	5								
cis-Chlordane (alpha-Chlordane)	5	5										
Chlordane, technical	5, 11	5	11	5								
Delta-HCH	11	5	11	5								
Dieldrin	4	6	4	6								
Endosulphan I	4	6	4	6								
Endosulphan II	4	6	4	6								
Endosulphan sulphate	4	6	4	6								
Endrin	4	6	4	6								
Endrin aldehyde	4	6	4	6								
trans-Chlordane (gamma-Chlordane)	5	5										
Gamma-HCH (Lindane)	11	5	11	5								
Heptachlor	11	5	11	5								
Heptachlor epoxide	4	6	4	6								
Hexachlorobenzene	9	5	9	5								
Methoxychlor	4,8	6	8	6								
Mirex	5											
PAH												
Anthracene	9	20	9	20								
Pyrene	9	20	9	20								
Benzo[ghi]perylene	9	20	9	20								
Indeno[1,2,3-cd]pyrene	9	20	9	20								
Benzo[b]fluoranthene	9	20	9	20								
Fluoranthene	9	20	9	20								
Benzo[k]fluoranthene	9	20	9	20								
Acenaphthylene	9	20	9	20								
Chrysene	9	20	9	20								
Benzo[a]pyrene	9	20	9	20								
Dibenz[ah]anthracene	9	20	9	20								
Benz[a]anthracene	9	20	9	20								

AXYS Analytical Services Ltd.

TABLE 1	New York State Department of Health		California Department of Public Health		State of Florida Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID 11674 NELAP Primary		Lab ID 01138CA NELAP Secondary		Lab ID E871007 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	NP W	S	NP W	S	Dr. W	NP W	S	T	Dr. W	NP W	S	T
Acenaphthene	9	20	9	20								
Phenanthrene	9	20	9	20								
Fluorene	9	20	9	20								
Naphthalene	9	20	9	20								

AXYS Analytical Services Ltd.

Table 1b
NELAP Accreditation Held by AXYS Analytical Services Ltd.
for Perfluorinated Organic Compounds

Matrix Codes for Table 1b

NPW = Non-Potable Water
DrW = Drinking Water
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 1b

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
12	AXYS MLA-041	MLA-041, laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043, laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060, laboratory performance based method (LC/MS-MS)

TABLE 1	State of Florida Department of Health				Minnesota Department of Health				State of New Jersey Department of Environmental Protection			
	Lab ID E871007 NELAP Primary				Lab ID 232-999-430 NELAP Primary				Lab ID CANA005 NELAP Secondary			
	Dr. W	NP W	S	T	Dr. W	NP W	S	T	Dr. W	NP W	S	T
PFC – Perfluorinated Organic Compounds												
Perfluorobutanoate (PFBA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoropentanoate (PFPeA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanoate (PFHxA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroheptanoate (PFHpA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanoate (PFOA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorononanoate (PFNA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorodecanoate (PFDA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluoroundecanoate (PFUnA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorododecanoate (PFDoA) Note	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorobutanesulfonate (PFBS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorohexanesulfonate (PFHxS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctanesulfonate (PFOS)	14	14	12	13	14	14	12	13	14	14	12	13
Perfluorooctane sulfonamide (PFOSA)	14	14	12	13	14	14	12	13				

Note: Accreditations by Minnesota Department of Health and New Jersey Department of Environmental Protection are against the corresponding acid form of the anion shown.

AXYS Analytical Services Ltd.

Table 2:
Canadian and US State Specific Accreditation Held by AXYS Analytical Services Ltd.

Matrix Codes for Table 2

NP W = Non-Potable Water
Dr. W = Drinking Water
W = Aqueous
S = Solid
T = Tissue

Accreditation Method Codes and Explanation for Table 2

Code No.	Accreditation Certificate Method Reference	Applicable AXYS Method and Description
1	EPA 1613	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
3	AXYS MLA-017	MLA-017 Performance based implementation of EPA 1613B (GC/HRMS)
7	EPA 1668A	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
10	AXYS MLA-007	MLA-007, Performance based **modification** of EPA 8270C/D, 8081A/B (GC/LRMS and GC/ECD)
12	AXYS MLA-041	MLA-041 Laboratory performance based method (LC/MS-MS)
13	AXYS MLA-043	MLA-043 Laboratory performance based method (LC/MS-MS)
14	AXYS MLA-060	MLA-060 Laboratory performance based method (LC/MS-MS)
15	AXYS MLA-010	MLA-010 Performance based implementation of EPA 1668A (GC/HRMS)
16	AXYS MLA-028	MLA-028 Laboratory performance based method (GC/HRMS)
17	AXYS MLA-033	MLA-033 Performance based implementation of EPA 1614 (GC/HRMS)
18	AXYS MLA-021	MLA-021 Performance based **modification** of EPA 8270C/D (GC/LRMS)
19	AXYS MLA-075	MLA-075 Performance based implementation of EPA 1694 (LC/MS-MS)

TABLE 2	**Canadian Association for Laboratory Accreditation (CALA)**				**Washington State Department of Ecology**	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	**S**	**Pulp**	**T**	**NP W**	**S**
PCDD/F - Polychlorinated Dioxins and Furans						
1,2,3,4,6,7,8-HpCDD	3	3	3	3	1	1
1,2,3,4,6,7,8-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8,9-HpCDF	3	3	3	3	1	1
1,2,3,4,7,8-HxCDD	3	3	3	3	1	1
1,2,3,4,7,8-HxCDF	3	3	3	3	1	1
1,2,3,6,7,8-HxCDD	3	3	3	3	1	1
1,2,3,6,7,8-HxCDF	3	3	3	3	1	1
1,2,3,7,8,9-HxCDD	3	3	3	3	1	1
1,2,3,7,8,9-HxCDF	3	3	3	3	1	1
1,2,3,7,8-PeCDD	3	3	3	3	1	1
1,2,3,7,8-PeCDF	3	3	3	3	1	1
2,3,4,6,7,8-HxCDF	3	3	3	3	1	1
2,3,4,7,8-PeCDF	3	3	3	3	1	1
2,3,7,8-TCDD	3	3	3	3	1	1
2,3,7,8-TCDF	3	3	3	3	1	1
OCDD	3	3	3	3	1	1
OCDF	3	3	3	3	1	1
Total TCDD					1	1
Total TCDF					1	1
Total PeCDD					1	1
Total PeCDF					1	1
Total HxCDD					1	1

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
Total HxCDF						1	1
Total HpCDD						1	1
Total HpCDF						1	1
Total PCDD						1	1
Total PCDF						1	1
Total PCDD + PCDF						1	1
PCBs – Polychlorinated biphenyls							
PCB 1	2-Chlorobiphenyl	15	15		15	7	7
PCB 2	3-Chlorobiphenyl	15	15		15	7	7
PCB 3	4-Chlorobiphenyl	15	15		15	7	7
PCB 4	2,2'-Dichlorobiphenyl	15	15		15	7	7
PCB 5	2,3-Dichlorobiphenyl	15	15		15	7	7
PCB 6	2,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 7	2,4-Dichlorobiphenyl	15	15		15	7	7
PCB 8	2,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 8/5		10	10		10		
PCB 9	2,5-Dichlorobiphenyl	15	15		15	7	7
PCB 10	2,6-Dichlorobiphenyl	15	15		15	7	7
PCB 11	3,3'-Dichlorobiphenyl	15	15		15	7	7
PCB 12	3,4-Dichlorobiphenyl	15	15		15	7	7
PCB 13	3,4'-Dichlorobiphenyl	15	15		15	7	7
PCB 14	3,5-Dichlorobiphenyl	15	15		15	7	7
PCB 15	4,4'-Dichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 16	2,2',3-Trichlorobiphenyl	15	15		15	7	7
PCB 16/32		10	10		10		
PCB 17	2,2',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 18	2,2',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 19	2,2',6-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 20	2,3,3'-Trichlorobiphenyl	15	15		15	7	7
PCB 21	2,3,4-Trichlorobiphenyl	15	15		15	7	7
PCB 22	2,3,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 23	2,3,5-Trichlorobiphenyl	15	15		15	7	7
PCB 24	2,3,6-Trichlorobiphenyl	15	15		15	7	7
PCB 24/27		10	10		10		
PCB 25	2,3',4-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 26	2,3',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 27	2,3',6-Trichlorobiphenyl	15	15		15	7	7
PCB 28	2,4,4'-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 29	2,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 30	2,4,6-Trichlorobiphenyl	15	15		15	7	7
PCB 31	2,4',5-Trichlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 32	2,4',6-Trichlorobiphenyl	15	15		15	7	7
PCB 33	2,3',4'-Trichlorobiphenyl	15	15		15	7	7
PCB 33/20/21		18	10		10		
PCB 34	2,3',5'-Trichlorobiphenyl	15	15		15	7	7
PCB 35	3,3',4-Trichlorobiphenyl	15	15		15	7	7
PCB 36	3,3',5-Trichlorobiphenyl	15	15		15	7	7
PCB 37	3,4,4'-Trichlorobiphenyl	15	15		15	7	7
PCB 38	3,4,5-Trichlorobiphenyl	15	15		15	7	7
PCB 39	3,4',5-Trichlorobiphenyl	15	15		15	7	7
PCB 40	2,2',3,3'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 41	2,2',3,4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 41/71/64/68		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 42	2,2',3,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 42/59		10	10		10		
PCB 43	2,2',3,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 45	2,2',3,6-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 46	2,2',3,6'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 47	2,2',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 47/48/75		10	10		10		
PCB 48	2,2',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 49/43		10	10		10		
PCB 50	2,2',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 51	2,2',4,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 52/73		10	10		10		
PCB 53	2,2',5,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 54	2,2',6,6'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 55	2,3,3',4-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56	2,3,3',4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 56/60		10	10		10		
PCB 57	2,3,3',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 58	2,3,3',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 59	2,3,3',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 60	2,3,4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 61	2,3,4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 62	2,3,4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 63	2,3,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 64	2,3,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 65	2,3,5,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 66/80		10	10		10		
PCB 67	2,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 68	2,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 69	2,3',4,6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70	2,3',4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 70/76		10	10		10		
PCB 71	2,3',4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 72	2,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 73	2,3',5',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74	2,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 74/61		10	10		10		
PCB 75	2,4,4',6-Tetrachlorobiphenyl	15	15		15	7	7
PCB 76	2,3',4',5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 77	3,3',4,4'-Tetrachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 78	3,3',4,5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 79	3,3',4,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 80	3,3',5,5'-Tetrachlorobiphenyl	15	15		15	7	7
PCB 81	3,4,4',5-Tetrachlorobiphenyl	15	15		15	7	7
PCB 82	2,2',3,3',4-Pentachlorobiphenyl	15	15		15	7	7
PCB 83	2,2',3,3',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 83/108		10	10		10		
PCB 84	2,2',3,3',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 85	2,2',3,4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 85/120		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 86	2,2',3,4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 87/115/116		10	10		10		
PCB 88	2,2',3,4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 89	2,2',3,4,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 90	2,2',3,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 91	2,2',3,4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 92	2,2',3,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 93	2,2',3,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 94	2,2',3,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 95	2,2',3,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 95/93		10	10		10		
PCB 96	2,2',3,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97	2,2',3,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 97/86		10	10		10		
PCB 98	2,2',3,4',6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 99	2,2',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 100	2,2',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 101/90/89		10	10		10		
PCB 102	2,2',4,5,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 103	2,2',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 104	2,2',4,6,6'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	15	15		15	7	7
PCB 105/127		10	10		10		
PCB 106	2,3,3',4,5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107	2,3,3',4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 107/109		10	10		10		
PCB 108	2,3,3',4,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 109	2,3,3',4,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 111	2,3,3',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 112	2,3,3',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 113	2,3,3',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 114	2,3,4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 115	2,3,4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 116	2,3,4,5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 117	2,3,4',5,6-Pentachlorobiphenyl	15	15		15	7	7
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	15	15		15	7	7
PCB 118/116		10	10		10		
PCB 119	2,3',4,4',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 120	2,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 121	2,3',4,5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 122	2,3,3',4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 123	2,3',4,4',5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 124	2,3',4',5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 125	2,3',4',5',6-Pentachlorobiphenyl	15	15		15	7	7
PCB 126	3,3',4,4',5-Pentachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 127	3,3',4,5,5'-Pentachlorobiphenyl	15	15		15	7	7
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 129	2,2',3,3',4,5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 130	2,2',3,3',4,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 131	2,2',3,3',4,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 131/142		10	10		10		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 132	2,2',3,3',4,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 133	2,2',3,3',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 134	2,2',3,3',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 134/143		10	10		10		
PCB 135	2,2',3,3',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 136	2,2',3,3',6,6'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 137	2,2',3,4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 138/163/164		10	10		10		
PCB 139	2,2',3,4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 140	2,2',3,4,4',6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 141	2,2',3,4,5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 142	2,2',3,4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 143	2,2',3,4,5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 144	2,2',3,4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 144/135		10	10		10		
PCB 145	2,2',3,4,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 146	2,2',3,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 147	2,2',3,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 148	2,2',3,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 149/139		10	10		10		
PCB 150	2,2',3,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 151	2,2',3,5,5',6-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 152	2,2',3,5,6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 154	2,2',4,4',5,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 155	2,2',4,4',6,6'-Hexachlorobiphenyl	15	15		15	7	7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 157	2,3,3',4,4',5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 158	2,3,3',4,4',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 158/160		10	10		10		
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 160	2,3,3',4,5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 161	2,3,3',4,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 162	2,3,3',4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 165	2,3,3',5,5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 166	2,3,4,4',5,6-Hexachlorobiphenyl	15	15		15	7	7
PCB 167	2,3',4,4',5,5'-Hexachlorobiphenyl	15	15		15	7	7
PCB 168	2,3',4,4',5',6-Hexachlorobiphenyl	15	15		15	7	7
PCB 169	3,3',4,4',5,5'-Hexachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	15	15		15	7	7
PCB 170/190		10	10		10		
PCB 171	2,2',3,3',4,4',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	15	15		15	7	7
PCB 172/192		10	10		10		
PCB 173	2,2',3,3',4,5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 174/181		10	10		10		
PCB 175	2,2',3,3',4,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
PCB 178	2,2',3,3',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 181	2,2',3,4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 185	2,2',3,4,5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 187	2,2',3,4',5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 187/182		10	10		10		
PCB 188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	15	15		15	7	7
PCB 189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 190	2,3,3',4,4',5,6-Heptachlorobiphenyl	15	15		15	7	7
PCB 191	2,3,3',4,4',5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 192	2,3,3',4,5,5',6-Heptachlorobiphenyl	15	15		15	7	7
PCB 193	2,3,3',4',5,5',6-Heptachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 196/203		10	10		10		
PCB 197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	15	15		15	7	7
PCB 204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	15	15		15	7	7
PCB 205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	10, 15	10, 15		10, 15	7	7
PCB 209	Decachlorobiphenyl	10, 15	10, 15		10, 15	7	7
Total Monochlorobiphenyls		15	15		15		
Total Dichlorobiphenyls		10, 15	10, 15		10, 15		
Total Trichlorobiphenyls		10, 15	10, 15		10, 15		
Total Tetrachlorobiphenyls		10, 15	10, 15		10, 15		
Total Pentachlorobiphenyls		10, 15	10, 15		10, 15		
Total Hexachlorobiphenyls		10, 15	10, 15		10, 15		
Total Heptachlorobiphenyls		10, 15	10, 15		10, 15		
Total Octachlorobiphenyls		10, 15	10, 15		10, 15		
Total Nonachlorobiphenyls		10, 15	10, 15		10, 15		
Total Decachlorobiphenyls		10	10		10		
Total Polychlorinated biphenyls		10	10		10		7
Aroclors							
Aroclor 1260		10	10		10	7	7
Aroclor 1254		10	10		10	7	7
Aroclor 1268		10	10		10		
Aroclor 1221		10	10		10	7	7
Aroclor 1232		10	10		10	7	7
Aroclor 1248		10	10		10	7	7
Aroclor 1016						7	7

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Aroclor 1242					7	7
Aroclor 1242/1016	10	10		10		
Pesticides						
2,4'-DDD	10, 16	10, 16		10, 16	16	
2,4'-DDE	10, 16	10, 16		10, 16	16	
2,4'-DDT	10, 16	10, 16		10, 16	16	
4,4'-DDD	10, 16	10, 16		10, 16	16	
4,4'-DDE	10, 16	10, 16		10, 16	16	
4,4'-DDT	10, 16	10, 16		10, 16	16	
Aldrin	10, 16	10, 16		10, 16	16	
Alpha-HCH	10, 16	10, 16		10, 16	16	
Beta-HCH	10, 16	10, 16		10, 16	16	
cis-Chlordane (alpha-Chlordane)	10, 16	10, 16		10, 16	16	
cis-Nonachlor	10, 16	10, 16		10, 16	16	
Delta-HCH	10, 16	10, 16		10, 16	16	
Dieldrin	10, 16	10, 16		10, 16	16	
Endosulphan I	10, 16	10, 16		10, 16	16	
Endosulphan II	10, 16	10, 16		10, 16	16	
Endosulphan sulphate	10, 16	10, 16		10, 16	16	
Endrin	10, 16	10, 16		10, 16	16	
Endrin aldehyde	10, 16	10, 16		16	16	
Endrin ketone	10, 16	10, 16		10, 16	16	
Gamma-HCH (Lindane)	10, 16	10, 16		10, 16	16	
Heptachlor	10, 16	10, 16		10, 16	16	
Heptachlor epoxide	10, 16	10, 16		10, 16	16	
Hexachlorobenzene	10, 16	10, 16		10, 16	16	
Hexachlorobutadiene		16		16		
Methoxychlor	10, 16	10, 16		10, 16	16	
Mirex	10, 16	10, 16		10, 16	16	
Oxychlordane	10, 16	10, 16		10, 16	16	
Toxaphene	10	10		10		
trans-Chlordane (gamma-Chlordane)	10, 16	10, 16		10, 16	16	
trans-Nonachlor	16	10, 16		10, 16	16	
BDE - Brominated Diphenylethers						
BDE 7 2,4-dibromodiphenylether	17	17		17		
BDE 8 2,4'-dibromodiphenylether	17	17		17		
BDE 10 2,6-dibromodiphenylether	17	17		17		
BDE 11 3,3'-dibromodiphenylether	17	17		17		
BDE 12 3,4-dibromodiphenylether	17	17		17		
BDE 13 3,4'-dibromodiphenylether	17	17		17		
BDE 15 4,4'-dibromodiphenylether	17	17		17		
BDE 17 2,2',4-tribromodiphenylether	17	17		17		
BDE 25 2,3',4-tribromodiphenylether	17	17		17		
BDE 28 2,4,4'-tribromodiphenylether	17	17		17		
BDE 30 2,4,6-tribromodiphenylether	17	17		17		
BDE-33 2',3,4-tribromodiphenylether	17	17		17		
BDE 35 3,3',4-tribromodiphenylether	17	17		17		
BDE 37 3,4,4'-tribromodiphenylether	17	17		17		
BDE 47 2,2',4,4'-tetrabromodiphenylether	17	17		17		
BDE 49 2,2',4,5'-tetrabromodiphenylether	17	17		17		
BDE 66 2,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 75 2,4,4',6-tetrabromodiphenylether	17	17		17		

AXYS Analytical Services Ltd.

TABLE 2		Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
		Accreditation No.: A 2637				Lab. ID: C404	
		W	S	Pulp	T	NP W	S
BDE 77	3,3',4,4'-tetrabromodiphenylether	17	17		17		
BDE 85	2,2',3,4,4'-pentabromodiphenylether	17	17		17		
BDE 99	2,2',4,4',5-pentabromodiphenylether	17	17		17		
BDE 100	2,2',4,4',6-pentabromodiphenylether	17	17		17		
BDE 105	2,3,3',4,4'-pentabromodiphenylether	17	17		17		
BDE 116	2,3,4,5,6-pentabromodiphenylether	17	17		17		
BDE 119	2,3',4,4',6-pentabromodiphenylether	17	17		17		
BDE 126	3,3',4,4',5-pentabromodiphenylether	17	17		17		
BDE 140	2,2',3,4,4',6'-hexabromodiphenylether	17	17		17		
BDE 153	2,2',4,4',5,5'-hexabromodiphenylether	17	17		17		
BDE 154	2,2',4,4',5',6-hexabromodiphenylether	17	17		17		
BDE 155	2,2',4,4',6,6'-hexabromodiphenylether	17	17		17		
BDE 166	2,3,4,4',5,6-hexabromodiphenylether	17	17		17		
BDE 181	2,2',3,4,4',5,6-heptabromodiphenylether	17	17		17		
BDE-183	2,2',3,4,4',5',6-heptabromodiphenylether	17	17		17		
BDE 190	2,3,3',4,4',5,6-heptabromodiphenylether	17	17		17		
BDE 206	2,2',3,3',4,4',5,5',6-nonabromodiphenylether	17	17		17		
BDE 207	2,2',3,3',4,4',5,6,6'-nonabromodiphenylether	17	17		17		
BDE 208	2,2',3,3',4,5,5',6,6'-nonabromodiphenylether	17	17		17		
BDE 209	Decabromodiphenylether	17	17		17		
PFC – Perfluorinated Organic Compounds							
Perfluorobutanoate (PFBA)		14	12		13		
Perfluoropentanoate (PFPeA)		14	12		13		
Perfluorohexanoate (PFHxA)		14	12		13		
Perfluoroheptanoate (PFHpA)		14	12		13		
Perfluorooctanoate (PFOA)		14	12		13		
Perfluorononanoate (PFNA)		14	12		13		
Perfluorodecanoate (PFDA)		14	12		13		
Perfluoroundecanoate (PFUnA)		14	12		13		
Perfluorododecanoate (PFDoA)		14	12		13		
Perfluorobutanesulfonate (PFBS)		14	12		13		
Perfluorohexanesulfonate (PFHxS)		14	12		13		
Perfluorooctanesulfonate (PFOS)		14	12		13		
Perfluorooctane sulfonamide (PFOSA)		14	12		13		
PAH							
Anthracene			18		18		
Pyrene			18		18		
Benzo[ghi]perylene			18		18		
Benzo[e]pyrene			18		18		
Indeno[1,2,3-cd]pyrene			18		18		
Perylene			18		18		
Benzo[b]fluoranthene			18		18		
Fluoranthene			18		18		
Benzo[k]fluoranthene					18		
Acenaphthylene			18		18		
Chrysene			18		18		
Benzo[a]pyrene			18		18		
Dibenz[ah]anthracene			18		18		
Benz[a]anthracene			18		18		
Acenaphthene			18		18		
Phenanthrene			18		18		
Fluorene			18		18		

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Naphthalene		18		18		
PPCP (Pharmaceutical and Personal Care Products)						
Acetaminophen	19	19				
Azithromycin	19	19				
Caffeine	19	19				
Carbadox	19	19				
Carbamazepine	19	19				
Cefotaxime	19	19				
Ciprofloxacin	19	19				
Clarithromycin	19	19				
Clinafloxacin	19	19				
Cloxacillin	19	19				
Dehydronifedipine	19	19				
Digoxigenin	19	19				
Digoxin	19	19				
Diltiazem	19	19				
1,7-Dimethylxanthine	19	19				
Diphenhydramine	19	19				
Enrofloxacin	19	19				
Erythromycin	19	19				
Flumequine	19	19				
Fluoxetine	19	19				
Lincomycin	19	19				
Lomefloxacin	19	19				
Miconazole	19	19				
Norfloxacin	19	19				
Norgestimate	19	19				
Ofloxacin	19	19				
Ormetoprim	19	19				
Oxacillin	19	19				
Oxolinic acid	19	19				
Penicillin G	19	19				
Penicillin V	19	19				
Roxithromycin	19	19				
Sarafloxacin	19	19				
Sulfachloropyridazine	19	19				
Sulfadiazine	19	19				
Sulfadimethoxine	19	19				
Sulfamerazine	19	19				
Sulfamethazine	19	19				
Sulfamethizole	19	19				
Sulfamethoxazole	19	19				
Sulfanilamide	19	19				
Sulfathiazole	19	19				
Thiabendazole	19	19				
Trimethoprim	19	19				
Tylosin	19	19				
Virginiamycin	19	19				
Anhydrochlortetracycline (ACTC)	19	19				
Anhydrotetracycline (ATC)	19	19				
Chlortetracycline (CTC)	19	19				
Demeclocycline	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Doxycycline	19	19				
4-Epianhydrochlortetracycline (EACTC)	19	19				
4-Epianhydrotetracycline (EATC)	19	19				
4-Epichlortetracycline (ECTC)	19	19				
4-Epioxytetracycline (EOTC)	19	19				
4-Epitetracycline (ETC)	19	19				
Isochlortetracycline (ICTC)	19	19				
Minocycline	19	19				
Oxytetracycline (OTC)	19	19				
Tetracycline (TC)	19	19				
Bisphenol A	19	19				
Furosemide	19	19				
Gemfibrozil	19	19				
Glipizide	19	19				
Glyburide	19	19				
Hydrochlorothiazide	19	19				
2-hydroxy-ibuprofen	19	19				
Ibuprofen	19	19				
Naproxen	19	19				
Triclocarban	19	19				
Triclosan	19	19				
Warfarin	19	19				
Albuterol	19	19				
Amphetamine	19	19				
Atenolol	19	19				
Atorvastatin	19	19				
Cimetidine	19	19				
Clonidine	19	19				
Codeine	19	19				
Cotinine	19	19				
Enalapril	19	19				
Hydrocodone	19	19				
Metformin	19	19				
Oxycodone	19	19				
Ranitidine	19	19				
Triamterene	19	19				
Alprazolam	19	19				
Amitriptyline	19	19				
Amlodipine	19	19				
Benzoylecgonine	19	19				
Benztropine	19	19				
Betamethasone	19	19				
Cocaine	19	19				
DEET (N,N-diethyl-m-toluamide)	19	19				
Desmethyldiltiazem	19	19				
Diazepam	19	19				
Fluocinonide	19	19				
Fluticasone propionate	19	19				
Hydrocortisone	19	19				
10-hydroxy-amitriptyline	19	19				
Meprobamate	19	19				

AXYS Analytical Services Ltd.

TABLE 2	Canadian Association for Laboratory Accreditation (CALA)				Washington State Department of Ecology	
	Accreditation No.: A 2637				Lab. ID: C404	
	W	S	Pulp	T	NP W	S
Methylprednisolone	19	19				
Metoprolol	19	19				
Norfluoxetine	19	19				
Norverapamil	19	19				
Paroxetine	19	19				
Prednisolone	19	19				
Prednisone	19	19				
Promethazine	19	19				
Propoxyphene	19	19				
Propranolol	19	19				
Sertraline	19	19				
Simvastatin	19	19				
Theophylline	19	19				
Trenbolone	19	19				
Trenbolone acetate	19	19				
Valsartan	19	19				
Verapamil	19	19				

Table 1 and Table 2 - Explanation of Terms Used:

- NELAP = National Environmental Laboratory Accreditation Program
- Non-potable water = water not fit for consumption without treatment as it may contain pollutants, contaminants, minerals or infective agents. Surface water, ground water, rainwater, effluents as well as any other non-drinking water sources are included in this category.
- Solid = environmental solid sample. Soil, sediment, biosolids, hazardous waste, mixed phase samples with significant solids content are included in this category.
- Performance based implementation = methodology follows that of the method reference but modifications deemed by AXYS as minor [1] may apply, results meet method reference data quality standard.
- Performance based modification = modifications deemed by AXYS as significant[2] have been made to method reference protocol, results meet method reference accuracy standard. The suitability of the methodology for any method prescriptive applications should be assessed based on the modifications made and the specific work requirements.
- Performance based method = an in-house AXYS method, published method reference not applicable.
- GC/LRMS = gas chromatography, low resolution mass spectrometry detection.
- GC/HRMS = gas chromatography, high resolution mass spectrometry detection.
- GC/ECD = gas chromatography, electron capture detection.
- LC/MS-MS = liquid chromatography, mass spectrometry-mass spectrometry detection.

Note 1:

Performance Based Implementation - Examples of Minor Modifications

- use of additional isotopically labeled references
- adjustment of calibration range
- adjustment of clean-up technique
- use of a different extraction of same general type (example soxhlet vs soxhlet Dean Stark)
- addition of matrix type using same principles (example addition of tissue matrix using same detection principle and similar extraction type)

Note 2:

Performance Based Modification - Examples of Significant Modifications

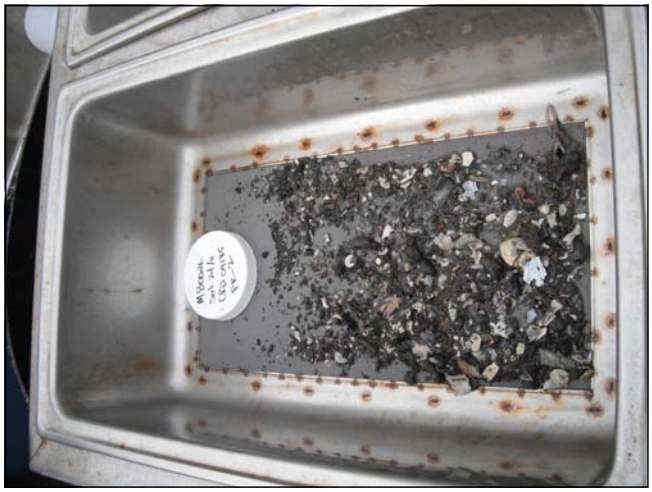
- different acquisition conditions using same detection principle (example MS SIM vs. full scan)
- different internal control limits while meeting method reference accuracy standard

Appendix 3 Sediment Photographs

STATION: M800NE
SAMPLE#: 1
DATE: SEPTEMBER 24, 2011

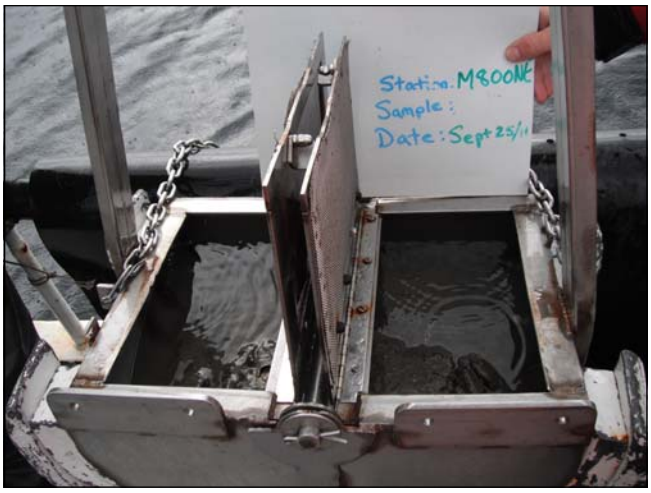
STATION: M800NE
SAMPLE#: 1
DATE: SEPTEMBER 24, 2011

STATION: M800NE
SAMPLE#: 2
DATE: SEPTEMBER 24, 2011



STATION: M800NE
SAMPLE#: 2
DATE: SEPTEMBER 24, 2011

A SHEET | SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	CRD Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M800NE	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
"This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing."	WORLEYPARSONS PROJECT No. 307071-00020	FIG No 1	REV A



STATION: M800NE
SAMPLE#: 3
DATE: SEPTEMBER 25, 2011

STATION: M800NE
SAMPLE#: 3
DATE: SEPTEMBER 24, 2011

STATION: M800NE
SAMPLE#: 4
DATE: SEPTEMBER 24, 2011

STATION: M800NE
SAMPLE#: 4
DATE: SEPTEMBER 24, 2011

A SHEET SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	CRD Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M800NE	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
"This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing."	WORLEYPARSONS PROJECT No. 307071-00020	FIG No 2	REV A

STATION: M800NE
SAMPLE#: 5
DATE: SEPTEMBER 29, 2011

STATION: M800NE
SAMPLE#: 6
DATE: SEPTEMBER 29, 2011

STATION: M800NE
SAMPLE#: 7
DATE: SEPTEMBER 29, 2011

STATION: M800NE
SAMPLE#: 8
DATE: SEPTEMBER 29, 2011

A SHEET | SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M800NE	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
"This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing."	WORLEYPARSONS PROJECT No. 307071-00020	FIG No 3	REV A

STATION: T1000
SAMPLE#: 1
DATE: SEPTEMBER 29, 2011

STATION: T1000
SAMPLE#: 2
DATE: SEPTEMBER 29, 2011

STATION: T1000
SAMPLE#: 3
DATE: SEPTEMBER 29, 2011

STATION: T1000
SAMPLE#: 4
DATE: SEPTEMBER 29, 2011

A SHEET | SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— T1000	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
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STATION: T2000
SAMPLE#: 1
DATE: SEPTEMBER 29, 2011

STATION: T2000
SAMPLE#: 2
DATE: SEPTEMBER 29, 2011

STATION: T2000
SAMPLE#: 3
DATE: SEPTEMBER 29, 2011

STATION: T2000
SAMPLE#: 4
DATE: SEPTEMBER 29, 2011

A SHEET SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	CRD Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— T2000	
Date: 05-Feb-13 Drawn by: PH Edited by: BB App'd by:			
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STATION: T2000
SAMPLE#: 5
DATE: SEPTEMBER 29, 2011

A SHEET | SCALE NTS OneWay™ to zero harm Date: 05-Feb-13 Drawn by: PH Edited by: BB App'd by:	CUSTOMER CRD Making a difference...together	WorleyParsons resources & energy CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— T2000	
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STATION: M1400ESE
SAMPLE#: 1
DATE: SEPTEMBER 24, 2011

STATION: M1400ESE
SAMPLE#: 1
DATE: SEPTEMBER 24, 2011

STATION: M1400ESE
SAMPLE#: 2
DATE: SEPTEMBER 24, 2011

STATION: M1400ESE
SAMPLE#: 2
DATE: SEPTEMBER 24, 2011

A SHEET | SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	CRD Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M1400ESE	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
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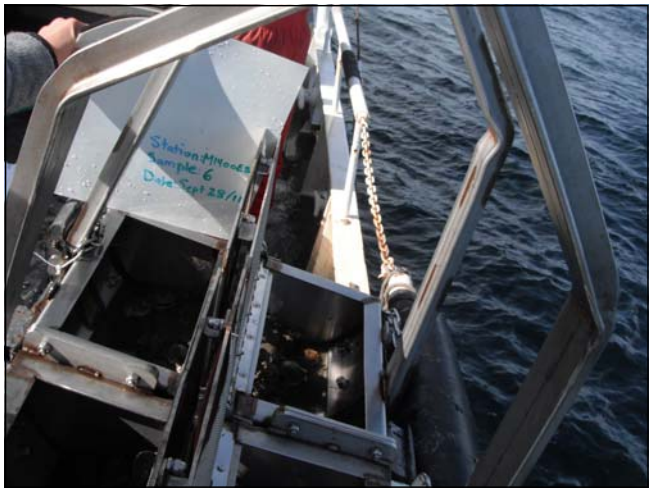
STATION: M1400ESE
SAMPLE#: 3
DATE: SEPTEMBER 24, 2011

STATION: M1400ESE
SAMPLE#: 3
DATE: SEPTEMBER 24, 2011

STATION: M1400ESE
SAMPLE#: 5
DATE: SEPTEMBER 28, 2011



STATION: M1400ESE
SAMPLE#: 6
DATE: SEPTEMBER 28, 2011

A SHEET | SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	CRD Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M1400ESE	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
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STATION: M1400ESE
SAMPLE#: 7
DATE: SEPTEMBER 28, 2011

STATION: M1400ESE
SAMPLE#: 8
DATE: SEPTEMBER 28, 2011

STATION: M1400ESE
SAMPLE#: 10
DATE: SEPTEMBER 28, 2011

A SHEET SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM TECH VOLUME#2 - SEDIMENT QUALITY AND BENTHIC COMMUNITY SEDIMENT PHOTOS— M1400ESE	
Date: 05-Feb-13 Drawn by: PH Edited by: BB App'd by:			
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STATION: M1600SE
SAMPLE#: 1
DATE: SEPTEMBER 24, 2011

STATION: M1600SE
SAMPLE#: 1
DATE: SEPTEMBER 24, 2011

STATION: M1600SE
GRAB#: 2
DATE: SEPTEMBER 24, 2011

STATION: M1600SE
GRAB#: 2
DATE: SEPTEMBER 24, 2011

A SHEET SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M1600SE	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
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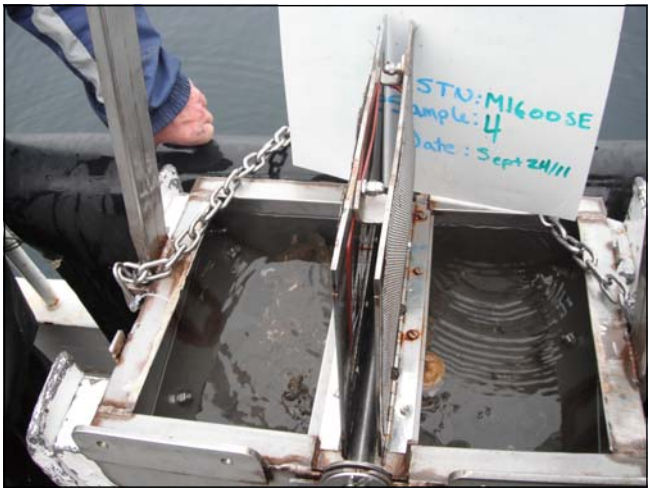
STATION: M1600SE
SAMPLE#: 3
DATE: SEPTEMBER 24, 2011

STATION: M1600SE
SAMPLE#: 3
DATE: SEPTEMBER 24, 2011



STATION: M1600SE
GRAB#: 4
DATE: SEPTEMBER 24, 2011

STATION: M1600SE
GRAB#: 4
DATE: SEPTEMBER 24, 2011

A SHEET | SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M1600SE	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
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STATION: M2300ESE
SAMPLE#: 1
DATE: SEPTEMBER 28, 2011

STATION: M2300ESE
SAMPLE#: 1
DATE: SEPTEMBER 28, 2011

STATION: M2300ESE
SAMPLE#: 2
DATE: SEPTEMBER 28, 2011

STATION: M2300ESE
SAMPLE#: 2
DATE: SEPTEMBER 28, 2011

A SHEET SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	CRD Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M2300ESE	
Date: 05-Feb-13 Drawn by: PH Edited by: BB App'd by:			
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STATION: M2300ESE
SAMPLE#: 3
DATE: SEPTEMBER 28, 2011

STATION: M2300ESE
SAMPLE#: 3
DATE: SEPTEMBER 28, 2011

STATION: M2300ESE
SAMPLE#: 4
DATE: SEPTEMBER 28, 2011

STATION: M2300ESE
SAMPLE#: 4
DATE: SEPTEMBER 28, 2011

A SHEET SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	CRD Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M2300ESE	
Date: 05-Feb-13 Drawn by: PH Edited by: BB App'd by:			
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STATION: M2300ESE
SAMPLE#: 5
DATE: SEPTEMBER 28, 2011

STATION: M2300ESE
SAMPLE#: 6
DATE: SEPTEMBER 28, 2011

A SHEET | SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M2300ESE	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
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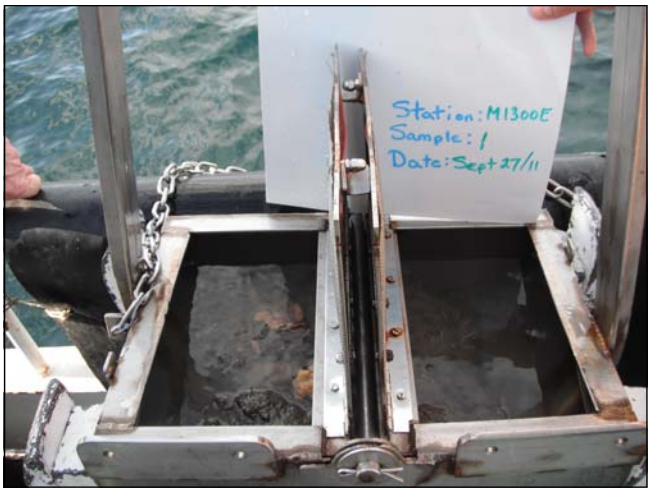

STATION: M1300E
SAMPLE#: 1
DATE: SEPTEMBER 27, 2011

STATION: M1300E
SAMPLE#: 1
DATE: SEPTEMBER 27, 2011

STATION: M1300E
SAMPLE#: 2
DATE: SEPTEMBER 27, 2011

STATION: M1300E
SAMPLE#: 2
DATE: SEPTEMBER 27, 2011

A SHEET SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	CRD Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M1300E	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
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STATION: M1300E
SAMPLE#: 3
DATE: SEPTEMBER 27, 2011

STATION: M1300E
SAMPLE#: 3
DATE: SEPTEMBER 27, 2011

STATION: M1300E
SAMPLE#: 4
DATE: SEPTEMBER 27, 2011

STATION: M1300E
SAMPLE#: 4
DATE: SEPTEMBER 27, 2011

A SHEET | SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	CRD Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M1300E	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
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STATION: M1300E
SAMPLE#: 5
DATE: SEPTEMBER 29, 2011

STATION: M1300E
SAMPLE#: 6
DATE: SEPTEMBER 29, 2011

STATION: M1300E
SAMPLE#: 7
DATE: SEPTEMBER 29, 2011

A SHEET | SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M1300E	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
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STATION: FC3500NE
SAMPLE#: 1
DATE: SEPTEMBER 27, 2011

STATION: FC3500NE
SAMPLE#: 1
DATE: SEPTEMBER 27, 2011

STATION: FC3500NE
SAMPLE#: 2
DATE: SEPTEMBER 27, 2011

STATION: FC3500NE
SAMPLE#: 2
DATE: SEPTEMBER 27, 2011

A SHEET | SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	CRD Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— FC3500NE	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
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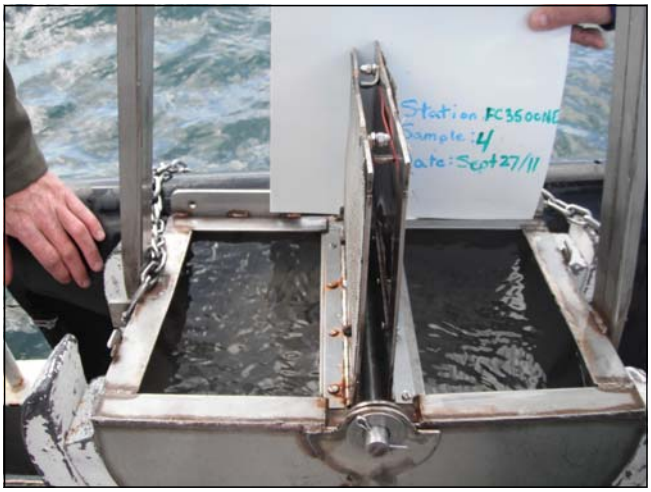
STATION: FC3500NE
SAMPLE#: 3
DATE: SEPTEMBER 27, 2011

STATION: FC3500NE
SAMPLE#: 3
DATE: SEPTEMBER 27, 2011



STATION: FC3500NE
SAMPLE#: 4
DATE: SEPTEMBER 27, 2011

STATION: FC3500NE
SAMPLE#: 4
DATE: SEPTEMBER 27, 2011

A SHEET SCALE NTS	CUSTOMER	WorleyParsons resources & energy
OneWay to zero harm	CRD Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— FC3500NE
Date: 05-Feb-13 Drawn by: PH Edited by: BB App'd by:		

WORLEYPARSONS PROJECT No.	FIG No	REV
307071-00020	19	A

STATION: FC3500NE
SAMPLE#: 5
DATE: SEPTEMBER 27, 2011

STATION: FC3500NE
SAMPLE#: 6
DATE: SEPTEMBER 27, 2011

STATION: FC3500NE
SAMPLE#: 7
DATE: SEPTEMBER 27, 2011

STATION: FC3500NE
SAMPLE#: 8
DATE: SEPTEMBER 27, 2011

A SHEET SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	CRD Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— FC3500NE	
Date: 05-Feb-13 Drawn by: PH Edited by: BB App'd by:			
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STATION: FC4000ENE
SAMPLE#: 1
DATE: SEPTEMBER 27, 2011

STATION: FC4000ENE
SAMPLE#: 1
DATE: SEPTEMBER 27, 2011

STATION: FC4000ENE
SAMPLE#: 2
DATE: SEPTEMBER 27, 2011

STATION: FC4000ENE
SAMPLE#: 2
DATE: SEPTEMBER 27, 2011

A SHEET SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— FC4000ENE	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
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STATION: FC4000ENE
SAMPLE#: 3
DATE: SEPTEMBER 27, 2011

STATION: FC4000ENE
SAMPLE#: 3
DATE: SEPTEMBER 27, 2011

STATION: FC4000ENE
SAMPLE#: 4
DATE: SEPTEMBER 27, 2011

STATION: FC4000ENE
SAMPLE#: 4
DATE: SEPTEMBER 27, 2011

A SHEET SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— FC4000ENE	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
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STATION: FC4000ENE
SAMPLE#: 6
DATE: SEPTEMBER 27, 2011

A SHEET | SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— FC4000ENE	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
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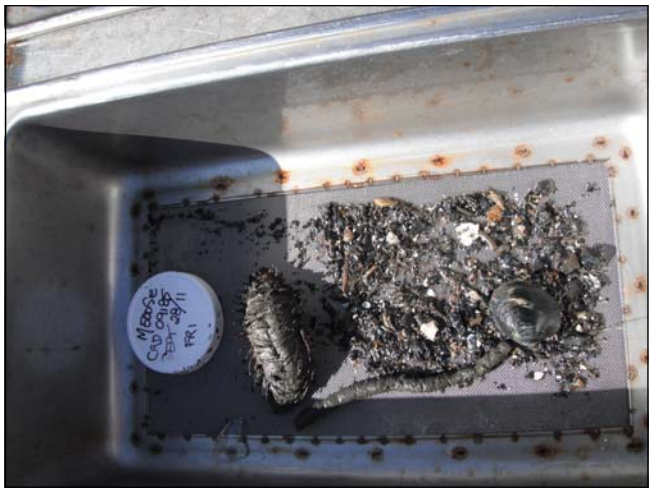
STATION: M500SE
SAMPLE#: 1
DATE: SEPTEMBER 28, 2011



STATION: M500SE
SAMPLE#: 1
DATE: SEPTEMBER 28, 2011

STATION: M500SE
SAMPLE#: 2
DATE: SEPTEMBER 28, 2011

STATION: M500SE
SAMPLE#: 2
DATE: SEPTEMBER 28, 2011

A SHEET | SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	CRD Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M500SE	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
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STATION: M500SE
SAMPLE#: 3
DATE: SEPTEMBER 28, 2011

STATION: M500SE
SAMPLE#: 3
DATE: SEPTEMBER 28, 2011

STATION: M500SE
SAMPLE#: 4
DATE: SEPTEMBER 28, 2011

STATION: M500SE
SAMPLE#: 4
DATE: SEPTEMBER 28, 2011

A SHEET SCALE NTS	CUSTOMER	WorleyParsons resources & energy
OneWay to zero harm	CRD Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M500SE
Date: 05-Feb-13		
Drawn by: PH		
Edited by: BB		
App'd by:		

WORLEYPARSONS PROJECT No.	FIG No	REV
307071-00020	25	A

STATION: M500SE
SAMPLE#: 5
DATE: SEPTEMBER 28, 2011

STATION: M500SE
SAMPLE#: 6
DATE: SEPTEMBER 28, 2011

A SHEET SCALE NTS	CUSTOMER	WorleyParsons resources & energy	
OneWay to zero harm	Making a difference...together	CRD CORE AREA WASTEWATER TREATMENT PROGRAM PRE-DISCHARGE MONITORING PROGRAM SEDIMENT QUALITY AND BENTHIC COMMUNITY TECHNICAL VOLUME SEDIMENT PHOTOS— M500SE	
Date: 05-Feb-13			
Drawn by: PH			
Edited by: BB			
App'd by:			
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Appendix 4 Benthic Services Group 2012 Data Report

FINAL DATA REPORT

WORLEY PARSONS BENTHIC INVERTEBRATE SAMPLE PROCESSING RESULTS

Prepared by:

Benthic Services Group, LLC
20228 23rd PL NW
Shoreline, WA 98177

November 2012

TABLE OF CONTENTS

1.0 Introduction

Benthic Services Group provided sample sorting, enumeration, precision analysis, QA/QC, and taxonomic processing for marine benthic samples collected by Worley Parsons in 2011. The scope of work for this project included the following laboratory and data management services:

- Sorting and enumeration of organisms to major taxa level from 37 marine benthic samples representing 3 replicates from 12 stations, and one additional replicate from station: M2600ESE.

- Taxonomic identification to lowest practical taxonomic level (usually species)

- Precision analysis to determine degree of variance between station replicates

- Creation of an electronic dataset with associated species codes

- QA/QC including 95 percent or greater sorting efficiency, 10 percent resort of sorted samples, and verification of the final data set.

2.0 Sample Preparation and Storage

The benthic samples were collected in the fall of 2011. Four replicate samples were collected from each of 12 established stations using a 0.1 m^2 van Veen grab sampler. Samples were initially screened in the field using a 1.0 mm sieve and preserved with a buffered formalin solution. The samples arrived in good condition at the Benthic Services Group laboratory and were subsequently rescreened and transferred to 70% isopropyl. If a sample consisted of multiple containers, all containers were located and processed as a group. The standard biological stain (Rose Bengal) was added to the samples to facilitate the sorting process. The stain binds to animal protein and has the effect of turning organisms pink or red, making them easier to sort from the sediment matrix of the sample.

3.0 Sample Enumeration and Identification

3.1 Sorting

Standard and accepted techniques were used for sorting organisms from the sediments. The samples were processed in the laboratory using a 0.5mm sieve (half the mesh size of the field sieve). Use of a smaller sieve than that used in the field ensured retention of smaller organisms and fragments. Small fractions of a sample were placed in a petri dish under a 25-power magnification dissecting microscope. The petri dish was then scanned systematically and all benthic organisms were removed using forceps. Each petri dish was sorted at least twice to ensure removal of benthic organisms. Organisms representing major taxonomic groups including polychaeta, arthropoda, mollusca, and miscellaneous taxa were sorted, enumerated, and placed into separate, labeled vials containing 70% ethanol. The major taxa sorting data thus collected were used to perform precision analysis calculations on the replicate samples. Additional information regarding the precision analysis calculations is included in section 4.1, below. All sorted samples were systematically checked to ensure compliance with QA/QC program requirements (see section 5.1) before they were allowed to progress to the taxonomic identification phase of the project. All samples were sorted 100%, no sub-sampling was performed.

3.2 Taxonomic Analyses

Identifications were performed by regional taxonomic specialists (see section 3.3) using stereo dissecting and high-power compound microscopes. All organisms were enumerated and identified to the lowest practical taxonomic level, generally species. If organism fragments were present, only anterior portions were counted. Rare or questionable taxa were compared against specimens in the CRD and/or BSG reference collections for confirmation and consistency of identifications.

3.3 Taxonomic Specialists

Gary Rosenthal: Mr. Rosenthal is an environmental scientist and project manager with over 22 years experience specializing in the assessment of benthic community impacts and polychaete taxonomy. Mr. Rosenthal has extensive experience as principal investigator leading field surveys and implementing biological, sediment chemistry, and water quality sampling protocols.

He has managed benthic laboratories for BSG, EHI and EVS consultants and provides polychaete taxonomic services for benthic community studies. He has supported numerous investigations conducted in Canada, Alaska, the Pacific Northwest, and the Gulf of Mexico on the effects of pollutants and organic enrichment on intertidal and subtidal marine communities. His responsibilities include project management, training and supervision of laboratory support staff, coordination of sample processing, taxonomic identification, and quality assurance and control compliance.

Mr. Rosenthal is the Director of Benthic Services Group and served as Senior Project Manager and lead taxonomist for this project.

Ms. Pam Sparks: Ms. Sparks has over 21 years of experience as a taxonomist specializing in marine arthropods. She has identified marine arthropods from Mexico, the Pacific Northwest, Canada, and Alaska.

Ms. Sparks provided arthropod identifications for this project.

Ms. Susan Weeks: Ms. Weeks is the owner of OIKOS, a small, woman-owned enterprise providing taxonomic expertise in the identification of marine Molluscs. Ms. Weeks has over 20 years experience identifying marine molluscs from the Pacific Northwest, Canada, and Alaska.

Ms. Weeks provided mollusca identifications for this project.

Mr. Steven Hulsman: Mr. Hulsman has over 22 years of experience as a taxonomist specializing in the identification of miscellaneous taxa from the Pacific Northwest, Canada, and Alaska. Mr. Hulsman is also a member of the Southern California Association of Marine Invertebrate Taxonomists. Mr. Hulsman provided miscellaneous taxa identifications for this project.

4.0 Data Analyses and Management

4.1 Precision Analysis

Benthic Services Group performed precision analysis on the sorting enumeration data using the following formula: standard statistical methods ((standard deviation/square root (*n)*)/mean) x 100. These analyses are included in Section 9.2. The established protocol for this project required that the fourth replicate should be processed for any station where precision was greater than 20%. The results of the analysis indicated that precision for all stations was within the 20% criterion and therefore taxonomic identification of 4^{th} replicates was not required. Stations PB1 (17%) and M800NE (15%) had the highest variance while stations M1E (6%) and M2300ESE (6%) had the lowest.

4.2 Benthic Infauna Data

Benthic Services Group produced a macroinvertebrate data matrix listing organisms by major taxa group (i.e., Polychaeta, Arthropoda, Mollusca, and Miscellaneous Taxa) and sub-groups in column E of the data file with species abundance data by sample in adjoining columns to the right. Total abundance data (Adult/Juvenile/Combined) for each sample is included at the bottom of each sample's column. Adult versus juvenile determinations were made using best professional judgment of relative size ratios within and across replicate samples based on over a decade’s worth of experience with the benthic taxa in this area.

5.0 Quality Assurance/Quality Control

The following quality assurance and control (QA/QC) procedures for both sorting and taxonomy were employed for this project.

5.1 Sorting

Section 9.1 presents the sorting QA/QC results. Four randomly selected samples were resorted (representing 10% of the samples) as stipulated for sorting QA/QC for this project. Sorting QA/QC was performed using a 25-power magnification dissecting microscope. A sample passed inspection if the number of organisms found during the QA/QC check did not represent more than five percent of the total number of organisms found in the entire sample. If the number of organisms found was greater than five percent of the total number, the entire sample would have been resorted. Sorting efficiency for all of the QA/QC samples was 97 percent or higher. Therefore all of the QA/QC resort samples satisfied and exceeded the 95 percent sorting efficiency criterion for this project.

5.2 Species Identification and Enumeration

Species identification was performed by the regional experts specified in section 3.3 utilizing high-quality dissecting and high-powered compound microscopes. Organisms were identified to the lowest practical level, usually species. Tally counters were used during the initial sorting process to facilitate accurate enumeration of major taxa organisms in each sample to provide data for precision analysis calculations.

5.3 Taxonomic Reference Collection

Any rare or questionable specimens were compared with reference collection samples. The reference collection is divided into major taxa groups, which are catalogued alphabetically and numerically so that a specimen can be accessed directly by scientific name and number. The reference collection is stored in a climate-controlled setting to prevent exposure to temperature extremes. It is inspected twice a year to ensure that alcohol levels are properly maintained**.**

6.0 Laboratory Results

Results from the precision analysis are included in Section 9.2. A hard-copy printout of the taxonomic data has been delivered to Worley Parsons. An electronic version of the taxonomy data has also been delivered, completing the deliverables for this project.

No interpretation of the benthic community data was provided in this data report, as this was not part of the scope of work for this contract.

7.0 Quality Assurance/Quality Control Results

7.1 Sorting QA/QC Results

All of the sorting QA/QC samples satisfied and exceeded the 95 percent sorting efficiency criterion specified for this project. Detailed results of the sorting QA/QC are provided in Section 9. The QA/QC requirements for the sorting phase of this project were satisfied.

7.2 Taxonomy QA/QC Results

Our team of regional experts each have over 20 years professional experience performing identifications of this type in the current study area and Puget Sound. Taxonomic QA/QC was achieved by comparing any unusual species with the in-house reference collections maintained by BSG. This is a standard method used unless otherwise stipulated by the client.

8.0 Taxonomic References

A list of taxonomic references used during the taxonomic phase of this project is included below.

8.1 References Used in the Identification of Polychaeta

Banse, K. 1979. Sabellidae (Polychaeta) principally from the northeast Pacific Ocean. J. Fish. Res. Bd. Can. 36(8): 869-882.

Berkeley, E. and C. Berkeley. 1938. Notes on polychaeta from the coast of western Canada. 2. Syllidae. Ann. Mag. Nat. Hist. (ser. 11) 1: 33-49.

Berkeley, E. and C. Berkeley. 1941. On a collection of polychaeta from southern California. Bull. S. Calif. Acad. Sci. 60(1): 16-60.

Berkeley, E. and C. Berkeley. 1948. Annelida. Polychaeta Errantia. Fish. Res. Bd. Can. 9b(1): 1-100.

Berkeley, E. and C. Berkeley. 1950. Notes on polychaeta from the coast of western Canada. 4. Polychaeta Sedentaria. Ann. Mag. Nat. Hist. (ser. 12) 3: 50-69.

Berkeley, E. and C. Berkeley. 1952. Annelida. Polychaeta Sedentaria. Fish. Res. Bd. Can. 9b(2): 1-139.

Blake, J.A. 1979. Revision of some polydorids (Polychaeta: Spionidae) described and recorded from British Columbia by Edith and Cyril Berkeley. Proc. Biol. Soc. Wash. 92(3): 606-617.

Blake, J.A. and B. Hilbig (editors). 1994. Taxonomic Atlas of the benthic fauna of the Santa Maria Basin and western Santa Barbara Channel. Volume 4: The Annelida part 1. Santa Barbara Museum of Natural History, Santa Barbara, CA. 377 pp.

Blake, J.A., B. Hilbig, and P.H. Scott (editors). 1995. Taxonomic Atlas of the benthic fauna of the Santa Maria Basin and western Santa Barbara Channel. Volume 5: The Annelida part 2. Santa Barbara Museum of Natural History, Santa Barbara, CA. 378 pp.

Blake, J.A., B. Hilbig, and P.H. Scott (editors). 1996. Taxonomic Atlas of the benthic fauna of the Santa Maria Basin and western Santa Barbara Channel. Volume 6: The Annelida part 3. Santa Barbara Museum of Natural History, Santa Barbara, CA. 418 pp.

Blake, J.A., B. Hilbig, and P.V. Scott (editors). 2000. Taxonomic Atlas of the benthic fauna of the Santa Maria Basin and western Santa Barbara Channel. Volume 7: The Annelida part 4. Santa Barbara Museum of Natural History, Santa Barbara, CA. 348 pp.

Emerson, R.R. and K. Fauchald. 1971. A revision of the genus *Loandalia* Monro with description of a new genus and species of pilargiid polychaete. Bull. S. Calif. Acad. Sci. 70: 18-22.

Fabricius, O. 1780. Fauna Groenlandica, systematice sistens, Animalia Groenlandiae occidentalis hactenus indagata, quoad nomen specificum, triviale, vernaculumque; synonyma auctorum plurium, descriptionem, locum, victum, generationem, mores, usum, capturamque singuli; prout detegendi occasio fuit, maximaque parti secundum proprias observationes. Hafniae et Lipsiae. 452 pp.

Fauchald, K. 1970. Polychaetous annelids of the families Eunicidae, Lumbrineridae, Iphitimidae, Arabellidae, Lysaretidae and Dorvilleidae from western Mexico. Allan Hancock Monogr. Mar. Biol. 5: 1-335.

Fitzhugh, K. 1989. A systematic revision of the Sabellidae-Caobangiidae-Sabellongidae complex (Annelida: Polychaeta). Bull. Am. Mus. Nat. Hist. 192: 1-104.

Gardiner, S.I. 1976. Errant polychaete annelids from North Carolina. J. Elisha Mitchell Sci. Soc. 91(3): 77-220.

Hartman, O. 1938. Descriptions of new species and new generic records of polychaetous annelids from California of the families Glyceridae, Eunicidae, Stauronereidae, and Opheliidae. Univ. Calif. Publ. Zool. 43: 93-112.

Hartman, O. 1940. *Boccardia proboscidea*, a new species of spionid worm from California. J. Wash. Acad. Sci. 30: 382-387.

Hartman, O. 1941. Some contributions to the biology and life history of Spionidae from California. Allan Hancock Pacific Exped. 7: 289-324.

Hartman, O. 1968. Atlas of the errantiate polychaetous annelids from California. Allan Hancock Foundation, Univ. S. Calif., Los Angeles, CA. 828 pp.

Hartmann-Schröder, G. 1996. Annelida, Borstenwürmer, Polychaeta. Die Tierwelt Deutschlands 58: 1-648.

Imajima, M. 1966. The Syllidae (Polychaetous Annelids) from Japan. Publ. Seto Mar. Biol Lab. 14: 1-294.

Jirkov, I.A. 2001. Polychaeta of the Arctic Ocean. Moscow, Yanus-K. 632 pp.

Johnson, H.P. 1901. The polychaeta of the Puget Sound region. Proc. Boston Soc. Nat. Hist. 29: 381-437.

Jumars, P.A. 1974. A generic revision of the Dorvilleidae (Polychaeta), with six new species from the deep north Pacific. Zool. J. Linn. Soc. London 54: 101-135.

Licher, F. 1999. Revision der Gattung *Typosyllis* Langerhans, 1879 (Polychaeta: Syllidae). Morphologie, Taxonomie und Phylogenie. Abh. senckenberg. naturforsch. Ges. 551: 1-336.

Pleijel, F. 1993. Polychaeta: Phyllodocidae. Mar. Invert. Scand. 8: 1-155.

Rathke, H. 1843. Beitrage zur Fauna Norwegens. Nova Acta deutsche Akad. Naturf. Halle 20: 1-264.

Uschakov, P.V. 1972. Polychaetes of the suborder Phyllodociformia of the polar basin and the northwestern part of the Pacific. Akad. Nauk SSSR 102: 1-271. [translated 1974]

Uschakov, P.V. 1955. Polychaetous annelids of the far eastern seas of the USSR. Akad. Nauk SSSR, Keys to the fauna of the SSSR 56: 1-433. [translated 1965]

8.2 References Used in the Identification of Amphipoda

Barnard, J.L. 1960. The amphipod family Phoxocephalidae in the eastern Pacific Ocean, with analysis of other species and notes for a revision of the family. Allan Hancock Pacific Expect., 18: 175-368.

Barnard, J.L. 1962. Benthic marine Amphipoda of southern California: families Aoridae, Photidae, Ischyroceridae, Corophiidae, Podoceriidae. Pacific Naturalist, 3: l-72.

Barnard, J.L. 1962. Benthic marine Amphipoda of southern California: families Tironidae to Gammaridae. Pacific Naturalist, 3: 73-115.

Blake, J.A., L. Watling, and P.H. Scott (editors). 1995. Taxonomic Atlas of the benthic fauna of the Santa Maria Basin and western Santa Barbara Channel. Volume 12: The Crustacea part 3. Santa Barbara Museum of Natural History, Santa Barbara, CA. 251 pp.

Bowman, T.B. 1973. Pelagic amphipods of the genus H and closely related genera (Hyperiidea: Hyperiidae). Smithsonian Contr. Zool., no. 136. 76 pp.

Butler, T.H. 1980. Shrimps of the Pacific coast of Canada. Can. Bull. Fish. Aquat. Sci., no. 202. 280 pp.

Calman, W.T. 1912. The Crustacea of the order Cumacea in the collections of the United States National Museum. Proc. U.S. Nat. Mus., 41: 603-676.

Conlan, K.E. 1983. The amphipod superfamily Corophioidea in the northeastern Pacific region. 3. Family Isaediae: systematics and distributional ecology. Nat. Mus. Canada, Publ. Nat. Sci., no. 4- 73 pp.

Dana, J.D. 1853. Crustacea, Part II. U.S. Expl. Exped., vol 14, pp. 689-1618, atlas of 96 pls.

Dickinson, J.J. 1982. Studies on amphipod crustaceans of the northeastern Pacific region. l. Family Ampeliscidae, Genus Ampelisca Nat. Moe. Canada, Publ. Biol. Oceanogr., 10: l-40.

Gurjanova, E. 1938. Amphipoda, Gammaroidea of Siaukhu Bay and Sudzukhe Bay (Japan Sea). Rep. Japan Sea Hydrobiol. Exped. of the Zool. Inst. of the Acad. Sci. USSR, pp. 241-404.

Hart, J.F.L. 1930. Some crustacea of the Vancouver Island region. Contrib. Canad. Biol. Fish., n.s., 6: 25-40.

Hart, J.F.L 1982. Crabs and their relatives of British Columbia. Handbook 40, British Columbia Provincial Museum, Victoria. 266 pp.

Holdich, D.M. & J.A. Jones. 1983. Tanaids. (Synopsis of the British fauna. New series; no. 27). Cambridge University Press, New York, 98 pp.

Hurley, D.E. 1963. Amphipoda of the family Lysianssidae from the west coast of North and Central America. Occas. Pap. Allan Hancock Found., no. 25. 160 pp.

Laubitz, D.R. 1970. Studies on the Caprellidae (Crustacea, Amphipoda) of the American North Pacific. Nat. Mus. Canada Publ. Biol. Oceanogr., no. 1. 89 pp.

Laubitz, D.R. 1977. A revision of the genera Dulichia Kroyer and Paradulichia Boech (Amphiopoda, Podoceridae). Can. J. Zool., 55: 942-982.

Lie, U. 1969. Cumacea from Puget Sound and off the northwestern coast of Washington, with descriptions of two new species. Crustaceana, 17: 19-30.

Lomakina, N.B. 1958. Cumacean crustaceans (Cumacea) of the seas of the USSR. Opredeliteli po Faune SSSR, 66. 301 pp.

Lucas, V.Z. 1931. Ostracoda of the Vancouver Island region. Contrib. Can. Biol. Fish., n.s., 6: 397-416.

Sars, 'G.0. 1895. An Account of the Crustacea of Norway: Amphipoda. Christiana and Copenhagen., vol 1, 711 pp., 240 pls., Suppl.

Schmitt, W. L. 1921. The marine decapod Crustacea of California. Univ. Calif. Publ. Zool., 23: 1-470.

Schultz, G.A. 1969. How to Know the Marine Isopod Crustacean. Dubuque, Iowa: W.C. Brown Co. vii + 359 pp.

Smith, V.Z. 1952. Further Ostracoda of the Vancouver Island region. J. Fish. Res. Bd. Canada, 9: 16-41.

8.3 References Used in the Identification of Mollusca

Abbott, R. Tucker. 1974. American Seashells. Van Nostrand Reinhold Company.
663 pp.

Bernard, F.R. 1970. A distributional checklist of the marine molluscs of British Columbia: based on faunistic surveys since 1950. Syesis 3: 75-94.

Bernard, F. R. 1979. Bivalve Molluscks of the Western Beaufort Sea. Natural History Museum of Los Angeles County. 80 pp.

Coan, Eugene V. 1971. The Northwest Tellinidae. The Veliger (14) Supplement. 50 pp.

Coan, Eugene V. 1977. Preliminary Review of the Northwest American Carditidae. The VeIiger 19 (4) 375-386.

Foighil, Diarmaid O., and Allen Gibson. 1984. The Morphology, Reproduction and EcoIogy of the Commensal Bivalve Scintillona bellerophon spec. nov. (Galeornrnatacea). The Veliger 27 (1) 72-80.

Foster, Nora R. 1991. Intertidal Bivalves. A Guide to the Common Marine Bivalves of Alaska. University of Alaska Press. 152 pp.

Keen, Myra A., and Eugene Coan. 1974. Marine Molluscan Genera of Western North America. An Illustrated Key. Stanford University Press. 208 pp.

Kozloff, Eugene N. 1987. Marine Invertebrates of the Pacific Northwest. University of Washington Press. 511 pp.

McLean, James H. 1978. Marine Shells of Southern California. Natural History Museum of Los Angeles County. 104 pp.

Oldroyd, Ida Shepard. 1924. The Marine Shells of the West Coast of North America. Vol. 1. Stanford University. 247 pp.

Turgeon, Donna D. 1988. Common and Scientific Names of Aquatic Invertebrates of the United States and Canada: Mollusks. American Fisheries Society. 277 pp.

8.4 References Used in the Identification of Echinodermata and Other Phyla

Bernhardt, P. 1979. A Key to the Nemertea from the Intertidal Zone of the coast of California. Unpublished document from SCCWRP.

Clark, H.L. 1901. The holothurians of the Pacific coast of North America. Zool. Anz., 24:162-71.

Clark, H. L. 1907. The apodous holothurians--A monograph of the Synaptidae and Molpadidae. Smithson. Contrib. Knowl., 35:1-231. .

Coe, W.R. 1940. Revision of the Nemertean Fauna of the Pacific Coasts of North, Central and Northern South America. Allan Hancock Pacific Expeditions,, Vol. 2, No. l 3. University of Southern California Press, Los Angeles. pp. 247-323.

Hulsman, S.G. Unpublished personal notes on the identification of Puget Sound invertebrates (specifically, Nemertea, Holothuroidea, and Ophiuroidea).

Kozloff, E.N. 1987. Marine Invertebrates of the Pacific Northwest. University of Washington Press, Seattle. 511 pp.

Kyte, M.A. 1969. A synopsis and key to the recent ophiuroidea of Washington State and southern British Columbia. J. Fish. Res. Rd. Canada, 26•1727-41.

Osburn, R.C. 1950. Bryozoa of the Pacific coast of America. Part 1, Cheilostomata -- Anasca. Allan Hancock Found. Pac. Exped., 14: 271-611.

Word, J.Q. 1984. Annotated List of California Ophiuroidea Species. Contribution submitted to University of Washington School of Fisheries. unpag.

9.0 Tables and Figures

9.1 Sorting QA/QC Results

BENTHIC SERVICES GROUP

SORTING QA/QC LOG

PROJECT NAME: Worley Parsons

	Sample I.D.	QA/QC Vol. (%)	Total # QA Organisms	Total Abund.	% Sorting Efficiency	P / F	Comments
1	PB1-4	100	8	299	97	P	> 95% Sorting Efficiency
2	M8E-1	100	4	158	97	P	> 95% Sorting Efficiency
3	M1300E-3	100	2	118	98	P	> 95% Sorting Efficiency
4	M2300ESE-2	100	3	153	98	P	> 95% Sorting Efficiency

9.2 Precision Analysis Results – Worley Parsons

Station #	Rep #	Total (w/out nematodes)	mean	var	stdev	precision	estimated N
	2	281					
	3	168					
PB1	4	308	252.3	5516.3	74.3	17%	2.2
	2	295					
	3	352					
M1E	4	366	337.7	1414.3	37.6	6%	0.3
	1	401					
	3	287					
M2E	4	319	335.7	3457.3	58.8	10%	0.8
	1	164					
	3	134					
M8E	4	118	138.7	545.3	23.4	10%	0.7
	1	167					
	3	165					
M500SE	4	124	152.0	589.0	24.3	9%	0.6
	2	170					
	3	152					
M800NE	4	101	141.0	1281.0	35.8	15%	1.6
	2	119					
	3	122					
M1300E	4	159	133.3	496.3	22.3	10%	0.7
	2	173					
	3	134					
M1400ESE	4	157	154.7	384.3	19.6	7%	0.4
	1	177					
	2	165					
M1600SE	3	228	190.0	1119.0	33.5	10%	0.8
	1	202					
	2	168					
M2300ESE	4	175	181.7	322.3	18.0	6%	0.2
	1	305					
	2	428					
FC3500NE	3	352	361.7	3852.3	62.1	10%	0.7
	1	88					
	2	72					
FC4000ENE	3	89	83.0	91.0	9.5	7%	0.3

Appendix 5 Marine Toxicity and Bioaccumulation Testing

Your Project #: 09185
Site Location: PO#: 307071-00020-NL04A.1-9141
Your C.O.C. #: G050371

Attention: JASON CLARKE
WORLEYPARSONS CANADA SERVICES LTD
100-3795 CAREY RD
VICTORIA, BC
CANADA V8Z 6T8

Report Date: 2012/02/27
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1C4944
Received: 2011/12/30, 10:50

Sample Matrix: TISSUE
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mercury in Tissue by CVAF-Dry Wt	8	N/A	2012/01/30	65-A-002	EPA 1631B
Mercury in Tissue by CVAF-Wet Wt	8	N/A	2012/01/30	65-A-002	EPA 1631B
% Lipid Content	8	N/A	2012/01/06	BBY8-SOP-00028	BC LAB MANUAL
Elements by CRC ICPMS - Tissue Dry Wt	8	2012/01/31	2012/02/13	BBY7SOP-00002	EPA 6020A
Elements by CRC ICPMS - Tissue Wet Wt	8	2012/01/31	2012/02/11	BBY7SOP-00002	EPA 6020A
Moisture	8	N/A	2012/01/05	BBY8SOP-00017	Ont MOE -E 3139

* Results relate only to the items tested.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Debbie Nordbruget, Sample Logistics Technician
Email: DNordbruget@maxxam.ca
Phone# (250) 385-6112

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B1C4944
Report Date: 2012/02/27

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: MAX

RESULTS OF CHEMICAL ANALYSES OF TISSUE

Maxxam ID		CL3368	CL3369	CL3370	CL3371	CL3372	CL3373	CL3374	CL3375		
Sampling Date		2011/11/09	2011/11/09	2011/11/09	2011/12/07	2011/12/07	2011/12/07	2011/12/07	2011/12/07		
	Units	**T=0**	**T=0, DUPLICATE**	**T=0, TRIPLICATE**	**M8000NE (T=28)**	**T1000 (T=28)**	**T2000 (T=28)**	**M1400ESE (T=28)**	**FC3500 (T=28)**	**RDL**	**QC Batch**
Parameter											
Lipid Content	%	18.9	10.8	13.8	14.0	13.4	12.0	10.2	14.1	0.1	5496201

RDL = Reportable Detection Limit

Maxxam Job #: B1C4944
Report Date: 2012/02/27

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: MAX

ELEMENTS BY ATOMIC SPECTROSCOPY - DRY WT (TISSUE)

Maxxam ID		CL3368	CL3369	CL3370	CL3371	CL3372	CL3373	CL3374	CL3375		
Sampling Date		2011/11/09	2011/11/09	2011/11/09	2011/12/07	2011/12/07	2011/12/07	2011/12/07	2011/12/07		
	Units	**T=0**	**T=0, DUPLICATE**	**T=0, TRIPLICATE**	**M8000NE (T=28)**	**T1000 (T=28)**	**T2000 (T=28)**	**M1400ESE (T=28)**	**FC3500 (T=28)**	**RDL**	**QC Batch**
Mercury by CVAA											
Total Mercury (Hg)	mg/kg	0.05	0.06	0.05	0.05	0.05	0.05	0.06	0.06	0.01	5487482
Total Metals by ICPMS											
Total Aluminum (Al)	mg/kg	9	17	20	6	5	24	57	9	3	5555917
Total Antimony (Sb)	mg/kg	0.016	0.020	0.014	0.025	0.019	0.022	0.023	0.025	0.005	5555917
Total Arsenic (As)	mg/kg	18.6	19.2	17.4	15.2	16.4	16.4	14.7	16.0	0.05	5555917
Total Barium (Ba)	mg/kg	0.2	0.3	0.2	<0.1	<0.1	0.2	0.3	<0.1	0.1	5555917
Total Beryllium (Be)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	5555917
Total Bismuth (Bi)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	5555917
Total Boron (B)	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	5	5555917
Total Cadmium (Cd)	mg/kg	0.38	0.48	0.27	0.27	0.29	0.32	0.32	0.27	0.01	5555917
Total Calcium (Ca)	mg/kg	1440	1540	1350	1620	1570	1800	1600	1620	30	5555917
Total Chromium (Cr)	mg/kg	<0.2	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	5555917
Total Cobalt (Co)	mg/kg	0.62	0.84	0.61	0.73	0.80	0.73	0.64	0.63	0.02	5555917
Total Copper (Cu)	mg/kg	11.3	15.1	17.2	8.01	8.03	10.5	8.33	8.34	0.05	5555917
Total Iron (Fe)	mg/kg	496	517	478	385	396	428	510	391	10	5555917
Total Lead (Pb)	mg/kg	1.28	2.05	1.52	1.02	0.91	1.02	0.98	0.87	0.01	5555917
Total Magnesium (Mg)	mg/kg	5210	5660	5300	5250	5590	6030	5210	5700	10	5555917
Total Manganese (Mn)	mg/kg	11.3	15.0	8.9	5.4	1.9	2.5	3.1	2.5	0.1	5555917
Total Molybdenum (Mo)	mg/kg	1.49	2.09	1.43	1.21	1.16	1.30	1.21	1.27	0.05	5555917
Total Nickel (Ni)	mg/kg	0.51	0.68	0.55	0.83	1.10	1.05	0.93	1.22	0.05	5555917
Total Phosphorus (P)	mg/kg	8000	8900	8300	7030	7420	7650	7310	7650	10	5555917
Total Potassium (K)	mg/kg	18500	19600	19100	16800	17800	18700	17200	17600	10	5555917
Total Selenium (Se)	mg/kg	1.04	1.14	0.90	0.97	0.93	0.95	1.05	1.35	0.05	5555917
Total Silver (Ag)	mg/kg	0.15	0.35	0.18	0.12	0.11	0.09	0.14	0.16	0.02	5555917
Total Sodium (Na)	mg/kg	33800	36300	31300	34600	37300	40200	35200	37800	20	5555917
Total Strontium (Sr)	mg/kg	25.2	28.2	23.8	27.3	28.0	31.7	28.7	29.9	0.1	5555917
Total Thallium (Tl)	mg/kg	0.004	0.004	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	5555917
Total Tin (Sn)	mg/kg	0.2	0.3	0.3	0.2	0.2	0.2	0.3	<0.1	0.1	5555917
Total Titanium (Ti)	mg/kg	2	3	2	<1	<1	3	5	<1	1	5555917
Total Uranium (U)	mg/kg	1.04	1.72	1.45	1.68	1.69	1.70	1.69	1.44	0.002	5555917
Total Vanadium (V)	mg/kg	0.8	1.4	0.7	0.8	0.8	1.1	1.0	0.8	0.2	5555917
Total Zinc (Zn)	mg/kg	207	380	157	104	46.6	71.8	44.5	60.8	0.2	5555917

RDL = Reportable Detection Limit

Maxxam Job #: B1C4944
Report Date: 2012/02/27

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: MAX

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		CL3368	CL3369	CL3370	CL3371	CL3372	CL3373	CL3374	CL3375		
Sampling Date		2011/11/09	2011/11/09	2011/11/09	2011/12/07	2011/12/07	2011/12/07	2011/12/07	2011/12/07		
	Units	**T=0**	**T=0, DUPLICATE**	**T=0, TRIPLICATE**	**M8000NE (T=28)**	**T1000 (T=28)**	**T2000 (T=28)**	**M1400ESE (T=28)**	**FC3500 (T=28)**	**RDL**	**QC Batch**
Mercury by CVAA											
Total Mercury (Hg)	mg/kg	0.006	0.007	0.006	0.007	0.007	0.006	0.008	0.007	0.002	5491586
Total Metals by ICPMS											
Total Aluminum (Al)	mg/kg	1.1	1.9	2.4	0.8	0.7	3.2	7.6	1.2	0.5	5555933
Total Antimony (Sb)	mg/kg	0.002	0.002	0.002	0.004	0.003	0.003	0.003	0.003	0.001	5555933
Total Arsenic (As)	mg/kg	2.23	2.17	2.08	2.11	2.16	2.20	1.97	2.03	0.01	5555933
Total Barium (Ba)	mg/kg	0.03	0.03	0.03	<0.02	<0.02	0.03	0.05	<0.02	0.02	5555933
Total Beryllium (Be)	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	5555933
Total Bismuth (Bi)	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	5555933
Total Boron (B)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	1	5555933
Total Cadmium (Cd)	mg/kg	0.045	0.055	0.032	0.038	0.039	0.043	0.043	0.034	0.002	5555933
Total Calcium (Ca)	mg/kg	173	174	162	225	207	241	214	206	5	5555933
Total Chromium (Cr)	mg/kg	<0.04	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	5555933
Total Cobalt (Co)	mg/kg	0.074	0.095	0.073	0.102	0.105	0.097	0.086	0.080	0.004	5555933
Total Copper (Cu)	mg/kg	1.36	1.71	2.06	1.11	1.06	1.41	1.12	1.06	0.01	5555933
Total Iron (Fe)	mg/kg	60	58	57	53	52	57	68	50	2	5555933
Total Lead (Pb)	mg/kg	0.153	0.231	0.182	0.142	0.120	0.137	0.131	0.111	0.002	5555933
Total Magnesium (Mg)	mg/kg	625	639	636	730	738	808	699	723	2	5555933
Total Manganese (Mn)	mg/kg	1.36	1.69	1.07	0.75	0.25	0.33	0.42	0.31	0.02	5555933
Total Molybdenum (Mo)	mg/kg	0.18	0.24	0.17	0.17	0.15	0.17	0.16	0.16	0.01	5555933
Total Nickel (Ni)	mg/kg	0.06	0.08	0.07	0.12	0.15	0.14	0.12	0.15	0.01	5555933
Total Phosphorus (P)	mg/kg	960	1010	996	977	979	1020	979	971	2	5555933
Total Potassium (K)	mg/kg	2220	2210	2290	2330	2350	2510	2310	2240	2	5555933
Total Selenium (Se)	mg/kg	0.12	0.13	0.11	0.13	0.12	0.13	0.14	0.17	0.01	5555933
Total Silver (Ag)	mg/kg	0.017	0.040	0.022	0.016	0.014	0.012	0.018	0.021	0.004	5555933
Total Sodium (Na)	mg/kg	4050	4100	3760	4810	4920	5390	4710	4800	4	5555933
Total Strontium (Sr)	mg/kg	3.02	3.19	2.86	3.80	3.70	4.24	3.84	3.79	0.02	5555933
Total Thallium (Tl)	mg/kg	0.0005	0.0004	0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0004	5555933
Total Tin (Sn)	mg/kg	0.03	0.04	0.03	0.03	0.02	0.02	0.05	<0.02	0.02	5555933
Total Titanium (Ti)	mg/kg	0.2	0.3	0.3	<0.2	<0.2	0.3	0.6	<0.2	0.2	5555933
Total Uranium (U)	mg/kg	0.125	0.194	0.174	0.233	0.223	0.228	0.226	0.183	0.0004	5555933
Total Vanadium (V)	mg/kg	0.10	0.16	0.08	0.11	0.11	0.14	0.13	0.10	0.04	5555933
Total Zinc (Zn)	mg/kg	24.9	42.9	18.8	14.4	6.15	9.63	5.97	7.72	0.04	5555933

RDL = Reportable Detection Limit

Maxxam Job #: B1C4944
Report Date: 2012/02/27

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: MAX

PHYSICAL TESTING (TISSUE)

Maxxam ID		CL3368	CL3369	CL3370	CL3371	CL3372	CL3373	CL3374	CL3375		
Sampling Date		2011/11/09	2011/11/09	2011/11/09	2011/12/07	2011/12/07	2011/12/07	2011/12/07	2011/12/07		
	Units	**T=0**	**T=0, DUPLICATE**	**T=0, TRIPLICATE**	**M8000NE (T=28)**	**T1000 (T=28)**	**T2000 (T=28)**	**M1400ESE (T=28)**	**FC3500 (T=28)**	**RDL**	**QC Batch**
Physical Properties											
Moisture	%	88	89	88	86	87	87	87	87	0.3	5493717

RDL = Reportable Detection Limit

Maxxam Job #: B1C4944
Report Date: 2012/02/27

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: MAX

Package 1	0.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Sample CL3369-01: Sample was analyzed after holding time expired.

Sample CL3370-01: Sample was analyzed after holding time expired.

Maxxam Job #: B1C4944
Report Date: 2012/02/27

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185
Site Location: PO#: 307071-00020-NL04A.1-9141
Sampler Initials: MAX

QUALITY ASSURANCE REPORT

			Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5491586	Total Mercury (Hg)	2012/01/30	<0.002	mg/kg	NC	20	94	75 - 125
5493717	Moisture	2012/01/05	<0.3	%	0	20		
5496201	Lipid Content	2012/01/06	<0.1	%	2.0	50		
5555933	Total Arsenic (As)	2012/02/11	<0.01	mg/kg	0.4	35	91	75 - 125
5555933	Total Cadmium (Cd)	2012/02/11	<0.002	mg/kg	5.0	35	101	75 - 125
5555933	Total Copper (Cu)	2012/02/11	<0.01	mg/kg	0.1	35	100	75 - 125
5555933	Total Iron (Fe)	2012/02/11	<2	mg/kg	2.7	35	102	75 - 125
5555933	Total Selenium (Se)	2012/02/11	<0.01	mg/kg	9.1	35	112	75 - 125
5555933	Total Silver (Ag)	2012/02/11	<0.004	mg/kg	4.5	35	95	75 - 125
5555933	Total Zinc (Zn)	2012/02/11	<0.04	mg/kg	23.1	35	107	75 - 125
5555933	Total Aluminum (Al)	2012/02/11	0.6, RDL=0.5(1)	mg/kg	NC	35		
5555933	Total Antimony (Sb)	2012/02/11	<0.001	mg/kg	NC	35		
5555933	Total Barium (Ba)	2012/02/11	<0.02	mg/kg	NC	35		
5555933	Total Beryllium (Be)	2012/02/11	<0.02	mg/kg	NC	35		
5555933	Total Bismuth (Bi)	2012/02/11	<0.02	mg/kg	NC	35		
5555933	Total Boron (B)	2012/02/11	1, RDL=1(1)	mg/kg	NC	35		
5555933	Total Calcium (Ca)	2012/02/11	6, RDL=5(1)	mg/kg	4.6	35		
5555933	Total Chromium (Cr)	2012/02/11	<0.04	mg/kg	NC	35		
5555933	Total Cobalt (Co)	2012/02/11	<0.004	mg/kg	2.7	35		
5555933	Total Lead (Pb)	2012/02/11	<0.002	mg/kg	5.9	35		
5555933	Total Magnesium (Mg)	2012/02/11	<2	mg/kg	0.09	35		
5555933	Total Manganese (Mn)	2012/02/11	<0.02	mg/kg	3.0	35		
5555933	Total Molybdenum (Mo)	2012/02/11	<0.01	mg/kg	1.3	35		
5555933	Total Nickel (Ni)	2012/02/11	<0.01	mg/kg	0.8	35		
5555933	Total Phosphorus (P)	2012/02/11	<2	mg/kg	1	35		
5555933	Total Potassium (K)	2012/02/11	2, RDL=2	mg/kg	0.003	35		
5555933	Total Sodium (Na)	2012/02/11	5, RDL=4(1)	mg/kg	0.3	35		
5555933	Total Strontium (Sr)	2012/02/11	<0.02	mg/kg	5.4	35		
5555933	Total Thallium (Tl)	2012/02/11	<0.0004	mg/kg	NC	35		
5555933	Total Tin (Sn)	2012/02/11	<0.02	mg/kg	NC	35		
5555933	Total Titanium (Ti)	2012/02/11	<0.2	mg/kg	NC	35		
5555933	Total Uranium (U)	2012/02/11	<0.0004	mg/kg	6.1	35		
5555933	Total Vanadium (V)	2012/02/11	<0.04	mg/kg	NC	35		

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - RDL raised due to suspected contamination.

Maxxam

4606 Canada Way, Burnaby, BC Canada V5G 1K5 Ph: 604 734 7276 To

Maxxam Job#:

AIN OF CUSTODY RECORD

Page: 1 of 1

G050371

B1C4944

Invoice To: Require Report? Yes [ ] No [ ]

Company Name: #11373 Worley Parsons

Contact Name:

Address:

PC:

Phone / Fax#: Ph: Fax:

E-mail

Report To:

Company Name: #8287 Maxxam

Contact Name: Janita Pickard

Address:

PC:

Phone / Fax#: Ph: Fax:

E-mail jpickard@maxxam.ca

PO #:

Quotation #:

Project #: 2-11-1087

Proj. Name: Nereis Bioaccumulation.

Location:

Sampled By:

REGULATORY REQUIREMENTS SERVICE REQUESTED:

- [ ] CSR
- [ ] CCME
- [ ] BC Water Quality
- [ ] Other
- DRINKING WATER

- [X] Regular Turn Around Time (TAT) (5 days for most tests)
- [ ] RUSH (Please contact the lab)
- [ ] 1 Day [ ] 2 Day [ ] 3 Day
- Date Required:

Special Instructions:

Return Cooler [ ] Ship Sample Bottles (please specify) [ ]

*please homogenize samples prior to testing and taking alliquots.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification	Sample Type	Date/Time Sampled	BTEX/VPH / MTBE	VOC/VPH	EPH / TEH	PAH / LEPH/HEPH	CCME-PHC (Fractions 1-4 Plus BTEX)	CCME-PHC (Fractions 2-4)	CCME BTEX (Fraction 1 Plus BTEX)	PCB	Phenols by 4AAP / Phenols by GCMS	TOG / MOG / SWOG	Dissolved Metals Field Filtered? Y N	Field Acidified? Y N	Totals Metals Field Acidified? Y N	Nitrate / Nitrite / Ammonia	Chloride / Fluoride / Sulphate	Total Suspended Solids-TSS / TDS	pH / Conductivity / Alkalinity	BOD	COD	Coliform, Total & E.coli / Fecal	Asbestos	methyl mercury	moisture content	lipids				HOLD
1	T=0		tissue	2011 Nov 09													X									X	X	X				
2	T=0, duplicate		tissue	2011 Nov 09													X									X	X	X				
3	T=0, triplicate		tissue	2011 Nov 09													X									X	X	X				
4	M800NE (T=28)		tissue	2011 Dec 07													X									X	X	X				
5	T1000 (T=28)		tissue	2011 Dec 07													X									X	X	X				
6	T2000 (T=28)		tissue	2011 Dec 07													X									X	X	X				
7	M1400ESE (T=28)		tissue	2011 Dec 07													X									X	X	X				
8	FC3500 (T=28)		tissue	2011 Dec 07													X									X	X	X				
9																																
10																																
11																																
12																																

Samples are from a Drinking Water Source? YES / NO

Does source supply multiple households? YES / NO

Laboratory Use Only

*Relinquished by:	Date (YY/MM/DD):	Time:	Received by:	Date (YY/MM/DD):	Time:	Time Sensitive	Temperature on Receipt (°C)	Custody Seal Intact on Cooler?
			[signature]	11/12/20	10:50	[ ]		Yes [ ] No [ ]

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

COC-1020 (05/10)

Maxxam International Corporation o/a Maxxam Analytics

maxxam.ca
MAXXAM ANALYTICS
4606 Canada Way
Burnaby, BC V5G 1K5
Office 604 734 7276
Toll Free 800 665 8566
Fax 604 731 2386

Debbie Nordbruget
Maxxam Analytics Inc. (ZEN001)
4606 Canada Way
Burnaby, BC
V5G1K5

January 13, 2012

Dear Debbie:

Subject: Methylmercury Speciation Results (Maxxam Ref# CY55)

Please find the following Liquid Chromatography Inductively Coupled Plasma Mass Spectrometry (LC-ICPMS) data for the tissue samples you sent in recently for Methylmercury (MeHg) analysis under Maxxam Job# B1C4944.

A] Sample Preparation:

A 0.5g aliquot of each sample was subjected to an aqueous based extraction according to BBY9SOP-00001. An aliquot of the extract was filtered into an autosampler vial for analysis.

B] Sample analysis:

Samples were analysed according to BBY9SOP-00001 by LC-ICPMS using a Dionex DX-500 Chromatography System and a Thermo X-Series ICPMS. The chromatographic mode employed was reversed phase chromatography using a mercaptoethanol based mobile phase. Following chromatographic separation, the mobile phase was transferred to the ICPMS system for time resolved analysis of ^{202}Hg.

All reported concentrations are relative to wet weight of sample.

If you have any questions or comments, do not hesitate to get in touch.

Yours sincerely,

Jon Le Huray
Supervisor, Analytical Services (Product Testing)

maxxam.ca
MAXXAM ANALYTICS
4606 Canada Way
Burnaby, BC V5G 1K5
Office 604 734 7276
Toll Free 800 665 8566
Fax 604 731 2386

ANALYTICAL REPORT

MAXXAM REF: CY55

Date: January 13, 2012

Mercury as Methylmercury by LC-ICPMS

Client: Maxxam Analytics
Attention: Debbie Nordbruget

Sample Results

Maxxam ID	Client Sample ID	Dilution Factor (w/v)	Mercury as Methylmercury (ng/g)
cy5501	CL3368-01 T=0	19.6	BQL
cy5502	CL3369-01 T=0, DUPLICATE	16.5	BQL
cy5503	CL3370-01 T=0, TRIPLICATE	19.1	BQL
cy5504	CL3371-01 M8000NE(T=28)	18.1	BQL
cy5505	CL3372-01 T1000(T=28)	17.3	BQL
cy5506	CL3373-01 T2000(T=28)	19.6	BQL
cy5506pd	CL3373-01 T2000(T=28) – duplicate	17.0	BQL
cy5507	CL3374-01 M1400ESE(T=28)	16.4	BQL
cy5507psp	CL3374-01 M1400ESE(T=28) – spiked at 94 ng/g	18.8	104
cy5508	CL3375-01 FC3500(T=28)	17.8	BQL

BQL: Below quantitation Limit (0.2 ng/mL multiplied by dilution factor).

Signed:..... Date: 13 JAN. 2012

maxxam.ca
MAXXAM ANALYTICS
4606 Canada Way
Burnaby, BC V5G 1K5
Office (604) 734 7276
Toll Free: 1-800 665 8566
Fax (604) 731 2386

MARINE TOXICITY AND BIOACCUMULATION TESTING WITH *EOHAUSTORIUS ESTUARIUS, NEANTHES ARENACEODENTATA* AND *NEREIS VIRENS* PROJECT: 09185 CRD SEDIMENT

Prepared for:

Worley Parsons Canada Ltd.
3795 Carey Road
Suite 100
Victoria, BC
V8Z 6T8

Prepared by:

Ecotoxicology Group
Maxxam Analytics

Client Project No.: 09185

Maxxam Project No. 2-11-1087
Maxxam Job Number: B192596, B192006, B193099

February 2012

EXECUTIVE SUMMARY

Five sediment samples were collected by staff members of Worley Parsons on September 27 through September 29, 2011. The samples were the received at Maxxam Analytics on the September 28 and 29, 2011, where they were held in the dark at 4±2°C until testing commenced. The following tests were requested by the client: a 10-day acute survival test with the marine amphipod, *Eohaustorius estuarius*, a 20-day survival and growth test using the marine polychaete, *Neanthes arenaceodentata*, and a 28-day bioaccumulation test using the marine polychaete, *Nereis virens*.

On October 25, 2011 the sediments were homogenised and distributed to the appropriate tests vessels. Each vessel was topped up with natural seawater and the sediments were allowed to equilibrate overnight. The marine amphipod and polychaete toxicity tests were initiated on Oct 26, 2011. The sediments were re-homogenised on November 08, 2011, and the 28 marine bioaccumulation test was initiated the following day, November 09, 2011.

The following endpoints were assessed:

In the marine amphipod test, after a 10 day exposure period, total amphipod survival was measured.

In the polychaete growth and survival test, after a 20 day exposure period, survival, total dry weight, individual dry weight, and growth rate, were measured.

In the bioaccumulation test, after a 28 day exposure period, the worms were extracted from the sediment and purged for 24 hours in clean seawater before they were rinsed, patted dry and then frozen. Composite samples of worm tissue, in triplicate, were submitted alongside worm tissue from a T=0 treatment (the baseline control).

The tests performed met all test validity criteria as per their respective reference protocols. All statistical and raw data for these tests are included in this report.

In addition to the toxicity tests performed, chemical analyses were conducted on the sediment porewater, and the overlying water sampled at the beginning and end of each test. The results for the overlying water analyses are available in the appropriate test sections. The porewater chemistry is available in the sample information section.

The results from the tissue analyses, assessing metals, including total mercury and methyl mercury, are available in the "*28-d Nereis virens* Bioaccumulation Test Data" section.

The following chart summarises the endpoint results, and any statistically significant differences between the negative control and the sediment samples for the marine amphipod and polychaete toxicity tests.

Sediment Sample	*Eohaustorius estuarius* 10-d Survival Test
	Mean Survival ±SD (%)
Control	99 ± 2
M800NE	93 ± 6*
M1400ESE	98 ± 3
T1000	95 ± 5
T2000	95 ± 4*
FC3500NE	97 ± 4

* Significant difference from the lab control.

Sediment Sample	*Neanthes arenaceodentata* 20-d Growth and Survival Test			
	Mean Survival ±SD (%)	Mean Growth Rate ± SD (mg/day)	Mean Total Dry Weight ± SD (mg)	Mean Individual Dry Weight ± SD (mg/worm)
Control	100 ± 0	1.00 ± 0.13	102.90 ± 12.93	20.58 ± 2.59
M800NE	100 ± 0	1.02 ± 0.11	105.4 ± 11.46	21.08 ± 2.29
M1400ESE	88 ± 18	0.15 ± 0.09*	17.57 ± 10.14*	3.71 ± 1.83*
T1000	100 ± 0	0.80 ± 0.07*	83.30 ± 7.24*	16.66 ± 1.45*
T2000	100 ± 0	0.88 ± 0.23	91.89 ± 22.83	18.38 ± 4.57
FC3500NE	92 ± 18	0.76 ± 0.15*	74.69 ± 24.12*	15.89 ± 3.04*

* Significant difference from the lab control.

TABLE OF CONTENTS

TEST METHODS, STATISTICS AND TEST VALIDITY CRITERIA

The marine amphipod test was conducted using the Environment Canada: EPS 1/RM/35 Reference Method for Determining Acute Lethality of Sediment to Marine or Estuarine Amphipods (1998). This test determines the survival of marine amphipods when exposed to whole sediment. This is a 10-d exposure test conducted at 15°C using 5 replicates of each sample, and a negative (laboratory) control.

The marine polychaete test was conducted using USEPA and Puget Sound Estuary Program Recommended Guidelines for Conducting Laboratory Bioassays on Puget Sound Sediments: Juvenile Polychaete Sediment Bioassay (1995). This test determines the survival, dry weight and growth rate of *Neanthes arenaceodentata* after 20 days of exposure to marine sediment samples. This is a static renewal test using juvenile polychaetes between 2 to 3 weeks of age, at 20°C, with constant aeration provided to each test vessel and feeding provided every other day. The overlying water is renewed (33% of the volume) three times per week. This test is performed with 5 replicates for each sample.

The Bioaccumulation Test was conducted using the USEPA Guidance Manual: Bedded Sediment Bioaccumulation Tests, EPA/600R-93/183, (1993), and the ASTM Standard Guide for Determination of the Bioaccumulation of Sediment-Associated Contaminants by Benthic Invertebrates, E1688-00a (2000). This test determines the bioaccumulation potential of contaminants in *Nereis virens*. Adult, non-reproductively-active worms are exposed to the test sediments for 28 days. There are 4 replicates per sample, and the test is run static-renewal, with 50% of the overlying water renewed twice weekly.

Detailed summaries of all test conditions and results are included in this report.

Statistical analyses were calculated using CETIS™ (Version 1.7.0.3), an Access based software application (Tidepool Scientific Software).

The marine amphipod test is considered valid if the mean survival in the laboratory control is ≤90%, and survival in individual replicates ≥80%. The validity criteria were met.

The *Neanthes* test is considered valid if the mean survival in the laboratory control is ≥90%, the mean growth rate in the control is ≥0.38 mg/worm/day and the mean dry weight of worms at test initiation must be >0.25 mg/worm. The control met all validity criteria.

The Bioaccumulation test is considered valid if the mean survival in any test sediment, including the control, is ≥90%. The validity criterion was met.

SAMPLE INFORMATION

Chain of Custody Form

Sediment Sample Descriptions

Porewater Measurements

Porewater Chemistry

Report Name: Entry

Job #: B192596

National Client: 122, Worley Parsons

Client: WORLEYPARSONS CANADA SERVICES
100-3795 CAREY RD
VICTORIA BC
CANADA V8Z 6T8

Inv Attn: ACCOUNTS PAYABLE

Printed: 2011/09/29 Version 2
Reception Date: 2011/09/29
Reception Time: 08:50
Login Date: 2011/09/29
REQUIRED DATE: 2011/12/28, 18:00
Quote Number: B01254

Task Order:
Line Item:

Report: same

Attention: JASON CLARKE
PHONE: (250) 384 - 1499Ext:
FAX: (250) 384 - 1201
EMAIL: jason.r.clarke@worleyparsons.com

P.O. Number:
PROJECT NUMBER: 09185 - CRD - SEDIMENT
Site Location:
Site #:
Client Number: 11373
Rpt Address #:
Q.C. Samples: No

Project Coordinator: DN3

enario:# 8927 09185 CRD

Accounting Information
Desc. Code

Report Copies

Attention	# cop. Fax	EMAIL
Peter Howland	0	peter.howland@worleyparsons.com
Brian Lynch	0	Brian.Lynch@WorleyParsons.com
Victoria Chemistry Results	0	vic.chemistry@worleyparsons.com

Maxxam Number	Client Sample ID/Report ID	Cont's	Store Code	Recd. OK	Sampling Date	MATRIX	Test Codes
BQ9605-01R	M2300ESE - COMPOSITE M2300ESE - COMPOSITE	1-BAG		Yes	2011/09/28	SED	PSSTDW-S, TEXTCW-S
BQ9605-02R	M2300ESE - COMPOSITE M2300ESE - COMPOSITE	1-CJAR		Yes	2011/09/28	SED	VSUBTOC-S
BQ9605-03R	M2300ESE - COMPOSITE M2300ESE - COMPOSITE	1-AJAR		Yes	2011/09/28	SED	ICPMS2TV-S, PHSOL2-S ACIDDIGV-S, DGV-S
BQ9605-04R	M2300ESE - COMPOSITE M2300ESE - COMPOSITE	1-AJAR		Yes	2011/09/28	SED	PAHSIMAV-S, PAHTOT-S, ABNMSA-S MOISTV-S
BQ9605-05R	M2300ESE - COMPOSITE M2300ESE - COMPOSITE	1-AJAR		Yes	2011/09/28	SED	VSUBOC-S
BQ9605-06R	M2300ESE - COMPOSITE M2300ESE - COMPOSITE	1-AJAR		Yes	2011/09/28	SED	CPSIMA-S
BQ9605-07R	M2300ESE - COMPOSITE M2300ESE - COMPOSITE	1-OTHS		Yes	2011/09/28	SED	VSUBPBDE-S
BQ9606-01R	M1400ESE - COMPOSITE M1400ESE - COMPOSITE	1-BAG		Yes	2011/09/28	SED	PSSTDW-S, TEXTCW-S
BQ9606-02R	M1400ESE - COMPOSITE M1400ESE - COMPOSITE	1-CJAR		Yes	2011/09/28	SED	VSUBTOC-S
BQ9606-03R	M1400ESE - COMPOSITE M1400ESE - COMPOSITE	1-AJAR		Yes	2011/09/28	SED	ICPMS2TV-S, PHSOL2-S ACIDDIGV-S, DGV-S
BQ9606-04R	M1400ESE - COMPOSITE M1400ESE - COMPOSITE	1-AJAR		Yes	2011/09/28	SED	PAHSIMAV-S, PAHTOT-S, ABNMSA-S MOISTV-S
BQ9606-05R	M1400ESE - COMPOSITE M1400ESE - COMPOSITE	1-AJAR		Yes	2011/09/28	SED	VSUBOC-S
BQ9606-06R	M1400ESE - COMPOSITE M1400ESE - COMPOSITE	1-AJAR		Yes	2011/09/28	SED	CPSIMA-S
BQ9606-07R	M1400ESE - COMPOSITE M1400ESE - COMPOSITE	1-OTHS		Yes	2011/09/28	SED	VSUBPBDE-S
BQ9606-08R	M1400ESE - COMPOSITE M1400ESE - COMPOSITE	1-AJAR		Yes	2011/09/28	SED	PCBV-S
BQ9606-09R	M1400ESE - COMPOSITE M1400ESE - COMPOSITE	1-OTHS		Yes	2011/09/28	SED	VSUBNONP-S

Continued...

National Client: 122, Worley Parsons

Maxxam Number	Client Sample ID/Report ID	Cont's	Store Code	Recd. OK	Sampling Date	MATRIX	Test Codes
BQ9606-10R	M1400ESE - COMPOSITE M1400ESE - COMPOSITE	1-OTHS		Yes	2011/09/28	SED	SUB2002
BQ9606-11R	M1400ESE - COMPOSITE M1400ESE - COMPOSITE	8-4PAL		Yes	2011/09/28	SED	AMPHPOD-SD, ECOATTACHS ECOTXSV-SD
BQ9607-01R	M1600SE - COMPOSITE M1600SE - COMPOSITE	1-BAG		Yes	2011/09/28	SED	PSSTDW-S, TEXTCW-S
BQ9607-02R	M1600SE - COMPOSITE M1600SE - COMPOSITE	1-CJAR		Yes	2011/09/28	SED	VSUBTOC-S
BQ9607-03R	M1600SE - COMPOSITE M1600SE - COMPOSITE	1-AJAR		Yes	2011/09/28	SED	·ICPMS2TV-S, PHSOL2-S ACIDDIGV-S, DGV-S
BQ9607-04R	M1600SE - COMPOSITE M1600SE - COMPOSITE	1-AJAR		Yes	2011/09/28	SED	·PAHSIMAV-S, PAHTOT-S, ABNMSA-S MOISTV-S
BQ9607-05R	M1600SE - COMPOSITE M1600SE - COMPOSITE	1-AJAR		Yes	2011/09/28	SED	VSUBOC-S
BQ9607-06R	M1600SE - COMPOSITE M1600SE - COMPOSITE	1-AJAR		Yes	2011/09/28	SED	CPSIMA-S
BQ9607-07R	M1600SE - COMPOSITE M1600SE - COMPOSITE	1-OTHS		Yes	2011/09/28	SED	VSUBPBDE-S
BQ9608-01R	M500SE - COMPOSITE M500SE - COMPOSITE	1-BAG		Yes	2011/09/28	SED	PSSTDW-S, TEXTCW-S
BQ9608-02R	M500SE - COMPOSITE M500SE - COMPOSITE	1-CJAR		Yes	2011/09/28	SED	VSUBTOC-S
BQ9608-03R	M500SE - COMPOSITE M500SE - COMPOSITE	1-AJAR		Yes	2011/09/28	SED	·ICPMS2TV-S, PHSOL2-S ACIDDIGV-S, DGV-S
BQ9609-01R	M2300ESE - GRAB M2300ESE - GRAB	1-CJAR		Yes	2011/09/28	SED	FCOLMTFV-S
BQ9609-02R	M2300ESE - GRAB M2300ESE - GRAB	1-AJAR		Yes	2011/09/28	SED	ICPMSSEM-S, MOISTV-S, SPHIDEC-S SPHIDE-S
BQ9609-03R	M2300ESE - GRAB M2300ESE - GRAB	1-AJAR		Yes	2011/09/28	SED	PPHCSR-S, ·VOCHSMSA-S VPHCALC-S
BQ9610-01R	M1400ESE - GRAB M1400ESE - GRAB	1-CJAR		Yes	2011/09/28	SED	FCOLMTFV-S
BQ9610-02R	M1400ESE - GRAB M1400ESE - GRAB	1-AJAR		Yes	2011/09/28	SED	ICPMSSEM-S, MOISTV-S, SPHIDEC-S SPHIDE-S
BQ9610-03R	M1400ESE - GRAB M1400ESE - GRAB	1-AJAR		Yes	2011/09/28	SED	PPHCSR-S, ·VOCHSMSA-S VPHCALC-S
BQ9611-01R	M1600SE - GRAB M1600SE - GRAB	1-CJAR		Yes	2011/09/28	SED	FCOLMTFV-S
BQ9611-02R	M1600SE - GRAB M1600SE - GRAB	1-AJAR		Yes	2011/09/28	SED	ICPMSSEM-S, MOISTV-S, SPHIDEC-S SPHIDE-S
BQ9611-03R	M1600SE - GRAB M1600SE - GRAB	1-AJAR		Yes	2011/09/28	SED	PPHCSR-S, ·VOCHSMSA-S VPHCALC-S
BQ9612-01R	M500SE - GRAB M500SE - GRAB	1-CJAR		Yes	2011/09/28	SED	FCOLMTFV-S
BQ9612-02R	M500SE - GRAB M500SE - GRAB	1-AJAR		Yes	2011/09/28	SED	ICPMSSEM-S, MOISTV-S, SPHIDEC-S SPHIDE-S

Remarks:

Inspected by: DN3
Date: 2011/09/29
Time: 10:08

Approved by: DN3
Date: 2011/09/29
Time: 11:49

Date of Sample Disposal:
Disposal by:

Continued...

Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

WORLEYPARSONS CANADA
SERVICES LTD - VICTORIA
Maxxam PM Debbie Nordbruget

SUBCONTRACTING REQUEST FORM

To: Maxxam Winnipeg

Job# B192596

☐ Yes ☐ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
☐ Yes ☐ No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) _____ (Time) _____

Received Lab's Job # _____ Inspected by (print) _____ SIF ☐ Yes ☐ No
Upon receipt, record 3 temperatures for **each** package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 _____ Temp2 _____ Temp3 _____ Custody sealed _____

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ9605-01R \ M2300ESE - CO	SED	Particle Size Distribution - Standard	1(BAG)	2011/09/28	2011/12/09
BQ9605-01R \ M2300ESE - CO	SED	Texture Class	1(BAG)	2011/09/28	2011/12/09
BQ9606-01R \ M1400ESE - CO	SED	Particle Size Distribution - Standard	1(BAG)	2011/09/28	2011/12/09
BQ9606-01R \ M1400ESE - CO	SED	Texture Class	1(BAG)	2011/09/28	2011/12/09
BQ9607-01R \ M1600SE - COM	SED	Particle Size Distribution - Standard	1(BAG)	2011/09/28	2011/12/09
BQ9607-01R \ M1600SE - COM	SED	Texture Class	1(BAG)	2011/09/28	2011/12/09
BQ9608-01R \ M500SE - COMP	SED	Particle Size Distribution - Standard	1(BAG)	2011/09/28	2011/12/09
BQ9608-01R \ M500SE - COMP	SED	Texture Class	1(BAG)	2011/09/28	2011/12/09

NOTES:
1) Please call us if due date cannot be met. Please reference Sample ID on your report.
2) Include copy of this completed form, Client COC & signed final report to

SHIPPING INSTRUCTIONS

☐ Ship Immediately (highlight Yellow)
☐ Requires 9am
☐ Requires Sat. Delivery
☐ Regular Ship next available day
☐ Ship Cold
☐ Ship Room Temp
☐ Ship Frozen
☐ COC Must be Attached
Sender (Print) _____ Initial _____

SHIPPING DEPARTMENT CHECKLIST

☐ Correct Shipping location
☐ Correct Sample Ids (Paperwork vs Bottles)
☐ Yes ☐ No Special-Cooler, Ice, Tape-custody seal, Date&Sign
Date Shipped _____
Shipper (Print) _____ Initial _____

Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

Maxxam

SUBCONTRACTING REQUEST FORM

WORLEYPARSONS CANADA
SERVICES LTD - VICTORIA
Maxxam PM Debbie Nordbruget

To: Maxxam Ontario (From Burnaby)

Job# B192596

☐ Yes ☐ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
☐ Yes ☐ No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) _____ (Time) _____

Received Lab's Job # _____ Inspected by (print) _____ SIF ☐ Yes ☐ No
Upon receipt, record 3 temperatures for **each** package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 _____ Temp2 _____ Temp3 _____ Custody sealed _____

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ9605-02R \ M2300ESE - CO	SED	TOC Soil Subcontract	1(CJAR)	2011/09/28	2011/10/14
BQ9605-05R \ M2300ESE - CO	SED	Pesticides, OC Soil Subcontract	1(AJAR)	2011/09/28	2011/10/14
BQ9606-02R \ M1400ESE - CO	SED	TOC Soil Subcontract	1(CJAR)	2011/09/28	2011/10/14
BQ9606-05R \ M1400ESE - CO	SED	Pesticides, OC Soil Subcontract	1(AJAR)	2011/09/28	2011/10/14
BQ9607-02R \ M1600SE - COM	SED	TOC Soil Subcontract	1(CJAR)	2011/09/28	2011/10/14
BQ9607-05R \ M1600SE - COM	SED	Pesticides, OC Soil Subcontract	1(AJAR)	2011/09/28	2011/10/14
BQ9608-02R \ M500SE - COMP	SED	TOC Soil Subcontract	1(CJAR)	2011/09/28	2011/10/14

NOTES:
1) Please call us if due date cannot be met. Please reference Sample ID on your report.
2) Include copy of this completed form, Client COC & signed final report to

SHIPPING INSTRUCTIONS

☐ Ship Immediately (highlight Yellow)
☐ Requires 9am
☐ Requires Sat. Delivery
☐ Regular Ship next available day
☐ Ship Cold
☐ Ship Room Temp
☐ Ship Frozen
☐ COC Must be Attached

Sender (Print) _____ Initial _____

SHIPPING DEPARTMENT CHECKLIST

☐ Correct Shipping location
☐ Correct Sample Ids (Paperwork vs Bottles)
☐ Yes ☐ No Special-Cooler, Ice, Tape-custody seal, Date&Sign
Date Shipped _____
Shipper (Print) _____ Initial _____

Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

Maxxam PM Debbie Nordbruget

SUBCONTRACTING REQUEST FORM

To: Ext. Sublet from Victoria

Job# B192596

☐ Yes ☐ No Charge us Rush charges (If rush charges are required to meet due date and Yes box is not checked, please call us)
☐ Yes ☐ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
☐ Yes ☐ No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) _____ (Time) _____

Received Lab's Job # _____ Inspected by (print) _____
Upon receipt, record 3 temperatures for **each** package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 _____ Temp2 _____ Temp3 _____ Custody sealed _____

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ9605-07R \ M2300ESE - CO	SED	PBDE Soil Subcontract	1(OTHS)	2011/09/28	2011/12/08
BQ9606-09R \ M1400ESE - CO	SED	Nonyl Phenol Soil Subcontract	1(OTHS)	2011/09/28	2011/12/08
BQ9606-10R \ M1400ESE - CO	SED	Sublet (Inorganics)	1(OTHS)	2011/09/28	2011/12/08
BQ9606-07R \ M1400ESE - CO	SED	PBDE Soil Subcontract	1(OTHS)	2011/09/28	2011/12/08
BQ9607-07R \ M1600SE - COM	SED	PBDE Soil Subcontract	1(OTHS)	2011/09/28	2011/12/08

NOTES:
1) Please call us if due date cannot be met. Please reference Sample ID on your report.
2) Include copy of this completed form & signed final report to

SHIPPING INSTRUCTIONS

☐ Ship Immediately (highlight Yellow)
☐ Requires 9am
☐ Requires Sat. Delivery
☐ Regular Ship next available day
☐ Ship Cold
☐ Ship Room Temp
☐ Ship Frozen

Sender (Print) _____ Initial _____

SHIPPING DEPARTMENT CHECKLIST

☐ Correct Shipping location
☐ Correct Sample Ids (Paperwork vs Bottles)
☐ Yes ☐ No Special-Cooler, Ice, Tape-custody seal, Date&Sign
Date Shipped _____
Shipper (Print) _____ Initial _____

WorleyParsons
resources & energy

CHAIN-OF-CUSTODY RECORD AND ANALSIS REQUEST

Maxxam
Suite 1104 South Wing, 4464 Markam Street
Victoria BC
Tel: (250) 385 6112, Fax: (250) 382 6364

WorleyParsons Canada Ltd.
Suite 100 - 3795 Carey Road
Victoria BC, V8Z 6T8
Tel: (250) 384 1499, Fax: (250) 384 1201

B192596

08314944

PAGE1 OF2

Client: WorleyParsons Canada Ltd.
Project Manager: Jason Clarke
Address: #100 - 3795 Carey Rd
Victoria, BC V8Z 6T8
Tel #: 250-384-1499 Fax #: 250-384-1201
Email: Jason.R.Clarke@worleyparsons.com
Project ID: 09185 - CRD - Sediment

[X] Invoice WorleyParsons
[X] Report WorleyParsons
[X] Digital WorleyParsons
[X] PDF WorleyParsons
[ ] Invoice Client care of WorleyParson

ANALYSES REQUESTED

SAMPLE DESCRIPTION/ID	Maxxam ID	Date & Time Sampled (D/M/Y)	Particle Size	TOC, TC, TN	Total P, Metals	PAHs, Phthalates	Org. Chlorine Pesticides	Chorinated Phenolics	PBDEs	PCBs	Nonyphenol & ethoxolates	Pharm and Pers Care	Mar. Amphipod & Polychate	Mar Polychate Bioaccumulat			Comments	Sample Type	No. of Containers
M2300ESE - Composite	Marine sed	Sept 28/11 13:30	X	X	X	X	X	X	X								BQ9605	Sediment	
M1400ESE - Composite	↓	↓ 16:00	X	X	X	X	X	X	X	X	X	X	X	X			BQ9606	Sediment	
M1600SE - Composite	↓	↓ 12:20	X	X	X	X	X	X	X								BQ9607	Sediment	
M500SE - Composite	↓	↓ 11:30	X	X	X												BQ9608	Sediment	
																	&	Sediment	
																	AJ 29Sep2011	Sediment	
																		Sediment	
																		Sediment	
																		Sediment	
																		Sediment	

PLEASE FILL IN ALL THE REQUIRED AREAS BELOW

TAT (Turnaround Time)
- [X] STD
- [ ] RUSH (2-DAY)
- [ ] RUSH (1-DAY)
- [ ] RUSH (Same Day)
- [ ] Hydrocarbon Screening

DATE Required:
TIME Required:

Regulatory Guideline
- [ ] CSR
- [ ] CCME
- [ ] Other (specify)
- [ ] Other (specify)
- [ ] Special Detection Limits / Contaminant Type:

Reporting Format
- [X] AutoFax
- [X] AutoEmail
- [X]

Mailing Address: If different than above
peter.howland@worleyparsons.com
brian.lynch@worleyparsons.com

LABORATORY USE ONLY
Received by: Michelle [illegible]
Date: 2011/09/29 Time: 08:50
Comment(s):
Work Order Number: 13, 6, 12
Temperature: 10, 10, 10 / 9, 10, 9 / 6, 6, 6
Laboratory prepared Containers [ ] Yes [ ] No
Custody Seal in Tact on Cooler [ ] Yes [ ] No
Due Date:

Sampled by: Brian Lynch Sept 28/11
Name (print): Date:

Relinquished by:
Name (print): Date:

Date:
Time:

White: PSC Yellow: Mail Pink: Receiver Golden Rod: Customer Copy

Report Name: Entry

Job #: B193099

National Client: 122, Worley Parsons

Client: WORLEYPARSONS CANADA SERVICES
100-3795 CAREY RD
VICTORIA BC
CANADA V8Z 6T8

Inv Attn: ACCOUNTS PAYABLE

Printed: 2011/09/30 Version 2
Reception Date: 2011/09/29
Reception Time: 15:40
Login Date: 2011/09/30
REQUIRED DATE: 2011/12/29, 18:00
Quote Number: B01254

Task Order:
Line Item:

Report: same

Attention: JASON CLARKE
PHONE: (250) 384 - 1499Ext:
FAX: (250) 384 - 1201
EMAIL: jason.r.clarke@worleyparsons.com

P.O. Number:
PROJECT NUMBER: 09185 - CRD - SEDIMENT
Site Location:
Site #:
Client Number: 11373
Rpt Address #:
Q.C. Samples: No

Project Coordinator: DN3

enario:# 8927 09185 CRD

Accounting Information
Desc. Code

Report Copies

Attention	# cop. Fax	EMAIL
Peter Howland	0	peter.howland@worleyparsons.com
Brian Lynch	0	Brian.Lynch@WorleyParsons.com
Victoria Chemistry Results	0	vic.chemistry@worleyparsons.com

Maxxam Number	Client Sample ID/Report ID	Cont's	Store Code	Recd. OK	Sampling Date	MATRIX	Test Codes
BR3043-01R	M1300E - COMPOSITE M1300E - COMPOSITE	1-BAG		Yes	2011/09/29	SED	PSSTDW-S, TEXTCW-S
BR3043-02R	M1300E - COMPOSITE M1300E - COMPOSITE	1-CJAR		Yes	2011/09/29	SED	VSUBTOC-S
BR3043-03R	M1300E - COMPOSITE M1300E - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	ICPMS2TV-S, PHSOL2-S ACIDDIGV-S, DGV-S
BR3044-01R	M800NE - COMPOSITE M800NE - COMPOSITE	1-BAG		Yes	2011/09/29	SED	PSSTDW-S, TEXTCW-S
BR3044-02R	M800NE - COMPOSITE M800NE - COMPOSITE	1-CJAR		Yes	2011/09/29	SED	VSUBTOC-S
BR3044-03R	M800NE - COMPOSITE M800NE - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	ICPMS2TV-S, PHSOL2-S ACIDDIGV-S, DGV-S
BR3044-04R	M800NE - COMPOSITE M800NE - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	PAHSIMAV-S, PAHTOT-S, ABNMSA-S MOISTV-S
BR3044-05R	M800NE - COMPOSITE M800NE - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	VSUBOC-S
BR3044-06R	M800NE - COMPOSITE M800NE - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	CPSIMA-S
BR3044-07R	M800NE - COMPOSITE M800NE - COMPOSITE	1-OTHS		Yes	2011/09/29	SED	VSUBPBDE-S
BR3044-08R	M800NE - COMPOSITE M800NE - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	PCBV-S
BR3044-09R	M800NE - COMPOSITE M800NE - COMPOSITE	1-OTHS		Yes	2011/09/29	SED	VSUBNONP-S
BR3044-10R	M800NE - COMPOSITE M800NE - COMPOSITE	1-OTHS		Yes	2011/09/29	SED	SUB2002
BR3044-11R	M800NE - COMPOSITE M800NE - COMPOSITE	8-4PAL		Yes	2011/09/29	SED	AMPHPOD-SD, ECOATTACHS ECOTXSV-SD
BR3045-01R	T1000 - COMPOSITE T1000 - COMPOSITE	1-BAG		Yes	2011/09/29	SED	PSSTDW-S, TEXTCW-S
BR3045-02R	T1000 - COMPOSITE T1000 - COMPOSITE	1-CJAR		Yes	2011/09/29	SED	VSUBTOC-S

Continued...

Maxxam Number	Client Sample ID/Report ID	Cont's	Store Code	Reed. OK	Sampling Date	MATRIX	Test Codes
BR3045-03R	T1000 - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	•ICPMS2TV-S, PHSOL2-S
	T1000 - COMPOSITE						ACIDDIGV-S, DGV-S
BR3045-04R	T1000 - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	•PAHSIMAV-S, PAHTOT-S, ABNMSA-S
	T1000 - COMPOSITE						MOISTV-S
BR3045-05R	T1000 - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	VSUBOC-S
	T1000 - COMPOSITE						
BR3045-06R	T1000 - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	CPSIMA-S
	T1000 - COMPOSITE						
BR3045-07R	T1000 - COMPOSITE	1-OTHS		Yes	2011/09/29	SED	VSUBPBDE-S
	T1000 - COMPOSITE						
BR3045-08R	T1000 - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	PCBV-S
	T1000 - COMPOSITE						
BR3045-09R	T1000 - COMPOSITE	1-OTHS		Yes	2011/09/29	SED	VSUBNONP-S
	T1000 - COMPOSITE						
BR3045-10R	T1000 - COMPOSITE	1-OTHS		Yes	2011/09/29	SED	SUB2002
	T1000 - COMPOSITE						
BR3045-11R	T1000 - COMPOSITE	8-4PAL		Yes	2011/09/29	SED	AMPHPOD-SD, ECOATTACHS
	T1000 - COMPOSITE						ECOTXSV-SD
BR3046-01R	T2000 - COMPOSITE	1-BAG		Yes	2011/09/29	SED	PSSTDW-S, TEXTCW-S
	T2000 - COMPOSITE						
BR3046-02R	T2000 - COMPOSITE	1-CJAR		Yes	2011/09/29	SED	VSUBTOC-S
	T2000 - COMPOSITE						
BR3046-03R	T2000 - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	•ICPMS2TV-S, PHSOL2-S
	T2000 - COMPOSITE						ACIDDIGV-S, DGV-S
BR3046-04R	T2000 - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	•PAHSIMAV-S, PAHTOT-S, ABNMSA-S
	T2000 - COMPOSITE						MOISTV-S
BR3046-05R	T2000 - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	VSUBOC-S
	T2000 - COMPOSITE						
BR3046-06R	T2000 - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	CPSIMA-S
	T2000 - COMPOSITE						
BR3046-07R	T2000 - COMPOSITE	1-OTHS		Yes	2011/09/29	SED	VSUBPBDE-S
	T2000 - COMPOSITE						
BR3046-08R	T2000 - COMPOSITE	1-AJAR		Yes	2011/09/29	SED	PCBV-S
	T2000 - COMPOSITE						
BR3046-09R	T2000 - COMPOSITE	1-OTHS		Yes	2011/09/29	SED	VSUBNONP-S
	T2000 - COMPOSITE						
BR3046-10R	T2000 - COMPOSITE	1-OTHS		Yes	2011/09/29	SED	SUB2002
	T2000 - COMPOSITE						
BR3046-11R	T2000 - COMPOSITE	8-4PAL		Yes	2011/09/29	SED	AMPHPOD-SD, ECOATTACHS
	T2000 - COMPOSITE						ECOTXSV-SD
BR3047-01R	M1300E - GRAB	1-CJAR		Yes	2011/09/29	SED	FCOLMTFV-S
	M1300E - GRAB						
BR3047-02R	M1300E - GRAB	1-AJAR		Yes	2011/09/29	SED	ICPMSSEM-S, MOISTV-S, SPHIDEC-S
	M1300E - GRAB						SPHIDE-S
BR3048-01R	M800NE - GRAB	1-CJAR		Yes	2011/09/29	SED	FCOLMTFV-S
	M800NE - GRAB						
BR3048-02R	M800NE - GRAB	1-AJAR		Yes	2011/09/29	SED	ICPMSSEM-S, MOISTV-S, SPHIDEC-S
	M800NE - GRAB						SPHIDE-S
BR3048-03R	M800NE - GRAB	1-AJAR		Yes	2011/09/29	SED	PPHCSR-S, •VOCHSMSA-S
	M800NE - GRAB						VPHCALC-S
BR3049-01R	T100 - GRAB	1-CJAR		Yes	2011/09/29	SED	FCOLMTFV-S
	T100 - GRAB						
BR3049-02R	T100 - GRAB	1-AJAR		Yes	2011/09/29	SED	ICPMSSEM-S, MOISTV-S, SPHIDEC-S
	T100 - GRAB						SPHIDE-S
BR3049-03R	T100 - GRAB	1-AJAR		Yes	2011/09/29	SED	PPHCSR-S, •VOCHSMSA-S
	T100 - GRAB						VPHCALC-S

Continued...

Maxxam Number	Client Sample ID/Report ID	Cont's	Store Code	Reed. OK	Sampling Date	MATRIX	Test Codes
BR3050-01R	T200 - GRAB	1-CJAR		Yes	2011/09/29	SED	FCOLMTFV-S
	T200 - GRAB						
BR3050-02R	T200 - GRAB	1-AJAR		Yes	2011/09/29	SED	ICPMSSEM-S, MOISTV-S, SPHIDEC-S
	T200 - GRAB						SPHIDE-S
BR3050-03R	T200 - GRAB	1-AJAR		Yes	2011/09/29	SED	PPHCSR-S, VOCHSMSA-S
	T200 - GRAB						VPHCALC-S

Remarks:

Inspected by: DN3
Date: 2011/09/30
Time: 10:22

Approved by: DN3
Date: 2011/09/30
Time: 12:24

Date of Sample Disposal:
Disposal by:

Continued...

Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

WORLEYPARSONS CANADA
SERVICES LTD - VICTORIA
Maxxam PM Debbie Nordbruget

SUBCONTRACTING REQUEST FORM

To: Maxxam Winnipeg

Job# B193099

☐ Yes ☐ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
☐ Yes ☐ No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) _____ (Time) _____

Received Lab's Job # _____ Inspected by (print) _____ SIF ☐ Yes ☐ No
Upon receipt, record 3 temperatures for **each** package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 _____ Temp2 _____ Temp3 _____ Custody sealed _____

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BR3043-01R \ M1300E - COMP	SED	Particle Size Distribution - Standard	1(BAG)	2011/09/29	2011/12/09
BR3043-01R \ M1300E - COMP	SED	Texture Class	1(BAG)	2011/09/29	2011/12/09
BR3044-01R \ M800NE - COMP	SED	Particle Size Distribution - Standard	1(BAG)	2011/09/29	2011/12/09
BR3044-01R \ M800NE - COMP	SED	Texture Class	1(BAG)	2011/09/29	2011/12/09
BR3045-01R \ T1000 - COMPO	SED	Particle Size Distribution - Standard	1(BAG)	2011/09/29	2011/12/09
BR3045-01R \ T1000 - COMPO	SED	Texture Class	1(BAG)	2011/09/29	2011/12/09
BR3046-01R \ T2000 - COMPO	SED	Particle Size Distribution - Standard	1(BAG)	2011/09/29	2011/12/09
BR3046-01R \ T2000 - COMPO	SED	Texture Class	1(BAG)	2011/09/29	2011/12/09

NOTES:
1) Please call us if due date cannot be met. Please reference Sample ID on your report.
2) Include copy of this completed form, Client COC & signed final report to

SHIPPING INSTRUCTIONS

☐ Ship Immediately (highlight Yellow)
☐ Requires 9am
☐ Requires Sat. Delivery
☐ Regular Ship next available day
☐ Ship Cold
☐ Ship Room Temp
☐ Ship Frozen
☐ COC Must be Attached
Sender (Print) _____ Initial _____

SHIPPING DEPARTMENT CHECKLIST

☐ Correct Shipping location
☐ Correct Sample Ids (Paperwork vs Bottles)
☐ Yes ☐ No Special-Cooler, Ice, Tape-custody seal, Date&Sign
Date Shipped _____
Shipper (Print) _____ Initial _____

Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

WORLEYPARSONS CANADA
SERVICES LTD - VICTORIA
Maxxam PM Debbie Nordbruget

SUBCONTRACTING REQUEST FORM

To: Maxxam Ontario (From Burnaby)

Job# B193099

☐ Yes ☐ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
☐ Yes ☐ No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) _____ (Time) _____

Received Lab's Job # _____ Inspected by (print) _____ SIF ☐ Yes ☐ No
Upon receipt, record 3 temperatures for **each** package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 _____ Temp2 _____ Temp3 _____ Custody sealed _____

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BR3043-02R \ M1300E - COMP	SED	TOC Soil Subcontract	1(CJAR)	2011/09/29	2011/10/14
BR3044-02R \ M800NE - COMP	SED	TOC Soil Subcontract	1(CJAR)	2011/09/29	2011/10/14
BR3044-05R \ M800NE - COMP	SED	Pesticides, OC Soil Subcontract	1(AJAR)	2011/09/29	2011/10/14
BR3045-02R \ T1000 - COMPO	SED	TOC Soil Subcontract	1(CJAR)	2011/09/29	2011/10/14
BR3045-05R \ T1000 - COMPO	SED	Pesticides, OC Soil Subcontract	1(AJAR)	2011/09/29	2011/10/14
BR3046-02R \ T2000 - COMPO	SED	TOC Soil Subcontract	1(CJAR)	2011/09/29	2011/10/14
BR3046-05R \ T2000 - COMPO	SED	Pesticides, OC Soil Subcontract	1(AJAR)	2011/09/29	2011/10/14

NOTES:
1) Please call us if due date cannot be met. Please reference Sample ID on your report.
2) Include copy of this completed form, Client COC & signed final report to

SHIPPING INSTRUCTIONS

☐ Ship Immediately (highlight Yellow)
☐ Requires 9am
☐ Requires Sat. Delivery
☐ Regular Ship next available day
☐ Ship Cold
☐ Ship Room Temp
☐ Ship Frozen
☐ COC Must be Attached
Sender (Print) _____ Initial _____

SHIPPING DEPARTMENT CHECKLIST

☐ Correct Shipping location
☐ Correct Sample Ids (Paperwork vs Bottles)
☐ Yes ☐ No Special-Cooler, Ice, Tape-custody seal, Date&Sign
Date Shipped _____
Shipper (Print) _____ Initial _____

Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

Maxxam PM Debbie Nordbruget

SUBCONTRACTING REQUEST FORM

To: Ext. Sublet from Victoria

Job# B193099

☐ Yes ☐ No Charge us Rush charges (If rush charges are required to meet due date and Yes box is not checked, please call us)
☐ Yes ☐ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
☐ Yes ☐ No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) _____ (Time) _____

Received Lab's Job # _____ Inspected by (print) _____
Upon receipt, record 3 temperatures for **each** package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 _____ Temp2 _____ Temp3 _____ Custody sealed _____

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BR3044-07R \ M800NE - COMP	SED	PBDE Soil Subcontract	1(OTHS)	2011/09/29	2011/12/08
BR3044-09R \ M800NE - COMP	SED	Nonyl Phenol Soil Subcontract	1(OTHS)	2011/09/29	2011/12/08
BR3044-10R \ M800NE - COMP	SED	Sublet (Inorganics)	1(OTHS)	2011/09/29	2011/12/08
BR3045-07R \ T1000 - COMPO	SED	PBDE Soil Subcontract	1(OTHS)	2011/09/29	2011/12/08
BR3045-09R \ T1000 - COMPO	SED	Nonyl Phenol Soil Subcontract	1(OTHS)	2011/09/29	2011/12/08
BR3045-10R \ T1000 - COMPO	SED	Sublet (Inorganics)	1(OTHS)	2011/09/29	2011/12/08
BR3046-07R \ T2000 - COMPO	SED	PBDE Soil Subcontract	1(OTHS)	2011/09/29	2011/12/08
BR3046-09R \ T2000 - COMPO	SED	Nonyl Phenol Soil Subcontract	1(OTHS)	2011/09/29	2011/12/08
BR3046-10R \ T2000 - COMPO	SED	Sublet (Inorganics)	1(OTHS)	2011/09/29	2011/12/08

NOTES:
1) Please call us if due date cannot be met. Please reference Sample ID on your report.
2) Include copy of this completed form & signed final report to

SHIPPING INSTRUCTIONS

☐ Ship Immediately (highlight Yellow)
☐ Requires 9am
☐ Requires Sat. Delivery
☐ Regular Ship next available day
☐ Ship Cold
☐ Ship Room Temp
☐ Ship Frozen

Sender (Print) _____ Initial _____

SHIPPING DEPARTMENT CHECKLIST

☐ Correct Shipping location
☐ Correct Sample Ids (Paperwork vs Bottles)
☐ Yes ☐ No Special-Cooler, Ice, Tape-custody seal, Date&Sign
Date Shipped _____
Shipper (Print) _____ Initial _____

WorleyParsons
resources & energy

CHAIN-OF-CUSTODY RECORD AND ANALSIS REQUEST

Maxxam
Suite 1104 South Wing, 4464 Markam Street
Victoria BC
Tel: (250) 385 6112, Fax: (250) 382 6364

WorleyParsons Canada Ltd.
Suite 100 - 3795 Carey Road
Victoria BC, V8Z 6T8
Tel: (250) 384 1499, Fax: (250) 384 1201

B193099

08315004

Client: WorleyParsons Canada Ltd.
Project Manager: Jason Clarke
Address: #100 - 3795 Carey Rd
Victoria, BC V8Z 6T8
Tel #: 250-384-1499 Fax #:250-384-1201
Email: Jason.R.Clarke@worleyparsons.com
Project ID: 09185 - CRD - Sediment

[X] Invoice WorleyParsons
[X] Report WorleyParsons
[X] Digital WorleyParsons
[X] PDF WorleyParsons
[ ] Invoice Client care of WorleyParson

ANALYSES REQUESTED

SAMPLE DESCRIPTION/ID	Maxxam ID	Date & Time Sampled (D/M/Y)	Particle Size	TOC, TC, TN	Total P, Metals	PAHs, Phthalates	Org. Chlorinq Pesticides	Chorinated Phenolics	PBDEs	PCBs	Nonyphenol & ethoxolates	Pharm and Pers Care	Mar. Amphipod & Polychate	Mar Polychate Bioaccumulat			Comments	Sample Type	No. of Containers
M1300E - Composite	marine	Sept29/11 9:15	X	X	X													Sediment	
M800NE - Composite	sediment	10:45	X	X	X	X	X	X	X	X	X	X	X	X				Sediment	
T1000 - Composite	↓	↓ 12:05	X	X	X	X	X	X	X	X	X	X	X	X				Sediment	
T2000 - Composite		14:05	X	X	-	X	X	X	X	X	X	X	X	X				Sediment	
																		Sediment	
																		Sediment	
																		Sediment	
																		Sediment	
																		Sediment	
																		Sediment	

PLEASE FILL IN ALL THE REQUIRED AREAS BELOW

TAT (Turnaround Time)
[X] STD
[ ] RUSH (2-DAY)
[ ] RUSH (1-DAY)
[ ] RUSH (Same Day)
[ ] Hydrocarbon Screening

DATE Required:
TIME Required:

Regulatory Guideline
[ ] CSR
[ ] CCME
[ ] Other (specify)
[ ] Other (specify)
[ ] Special Detection Limits / Contaminant Type:

Reporting Format
[X] AutoFax [X] AutoEmail
[X]
Mailing Address: If different than above
peter.howland@worleyparsons.com
brian.lynch@worleyparsons.com

LABORATORY USE ONLY
Received by: [illegible] Nedder
Date: [illegible] Time: 5:40
Comment(s): [illegible]
Work Order Number: [illegible]
Temperature: [illegible]
Laboratory prepared Containers: [ ] Yes [ ] No
Custody Seal in Tact on Cooler: [ ] Yes [ ] No N/A
Due Date:

Sampled by:
Name (print): Date:

Relinquished by: [signature]
Name (print): Date:

Date:
Time:

White: PSC Yellow: Mail Pink: Receiver Golden Rod: Customer Copy

Report Name: Entry

Job #: B192006

National Client: 122, Worley Parsons

Client: WORLEYPARSONS CANADA SERVICES
100-3795 CAREY RD
VICTORIA BC
CANADA V8Z 6T8

Inv Attn: Accounts Payable

Task Order:
Line Item:

Report: same

Attention: JASON CLARKE
PHONE: (250) 384 - 1499Ext:
FAX: (250) 384 - 1201
EMAIL: jason.r.clarke@worleyparsons.com

Project Coordinator: DN3

Printed: 2011/09/28 Version 3
Reception Date: 2011/09/28
Reception Time: 08:45
Login Date: 2011/09/28
REQUIRED DATE: 2011/12/22, 18:00
Quote Number: B01254

P.O. Number:
PROJECT NUMBER: 09185 - CRD - SEDIMENT
Site Location:
Site #:
Client Number: 11373
Rpt Address #:
Q.C. Samples: No

enario:# 8927 09185 CRD

Accounting Information
Desc. Code

Report Copies

Attention	# cop.Fax	EMAIL
Peter Howland	0	peter.howland@worleyparsons.com
Brian Lynch	0	Brian.Lynch@WorleyParsons.com
Victoria Chemistry Results	0	vic.chemistry@worleyparsons.com

Maxxam Number	Client Sample ID/Report ID	Cont's	Store Code	Recd. OK	Sampling Date	MATRIX	Test Codes
BQ5955-01R	FC4000ENE - COMPOSITE FC4000ENE - COMPOSITE	1-BAG		Yes	2011/09/27	SED	PSSTDW-S, TEXTCW-S
BQ5955-02R	FC4000ENE - COMPOSITE FC4000ENE - COMPOSITE	1-CJAR		Yes	2011/09/27	SED	VSUBTOC-S
BQ5955-03R	FC4000ENE - COMPOSITE FC4000ENE - COMPOSITE	1-AJAR		Yes	2011/09/27	SED	*ICPMS2TV-S, PHSOL2-S ACIDDIGV-S, DGV-S
BQ5956-01R	FC3500NE - COMPOSITE FC3500NE - COMPOSITE	1-BAG		Yes	2011/09/27	SED	PSSTDW-S, TEXTCW-S
BQ5956-02R	FC3500NE - COMPOSITE FC3500NE - COMPOSITE	1-CJAR		Yes	2011/09/27	SED	VSUBTOC-S
BQ5956-03R	FC3500NE - COMPOSITE FC3500NE - COMPOSITE	1-AJAR		Yes	2011/09/27	SED	*ICPMS2TV-S, PHSOL2-S ACIDDIGV-S, DGV-S
BQ5956-04R	FC3500NE - COMPOSITE FC3500NE - COMPOSITE	1-AJAR		Yes	2011/09/27	SED	*PAHSIMAV-S, PAHTOT-S, ABNMSA-S MOISTV-S
BQ5956-05R	FC3500NE - COMPOSITE FC3500NE - COMPOSITE	1-AJAR		Yes	2011/09/27	SED	VSUBOC-S
BQ5956-06R	FC3500NE - COMPOSITE FC3500NE - COMPOSITE	1-AJAR		Yes	2011/09/27	SED	CPSIMA-S
BQ5956-07R	FC3500NE - COMPOSITE FC3500NE - COMPOSITE	1-AJAR		Yes	2011/09/27	SED	PCBV-S
BQ5956-08R	FC3500NE - COMPOSITE FC3500NE - COMPOSITE	1-OTHS		Yes	2011/09/27	SED	VSUBPBDE-S
BQ5956-09R	FC3500NE - COMPOSITE FC3500NE - COMPOSITE	1-OTHS		Yes	2011/09/27	SED	VSUBNONP-S
BQ5956-10R	FC3500NE - COMPOSITE FC3500NE - COMPOSITE	1-OTHS		Yes	2011/09/27	SED	SUB2002
BQ5956-11R	FC3500NE - COMPOSITE FC3500NE - COMPOSITE	8-4PAL		Yes	2011/09/27	SED	AMPHPOD-SD, ECOATTACHS ECOTXSV-SD
BQ5957-01R	FC4000ENE - GRAB FC4000ENE - GRAB	1-CJAR		Yes	2011/09/27	SED	FCOLMTFV-S
BQ5957-02R	FC4000ENE - GRAB FC4000ENE - GRAB	1-AJAR		Yes	2011/09/27	SED	ICPMSSEM-S, MOISTV-S, SPHIDEC-S SPHIDE-S

Continued...

Maxxam Number	Client Sample ID/Report ID	Cont's	Store Code	Recd. OK	Sampling Date	MATRIX	Test Codes
BQ5958-01R	FC3500NE - GRAB FC3500NE - GRAB	1-CJAR		Yes	2011/09/27	SED	FCOLMTFV-S
BQ5958-02R	FC3500NE - GRAB FC3500NE - GRAB	1-AJAR		Yes	2011/09/27	SED	ICPMSSEM-S, MOISTV-S, SPHIDEC-S SPHIDE-S
BQ5958-03R	FC3500NE - GRAB FC3500NE - GRAB	1-AJAR		Yes	2011/09/27	SED	PPHCSR-S, *VOCHSMSA-S VPHCALC-S

Remarks:

Inspected by: DN3
Date: 2011/09/28
Time: 09:45

Approved by:
Date:
Time:

Date of Sample Disposal:
Disposal by:

Continued...

Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

WORLEYPARSONS CANADA
SERVICES LTD - VICTORIA
Maxxam PM Debbie Nordbruget

SUBCONTRACTING REQUEST FORM

To: Maxxam Winnipeg

Job# B192006

☐ Yes ☐ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
☐ Yes ☐ No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) _____ (Time) _____

Received Lab's Job # _____ Inspected by (print) _____ SIF ☐ Yes ☐ No
Upon receipt, record 3 temperatures for **each** package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 _____ Temp2 _____ Temp3 _____ Custody sealed _____

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ5955-01R \ FC4000ENE - CO	SED	Particle Size Distribution - Standard	1(BAG)	2011/09/27	2011/10/04
BQ5955-01R \ FC4000ENE - CO	SED	Texture Class	1(BAG)	2011/09/27	2011/10/04
BQ5956-01R \ FC3500NE - CO	SED	Particle Size Distribution - Standard	1(BAG)	2011/09/27	2011/10/04
BQ5956-01R \ FC3500NE - CO	SED	Texture Class	1(BAG)	2011/09/27	2011/10/04

NOTES:
1) Please call us if due date cannot be met. Please reference Sample ID on your report.
2) Include copy of this completed form, Client COC & signed final report to

SHIPPING INSTRUCTIONS

☐ Ship Immediately (highlight Yellow)
☐ Requires 9am
☐ Requires Sat. Delivery
☐ Regular Ship next available day
☐ Ship Cold
☐ Ship Room Temp
☐ Ship Frozen
☐ COC Must be Attached
Sender (Print) _____ Initial _____

SHIPPING DEPARTMENT CHECKLIST

☐ Correct Shipping location
☐ Correct Sample Ids (Paperwork vs Bottles)
☐ Yes ☐ No Special-Cooler, Ice, Tape-custody seal, Date&Sign
Date Shipped _____
Shipper (Print) _____ Initial _____

Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

WORLEYPARSONS CANADA
SERVICES LTD - VICTORIA
Maxxam PM Debbie Nordbruget

SUBCONTRACTING REQUEST FORM

To: Maxxam Ontario (From Burnaby)

Job# B192006

☐ Yes ☐ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
☐ Yes ☐ No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) _____ (Time) _____

Received Lab's Job # _____ Inspected by (print) _____ SIF ☐ Yes ☐ No
Upon receipt, record 3 temperatures for **each** package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 _____ Temp2 _____ Temp3 _____ Custody sealed _____

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ5955-02R \ FC4000ENE - CO	SED	TOC Soil Subcontract	1(CJAR)	2011/09/27	2011/10/05
BQ5956-02R \ FC3500NE - CO	SED	TOC Soil Subcontract	1(CJAR)	2011/09/27	2011/10/05
BQ5956-05R \ FC3500NE - CO	SED	Pesticides, OC Soil Subcontract	1(AJAR)	2011/09/27	2011/10/07

NOTES:
1) Please call us if due date cannot be met. Please reference Sample ID on your report.
2) Include copy of this completed form, Client COC & signed final report to

SHIPPING INSTRUCTIONS

☐ Ship Immediately (highlight Yellow)
☐ Requires 9am
☐ Requires Sat. Delivery
☐ Regular Ship next available day
☐ Ship Cold
☐ Ship Room Temp
☐ Ship Frozen
☐ COC Must be Attached

Sender (Print) _____ Initial _____

SHIPPING DEPARTMENT CHECKLIST

☐ Correct Shipping location
☐ Correct Sample Ids (Paperwork vs Bottles)
☐ Yes ☐ No Special-Cooler, Ice, Tape-custody seal, Date&Sign
Date Shipped _____
Shipper (Print) _____ Initial _____

Maxxam Analytics
4606 Canada Way
Burnaby, British Columbia, V5G 1K5
Phone: (604) 734 7276
Fax: (604) 731 2386

Maxxam PM Debbie Nordbruget

SUBCONTRACTING REQUEST FORM

To: Ext. Sublet from Victoria

Job# B192006

☐ Yes ☐ No Charge us Rush charges (If rush charges are required to meet due date and Yes box is not checked, please call us)
☐ Yes ☐ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
☐ Yes ☐ No Special Protocol (if yes, Protocol _____)

Received @ Subcontract Lab by (sign) _____ (print) _____

Received @ Subcontract Lab (Date) _____ (Time) _____

Received Lab's Job # _____ Inspected by (print) _____
Upon receipt, record 3 temperatures for **each** package/cooler. If required by contract or legal sample,indicate if custody sealed.

Temp1 _____ Temp2 _____ Temp3 _____ Custody sealed _____

Sample ID	MATRIX	Test(s) Required	Container	Date Sampled	Date Required
BQ5956-08R \ FC3500NE - CO	SED	PBDE Soil Subcontract	1(OTHS)	2011/09/27	2011/10/05
BQ5956-09R \ FC3500NE - CO	SED	Nonyl Phenol Soil Subcontract	1(OTHS)	2011/09/27	2011/10/05
BQ5956-10R \ FC3500NE - CO	SED	Sublet (Inorganics)	1(OTHS)	2011/09/27	2011/10/04

NOTES:
1) Please call us if due date cannot be met. Please reference Sample ID on your report.
2) Include copy of this completed form & signed final report to

SHIPPING INSTRUCTIONS

☐ Ship Immediately (highlight Yellow) ☐ Ship Cold
☐ Requires 9am ☐ Ship Room Temp
☐ Requires Sat. Delivery ☐ Ship Frozen
☐ Regular Ship next available day
Sender (Print) _____ Initial _____

SHIPPING DEPARTMENT CHECKLIST

☐ Correct Shipping location
☐ Correct Sample Ids (Paperwork vs Bottles)
☐ Yes ☐ No Special-Cooler, Ice, Tape-custody seal, Date&Sign
Date Shipped _____
Shipper (Print) _____ Initial _____

b192606

![WorleyParsons] **WorleyParsons**
resources & energy

CHAIN-OF-CUSTODY RECORD AND ANALSIS REQUEST

Maxxam
Suite 1104 South Wing, 4464 Markam Street
Victoria BC
Tel: (250) 385 6112, Fax: (250) 382 6364

WorleyParsons Canada Ltd.
Suite 100 - 3795 Carey Road
Victoria BC, V8Z 6T8
Tel: (250) 384 1499, Fax: (250) 384 1201

08314940

Client: WorleyParsons Canada Ltd.
Project Manager: Jason Clarke
Address: #100 - 3795 Carey Rd
Victoria, BC V8Z 6T8
Tel #: 250-384-1499 Fax #:250-384-1201
Email: Jason.R.Clarke@worleyparsons.com
Project ID: 09185 - CRD - Sediment

- [X] Invoice WorleyParsons
- [X] Report WorleyParsons
- [X] Digital WorleyParsons
- [X] PDF WorleyParsons
- [ ] Invoice Client care of WorleyParson

ANALYSES REQUESTED

SAMPLE DESCRIPTION/ID	Maxxam ID	Date & Time Sampled (D/M/Y)	Particle Size (1)	TOC, TC, TN (2)	Total P, Metals (3)	PAHs, Phthalates (4)	Org. Chlorina Pesticides (5)	Chorinated Phenolics (6)	PBDEs (6)	PCBs (7)	Nonyphenol & ethoxolates (9)	Pharm and Pers Care (10)	Mar. Amphipod & Polychate	Mar Polychate Bioaccumulat			Comments	Sample Type	No. of Containers
FC4000ENE-Composite	marine	15:00 Sept27/11	X	X	X												BQ5955	Sediment	
FC3500NE-Composite	sediment	1800 "	X	X	X	X	X	X	X	X	X	X	X	X			BQ5956	Sediment	
																		Sediment	
																		Sediment	
																		Sediment	
																		Sediment	
																		Sediment	
																		Sediment	
																		Sediment	
																		Sediment	

PLEASE FILL IN ALL THE REQUIRED AREAS BELOW

TAT (Turnaround Time)
- [x] STD
- [ ] RUSH (2-DAY)
- [ ] RUSH (1-DAY)
- [ ] RUSH (Same Day)
- [ ] Hydrocarbon Screening

DATE Required:
TIME Required:

Regulatory Guideline
- [ ] CSR
- [ ] CCME
- [ ] Other (specify)
- [ ] Other (specify)
- [ ] Special Detection Limits / Contaminant Type:

Reporting Format
- [x] AutoFax
- [x] AutoEmail
- [x]

Mailing Address: If different than above
peter.howland@worleyparsons.com
brian.lynch@worleyparsons.com

LABORATORY USE ONLY
Received by: MICHELLE VAN SCHUUR
Date: 2011/09/28 Time: 08:45
Comment(s):
Work Order Number:
Temperature: 5,5,6 7,5,7 4,4,10
Laboratory prepared Containers: [ ] Yes [ ] No
Custody Seal in Tact on Cooler: [ ] Yes [ ] No N/A
Due Date:

Sampled by:
Name (print): Date:

Relinquished by: [signature]
Name (print): Julie Gardner Date: 28/09/11

Date:
Time:

White: PSC Yellow: Mail Pink: Receiver Golden Rod: Customer Copy

Maxxam Analytics

Sediment Sample Descriptions

Client # / Name: 11373 Worley Parsons

Job #: B193099; B192596; B192006

Maxxam Sample Name	Sample #	Client Sample Name	Date Homogenised / Subsampled	Grain Size & Colour	Type of Debris Removed (e.g. rock, wood, plant, etc...)	Endemic Animals Removed	Odour	Additional Comments/Observations	Analyst
M800NE	BR3044	M800NE	2011 OCT 25 2011 Nov 08	silty ~~sand~~ clay, muddy brown	clam shells, glass plate fragments, twigs	worms, brittlestar, polychaetes	WE 2011 OCT 25 CT ~~mild~~ sulfur sewage	n/a	CT
T1000	BR3045	T1000	2011 OCT 25 2011 Nov 08	silty ~~sand~~ clay brown/grey	Rocks, shells.	clams, polychaetes, rotifer worms	Sulfur sewage	n/a	CT
T2000	BR3046	T2000	2011 OCT 25 2011 Nov 08	silty clay brown, grey	shells, rocks.	worms clams, sea slugs	sewage	n/a	CT
FC3500NE	BQ5956	FC3500NE	2011 OCT 25 2011 Nov 08	silty sand brown	twigs	rivereels	sewage	n/a	CT
M1400ESE	~~BQ9606~~ BQ9606	M1400ESE	2011 OCT 25 2011 Nov 08	silty, clayey dark grey	Rocks, shells	Baby clams	Sulfur Sewage	n/a	EC
	BQ9606			silty, clayey, dark grey	Dead nereis, shells, dead scallops, large barnacle clumps	sea worms,	Sulfur, decay, Sewage	noticed lots of dead worms. strong sewage odour	EC/CT

M.G 2011 Dec 19

Maxxam **Marine Sediment Porewater Measurements**

Client # & Name: 11373 Worley Parsons Date Measured: 2011 Oct 25

Porewater Collection Method: Centrifugation for 30 mins @ 5000 rpm.
Redo 2011 0226

Sample ID	Salinity (‰)	Temperature (°C)	pH	Ammonia (mg/L)	Sulphide (mg/L)	Analyst
M800 NE	33	21.4	7.5	15.50	0.016	EC / CT
T1000	32	20.8	7.5	15.77	0.006	EC / CT
CONTROL	28	19.8	7.7	0.09	0.003	EC / CT
M1400 ESE	33	17.7	7.3	75.41	0.024	EC / CT
FC3500 NE	33	17.5	7.4	6.61	0.006	EC / CT
T2000	33	17.6	7.4	17.00 (verified 2011 Dec 19)	0.007	EC / CT

M.Cy 2011 Dec 19

Comments Chemistry Report Forwarded Directly to Client. 2011 Nov 16
Additional parameters tested include hardness and DOC. 2011 Nov 16

M.Cy 2011 Dec 19

Maxxam

Success Through Science

Maxxam Job #: B1A2936
Report Date: 2011/11/03

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1087

Your P.O. #: 2-11-1087
Sampler Initials: MG

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BX8687		BX8688		BX8689		BX8690		BX8691		BX8692	
Sampling Date		2011/10/25 17:00		2011/10/25 17:00		2011/10/25 17:00		2011/10/25 17:00		2011/10/25 17:00		2011/10/25 17:00	
COC#		G032283		G032283		G032283		G032283		G032283		G032283	
	Units	**M800NE**	**RDL**	**T1000**	**RDL**	**CONTROL POREWATER**	**RDL**	**M1400ESE**	**RDL**	**FC3500NE**	**RDL**	**T2000**	**RDL**
Calculated Parameters													
Total Hardness (CaCO3)	mg/L	5490	0.5	5290	0.5	4580	0.5	5210	0.5	5510	0.5	5550	0.5
Misc. Inorganics													
Dissolved Organic Carbon (C)	mg/L	34	1	51	3	2.3	0.5	338	5	52	1	47.8	0.5
MISCELLANEOUS													
Sulphide	mg/L	0.016	0.005	0.006	0.005	<0.005	0.005	0.02(1)	0.01	<0.01(1)	0.01	0.007(2)	0.005
Nutrients													
Ammonia (N)	mg/L	15	0.3	16	0.1	0.091	0.005	75	0.5	6.6	0.1	17	0.3

RDL = Reportable Detection Limit
(1) - RDL raised due to limited initial sample amount.
Sample received at less than recommended preservation pH 9.
(2) - Sample received at less than recommended preservation pH 9.

10 DAY MARINE AMPHIPOD SURVIVAL TEST

Test Summary

Statistics

Raw Data

Supporting Test Data

Acclimation and Holding Conditions

Reference Toxicant Control Chart

Overlying Water Chemistry

10-d *Eohaustorius estuarius* Survival and Reburial Test

Data Summary

Client Name/Location	Worley Parsons/ Victoria, BC
Testing Lab/Location	Maxxam Analytics / Burnaby, BC
Sample Information	
Sample Names	M800NE, M1400ESE, T1000, T2000, FC3500NE
Type of Sample	Field collected sediments
Method of Collection	See Chain of Custody form
Sample Collector	See Chain of Custody form
Sample Volume	32 L
Sample Containers	4-L white food grade plastic buckets
Sample Collection Date	2011 Sep 27; 2011 Sep 28; 2011 Sep 29
Sample Temperature upon Arrival	6-13°C
Date & Time of Sample Receipt	2011 Sep 28 @ 8:45; 2011 Sep 29 @ 8:50; 2011 Sep 29 @ 15:40
Storage Conditions	From receipt to test initiation, the samples were stored in a temperature controlled cold room at 4 ± 2°C
Sediment and Pore Water Characterisation	See Sediment Sample Descriptions sheet and analytical chemistry reports
Sample Preparation	
Homogenisation	Samples were individually mixed until homogenised at ambient laboratory temperature; if necessary, large debris and indigenous macro-organisms were removed during homogenisation (see Sediment Sample Descriptions sheet)
Date of Homogenisation	2011 Oct 25
Sediment – Physical Analyses	TOC, moisture content and grain size were measured in each sediment sample prior to toxicity test initiation. The results of the analyses are not included in this report.
Sediment Porewater – Chemical Analyses	Samples of homogenised sediment were centrifuged for 30 minutes, at 5000 rpm, to produce porewater. The porewater was then analysed for dissolved organic carbon, ammonia, sulphides, and hardness. See chemical analysis report.

Test Organisms	
Species	*Eohaustorius estuarius*
Source	Amphipods sized 3-5mm, field collected from Mackenzie Beach, Tofino, BC by Seacology (North Vancouver, BC)
Date of Collection	2011 Oct 19
Method of Organism Collection	Amphipods were screened from sediment using mesh with 1mm x 1mm opening. Amphipods were removed from the sieve and counted into food grade plastic containers using a pipette. Sieved sediment was added to each container to make a sediment depth of approximately 10mm. All non-burrowing amphipods and amphipod carcasses were removed. Mortalities were assessed 22 hrs after collection. Every effort was made to remove all predators and non-target species of amphipods from the sediment used to transport the collected amphipods. See Seacology Collection Methodology sheet for more information
Age/size at Start of Test	Juveniles, 3 to 5 mm
Date of Organism Arrival	2011 Oct 21
Holding and Acclimation Conditions	See Acclimation and Holding Conditions sheets
% mortality during Holding Period	1.1 %
Average Body Length (mean ± SD)	4.1 ± 0.6. See Length Measurements sheet
Laboratory Control Sediment and Test Water	
Laboratory Control Sediment Source	Mackenzie Beach, Tofino, BC; Collected by Seacology (North Vancouver, BC)
Laboratory Control Sediment Storage	Stored in a cold room that was at 4 $\pm$ 2°C
Laboratory Control Sediment Preparation Procedure	Sediment was sieved (0.5 mm) before use with control/dilution seawater
Overlying Water	Seawater collected at the Vancouver Aquarium, from Burrard Inlet, 40-45’ deep inlet, gravity sand filter with sand mesh size 22, filtered through 5µm filter and passed through UV Sterilizer
Type and Quantity of Chemicals Added to Water	None
Pre-treatment of Overlying Water	The seawater was passed through a UV sterilizer and a 1µm filter, and was continuously aerated prior to use.
Reference Site Sediment	Not known

Test Conditions & Facilities	
Test Method	Environment Canada (1998). Biological Test Method: Reference Method for Determining Acute Lethality of Sediment to Marine or Estuarine Amphipods, EPS 1/RM/35
Test Type / Duration	10-d whole sediment toxicity test. Static, no water renewal
Test Temperature	15°C ± 2°C. See the Test Conditions and Survival Data sheets
Light levels and photoperiod	Overhead full spectrum (fluorescent or equivalent); 500 – 1000 lux, 24 h light
Aeration	Continuous and minimal in each test vessel; checked 2-3 times daily. Compressed oil-free air delivered through microbore airline tubing
Test Start Date	2011 Oct 26
Test Completion Date	2011 Nov 05
Test Vessels	1 L glass jars with ~ 10 cm inner diameter; covered
Volume of Sediment	175 mL (~2cm depth)
Volume of Test Water	775 mL
Analysts	M. Grey, L. Takahashi, C. Tra, A. Rakhmangulova, E. Chen, D. Greschner, D. Lai
Water Renewal	None
# Organisms / Vessel	20; randomly assigned to each test vessel
Number of Replicates	5 (plus one measurement replicate) for each sediment sample
Feeding Regime	None
Observations & Measurements	
Dissolved Oxygen Concentrations (DO) and Temperature	In overlying water, at the start and end of the test and three times/week (MWF) in the measurement beakers. See Test Conditions and Survival Data sheets
pH and Salinity	In overlying water, at the start and end of the test in the measurement beakers. See Test Conditions and Survival Data sheets
Sediment Appearance During Test	See Aeration Checks and Test Observations sheets
Test Observations	Organism behaviour during the test, visible mortalities and/or abnormal behaviour was recorded on Test Observations sheet.
Survival	All live amphipods recovered from each test vessel were counted. See Amphipod Survival Summary sheet
Overlying Water – Chemical Analysis	Samples of the overlying water were analysed for Ammonia and Sulphides on Day 0 (start) and Day 10 (end) of the test. See chemical analysis reports.
Anything Unusual about the Test, Deviation from Test Method, other Problems	None.

Results	
Endpoints	Percentage Survival. See Marine Amphipod Survival Summary sheet
Endpoint Results	**Comparison with Laboratory Control** There was a statistically significant decrease in mean **survival** between the laboratory control and sediment samples M800NE and T2000.
Name and citation of program and methods used for calculating statistical endpoint	CETIS v1.7.0.3 – Data were tested for normality using Shapiro-Wilk's test and homogeneity of variance using Bartlett's test. Parametric methods (Equal variance t Two Sample Test) were used to determine if the differences between the sediment samples and the laboratory control were statistically significant.
Number of surviving amphipods in each test vessel	See Test Conditions and Survival Data sheet
QA/QC	
Test Validity Criteria • Mean survival in the test controls for E. estuarius must be ≥90% • Survival in each test control replicate must be ≥ 80%	• Mean survival in the control was 99% • Lowest control replicate survival was 95%
Ref Tox Test LC50 (95% CL) (mg Cd2+/L)	11.6 (8.8, 15.1)
Invalid Ref Tox Test?	No
Ref Tox Test Historic Mean and 2SD Range (mg Cd2+/L)	7.1; 2SD range: (3.4, 14.8)
Date of Ref Tox Test	2011 Oct 26
Organisms Batch and Condition of Ref Tox Test	Static 96-h water-only test. Same batch of organisms used

CETIS Analytical Report

Eohaustorius 10-d Survival and Reburial Sediment Test — **Maxxam Analytics**

Analysis ID:	17-4153-6663	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	29 Dec-11 11:52	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	01-8132-1432	**Test Type:**	Survival-Reburial	**Analyst:**	
Start Date:	26 Oct-11 15:15	**Protocol:**	EC/EPS 1/RM/35	**Diluent:**	Natural Seawater (Van. Aquarium)
Ending Date:	05 Nov-11 12:00	**Species:**	Eohaustorius estuarius	**Brine:**	Not Applicable
Duration:	9d 21h	**Source:**	Seacology Canada	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
Control	13-0960-0183	26 Oct-11	26 Oct-11	15h	Worley Parsons	2-11-1087
M800NE	13-1826-3068	29 Sep-11 10:45	30 Sep-11 15:40	27d 4h		
M1400ESE	11-8669-7089	28 Sep-11 16:00	29 Sep-11 08:50	27d 23h		
T1000	15-0713-5538	29 Sep-11 12:05	30 Sep-11 15:40	27d 3h		
T2000	14-9070-1726	29 Sep-11 14:05	30 Sep-11 15:40	27d 1h		
FC3500NE	06-7702-7004	27 Sep-11 16:00	28 Sep-11 08:45	28d 23h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
Control	Marine/Estuarine Sedim	Worley Parsons	Control		
M800NE	Marine/Estuarine Sedim	Worley Parsons	M800NE		
M1400ESE	Marine/Estuarine Sedim	Worley Parsons	M1400ESE		
T1000	Marine/Estuarine Sedim	Worley Parsons	T1000		
T2000	Marine/Estuarine Sedim	Worley Parsons	T2000		
FC3500NE	Marine/Estuarine Sedim	Worley Parsons	FC3500NE		

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					3.98%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
Control		M800NE	2.275	1.86	0.09952	0.0262	Significant Effect
		M1400ESE	0.6325	1.86	0.06673	0.2724	Non-Significant Effect
		T1000	1.609	1.86	0.09693	0.0731	Non-Significant Effect
		T2000	2.17	1.86	0.07482	0.0309	Significant Effect
		FC3500NE	0.872	1.86	0.08944	0.2043	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Control Trend	Mann-Kendall Trend	8		0.4034	Non-significant Trend in Controls

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.05224957	0.01044991	5	1.435	0.2479	Non-Significant Effect
Error	0.174822	0.007284252	24			
Total	0.2270716	0.01773417	29			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	3.099	15.09	0.6848	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9587		0.2861	Normal Distribution

2011 Dec 29 2011 Dec 29

Analyst: QA: AR

Eohaustorius 10-d Survival and Reburial Sediment Test — **Maxxam Analytics**

Analysis ID: 17-4153-6663 **Endpoint:** Survival Rate **CETIS Version:** CETISv1.7.0
Analyzed: 29 Dec-11 11:52 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	0.99	0.9815	0.9985	0.95	1	0.01	0.02236	2.26%	0.0%
M800NE	5	0.93	0.9083	0.9517	0.85	1	0.0255	0.05701	6.13%	6.06%
M1400ESE	5	0.98	0.9696	0.9904	0.95	1	0.01225	0.02739	2.8%	1.01%
T1000	5	0.95	0.931	0.969	0.9	1	0.02236	0.05	5.26%	4.04%
T2000	5	0.95	0.9366	0.9634	0.9	1	0.01581	0.03536	3.72%	4.04%
FC3500NE	5	0.97	0.953	0.987	0.9	1	0.02	0.04472	4.61%	2.02%

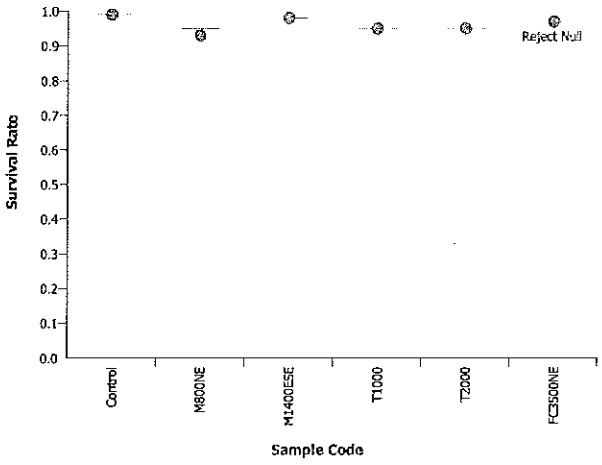
Angular (Corrected) Transformed Summary

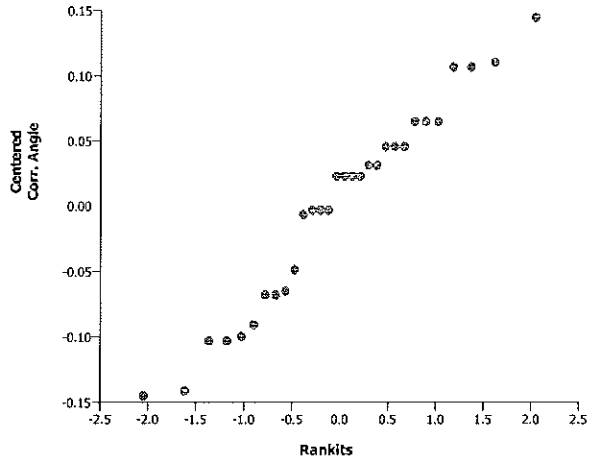
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	1.436	1.417	1.455	1.345	1.459	0.02269	0.05075	3.53%	0.0%
M800NE	5	1.314	1.273	1.356	1.173	1.459	0.04847	0.1084	8.25%	8.48%
M1400ESE	5	1.413	1.39	1.437	1.345	1.459	0.0278	0.06215	4.4%	1.58%
T1000	5	1.352	1.312	1.392	1.249	1.459	0.04692	0.1049	7.76%	5.84%
T2000	5	1.349	1.32	1.377	1.249	1.459	0.03323	0.07429	5.51%	6.08%
FC3500NE	5	1.394	1.358	1.43	1.249	1.459	0.04241	0.09482	6.8%	2.92%

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	1	0.95	1	1	1
M800NE	0.95	0.9	0.85	0.95	1
M1400ESE	1	1	1	0.95	0.95
T1000	1	1	0.9	0.95	0.9
T2000	0.9	1	0.95	0.95	0.95
FC3500NE	0.9	1	0.95	1	1

Graphics





2011 Dec 29 2011 Dec 29

Maxxam Analytics **Marine Amphipod Survival Summary**

Client # & Name: #1373 Worley Parsons Sample Date: 2011 Sept 27-29

Start Date: 2011 Oct 26 End Date: 2011 Nov 05

Sample ID	Client ID	Sample #	Replicate	# Surviving	Survival (%)	Mean Survival (%)	SD
Control	-	-	A	20	100	99	2
			B	19	95		
			C	20	100		
			D	20	100		
			E	20	100		
M800NE	M800NE	BR3044-11	A	19	95	93	6
			B	18	90		
			C	17	85		
			D	19	95		
			E	20	100		
M1400ESE	M1400E5E	BQ9606-11	A	20	100	98	3
			B	20	100		
			C	20	100		
			D	19	95		
			E	19	95		
T1000	T1000	BR3045-11	A	20	100	95	5
			B	20	100		
			C	18	90		
			D	19	95		
			E	18	90		
T2000	T2000	BR3046-11	A	18	90	95	4
			B	20	100		
			C	19	95		
			D	19	95		
			E	19	95		
FC3500NE	FC3500NE	BQ5956-11	A	18	90	97	4
			B	20	100		
			C	19	95		
			D	20	100		
			E	20	100		

Proofed by A. Rakhmangulova 2011 Dec. 29

Maxxam Analytics

Enviro. Canada Marine Amphipod 10 Day Sediment Test
Test Conditions and Survival Data

Client # & Name: 11373 Worley Parsons
Start Date & Time: 2011 Oct 26 @ 15:15
Sample Date: 2011 Sept 27 ; 2011 Sept 28 ; 2011 Sept 29
End Date: 2011 Nov 05
Sample Received: 2011 Sept 28 ; 2011 Sept 29
Species: Eohaustorius estuarius
Maxxam Project #: 2-11-1087
Organism Lot #: SE111021EE
Job #: B193099 ; B192596 ; B192006
Analyst(s): M.Gray, L TAKAHASHI, CTRA, A. Rakhmangulova, E Chen, D. Lai, M.Gray for D.Greschner
Sample ID: Control
Sample #: N/A

	Day 0	2	5	7	10
Day	Wednesday	Friday	Monday	Wednesday	Saturday
Date	2011 oct 26	2011 Oct 28	2011 Oct 31	2011 NOV 02	2011 NOV 05
Temperature(°C)	14.9	15.2	14.8	13.9	14.2
D.O. (mg/L)	8.7	~~7.5~~ 8.3	8.2	8.7	8.6
pH	7.8				7.8
Salinity (‰)	28				29
Analyst	EC	MG	LT	CT	EC

	# Alive				
Replicate	A	B	C	D	E
	20	19	20	20	20
Analyst	CT	CT	EC	EC	CT

Ammonia Sample (mg/L)

Initial	Final
0.029	0.047

Sample ID: M800 NE
Sample #: BR3014-11

	Day 0	2	5	7	10
Day	Wednesday	Friday	Monday	Wednesday	Saturday
Date	2011 oct 26	2011 Oct 28	2011 Oct 31	2011 NOV 02	2011 NOV 05
Temperature(°C)	15.2	14.7	14.5	14.1	14.2
D.O. (mg/L)	8.5	8.2	8.2	8.3	8.5
pH	7.9				8.1
Salinity (‰)	28				30
Analyst	EC	MG	LT	CT	EC

	# Alive				
Replicate	A	B	C	D	E
	19	18	17	19	20
Analyst	CT	EC	CT	EC	CT

Ammonia Sample (mg/L)

Initial	Final
1.5	4.8

Enviro. Canada Marine Amphipod 10 Day Sediment Test
Test Conditions and Survival Data

Sample ID: M1400 ESE **Sample #:** BQ9605-11

	Day 0	2	5	7	10
Day	Wednesday	Friday	Monday	Wednesday	Saturday
Date	2011 Oct 26	2011 Oct 28	2011 Oct 31	2011 NOV 02	2011 NOV 05
Temperature(°C)	15.2	14.5	14.3	14.1	14.3
D.O. (mg/L)	8.3	8.3	8.4	8.4	8.5
pH	7.9				8.3
Salinity (‰)	28				29
Analyst	EC	MR	LT	CT	EC

	# Alive				
Replicate	A	B	C	D	E
	20	20	20	19	19
Analyst	EC	CT	EC	CT	CT

Ammonia Sample (mg/L)

Initial √	Final ✓
6.9	ZZ

Sample ID: T1000 **Sample #:** BR3045-11

	Day 0	2	5	7	10
Day	Wednesday	Friday	Monday	Wednesday	Saturday
Date	2011 Oct 26	2011 Oct 28	2011 Oct 31	2011 NOV 02	2011 NOV 05
Temperature(°C)	15.2	14.5	14.4	14.2	14.1
D.O. (mg/L)	8.5	8.4	8.4	8.4	8.6
pH	7.9				8.1
Salinity (‰)	28				29
Analyst	EC	MR	LT	CT	EC

	# Alive				
Replicate	A	B	C	D	E
	20	20	18	19	18
Analyst	CT	CT	CT	EC	CT

Ammonia Sample (mg/L)

Initial ✓	Final
1.7	6.0

Enviro. Canada Marine Amphipod 10 Day Sediment Test
Test Conditions and Survival Data

Sample ID: T2000 **Sample #:** BR3046-11

	Day 0	2	5	7	10
Day	Wednesday	Friday	Monday	Wednesday	Saturday
Date	2011 oct 26	2011 Oct 28	2011 OCT 31	2011 NOV 02	2011 NOV 05
Temperature(°C)	14.7	14.5	14.4	14.3	14.1
D.O. (mg/L)	8.6	8.3	8.4	8.2	8.5
pH	7.9				8.1
Salinity (‰)	28				29
Analyst	EC	MG	LT	CT	EC

	# Alive				
Replicate	A	B	C	D	E
	18	20	19	19	19 ~~18~~ WE 2011 NOV 05 CT
Analyst	CT	CT	EC	CT	EC CT

Ammonia Sample (mg/L)

Initial ✓	Final ✓
1.8	5.8

BQ5956-11

Sample ID: EC 3500 NE **Sample #:** ~~BR3046-11~~ WE 16 2011 Feb 09

	Day 0	2	5	7	10
Day	Wednesday	Friday	Monday	Wednesday	Saturday
Date	2011 oct 25	2011 Oct 28	2011 OCT 31	2011 NOV 02	2011 NOV 05
Temperature(°C)	14.9	14.3	14.4	14.1	14.2
D.O. (mg/L)	8.6	8.5	8.4	8.3	8.5
pH	7.9				8.1
Salinity (‰)	28				29
Analyst	EC	MG	LT	CT	EC

	# Alive				
Replicate	A	B	C	D	E
	18	20	19	20	20
Analyst	CT	mm	CT	CT	CT

Ammonia Sample (mg/L)

Initial ✓	Final ✓
1.2	5.1

Maxxam Analytics

Marine Amphipod 10 Day Acute Survival Sediment Test

Aeration Checks

Client # & Name: 11373 Morley Parsons

Start Date & Time: 2011 Oct 26 @ 15:15

Initial when aeration is checked. If air is off record DO and note which replicate(s) in comments section.

Day	-1	0	1	2	3	4	5	6	7	8	9	10
Date	2011 Oct 25	2011 OCT 26	2011 OCT 27	2011 Oct 28	2011 Oct 29	2011 Oct 30	2011 Oct 31	2011 NOV 01	2011 NOV 02	2011 NOV 03	2011 NOV 04	2011 NOV 05
Early AM		CT	CT (B)	EC		DML	LT (C)	CT	CT	CT	EC	EC
Mid-day		EC	CT	CT	CT	DML	LT	CT	CT	CT	EC	
Late PM	MG	EC (A)	CT	EC	CT	DML	LT	CT	CT	CT	CT	

Comments:

(A) (morn) All samples show Eohs swimming towards surface (except samples T1000 & T2000 and control) EC 2011 Oct 26
(afternoon, late PM) T2000 Reps A, B, C, D, E and Measure show Eohs swimming towards H2O surface EC 2011 Oct 26
T1000 no Eohs at surface of water or seds. Lodes buried. EC 2011 Oct 26
All other samples still have Eohs swimming towards surface of water EC 2011 Oct 26

(B) M1400 ESG REP B Eohs noticed in water column

(C) M800 NE Rep D not aerating - fixed this DO = 8.6 @ 15.1 °C LT 2011 Oct 31

Maxxam Analytics **Randomization Chart for Sediment Tests**

Client Name and #: 11373 Wesley Broods
Project #: 2-11-1087 0
Maxxam Job #: ~~2-11-10~~ B192820, B192819
B193099, B192006, B192596

Test Type: 10-d Amphipod Test
Test Species: Eohaustorius estuarius
Test Start Date: 2011 Oct 26

Instructions: please follow the position map below when placing vessels on the test bench.

Back Wall

5	10	↑			
4	9				
3	8	13			
2	7	12			
1	6	11	→	→	→

Left Front of Counter Right

Position #	Treatment	Replicate	Colour	Position #	Treatment	Replicate	Colour
26	Control	A	Red	12	T1000	A	Yellow
20	Control	B	Red	28	T1000	B	Yellow
29	Control	C	Red	4	T1000	C	Yellow
21	Control	D	Red	35	T1000	D	Yellow
15	Control	E	Red	7	T1000	E	Yellow
6	Control	Measure	Red	32	T1000	Measure	Yellow
27	M800NE	A	Dk Orange	30	T2000	A	Fl Green
8	M800NE	B	Dk Orange	11	T2000	B	Fl Green
31	M800NE	C	Dk Orange	13	T2000	C	Fl Green
1	M800NE	D	Dk Orange	9	T2000	D	Fl Green
25	M800NE	E	Dk Orange	19	T2000	E	Fl Green
5	M800NE	Measure	Dk Orange	18	T2000	Measure	Fl Green
3	M1400ESE	A	Lt Orange	24	FC3500NE	A	Green
17	M1400ESE	B	Lt Orange	2	FC3500NE	B	Green
23	M1400ESE	C	Lt Orange	16	FC3500NE	C	Green
34	M1400ESE	D	Lt Orange	10	FC3500NE	D	Green
22	M1400ESE	E	Lt Orange	36	FC3500NE	E	Green
14	M1400ESE	Measure	Lt Orange	33	FC3500NE	Measure	Green

Maxxam Analytics

Marine Amphipod
10 Day Acute Survival Sediment Test

Instructions: Add 175 mL sediment to each test vessel.
Add 900 mL control seawater to each test vessel by pouring the seawater over a diffuser held just above the water level. Use a separate diffuser for each sediment.
Randomize the test vessels, add a lid, insert airline

Client # & Name: 11373 Worley Parsons.

Source of Seawater: Vancouver Aquarium

Seawater Batch: Vancouver Aquarium (Oct 05, 2011)

Date Used: 2011 Oct 25

Sample IDs: Various

Water Quality Before Use:

D.O. (mg/L): 8.6 **pH:** 7.9

Temperature (°C): 13.6 Salinity (‰) : 28

Analyst: MG

SE111021

SEACOLOGY

Marine Life Supply — A Commitment to Excellence in the Supply of Temperate Marine Biota

Hello Janet,

Here is a summary of the collection activities for the *Eohaustorius estuarius* delivered 20 Oct 2011.

Amphipods were collected from Mackenzie Beach, Tofino B.C. Mackenzie Beach is located near Tofino, BC on the west coast of Vancouver Island (Lat. 49° 8' 01"Long. 125° 54' 20").

Amphipods were collect 19 Oct 2011

Amphipods collected per container = 110 amphipods

Total number collected = 13 containers x 110 amphipods/container = 1430 amphipods

Complete a water change and remove all dead amphipods 12:00 PDT, 20 Oct 2011

Total dead amphipods removed from all containers = 13

Total Number of amphipods = 1430 amphipods - 13 amphipods = 1417 amphipods

Amphipods/container to Maxxam = 1417 Amphipods / 13 Container = 109 amphipods/container

Total Number of Containers delivered to Maxxam 12

Total Amphipods delivered to Maxxam = 12 container x 109 amphipods/container = 1308 amphipods

Salinity of water in containers = 26 ppt

Temperature of containers = 14 C.

Deliver amphipods to Maxxam 20 Oct 2011

Amphipods were screened from sediment using mesh with 1mm x 1mm opening. Amphipods were removed from the sieve and counted into food grade plastic containers using a pipette. Sieved sediment was added to each container to make a sediment depth of approximately 10mm. All non burrowing amphipods and amphipod carcasses were removed immediately. Total dead amphipods were counted 22 hours after collection.

All predators and non target species of amphipods were removed immediately when observed in containers prior to addition of sand sediment used to transport the collected amphipods. All sand and salt water used to sieve and ship amphipods was sieved using a 1 mm x 1mm mesh opening.

Thank you for using the supplies and services of Seacology,
Douglas Swanston
Seacology

SEACOLOGY - 3025 Sunnyhurst Rd. North Vancouver B.C. Canada V7K 2G4 Tel/ Fax:: (604) 987 - 4675 Email: seacology@telus.net Website: http://www3.telus.net/seacology

Maxxam

Marine Amphipod 10 Day Acute Survival Sediment Test
Length Measurements

Client # & Name: 11373/8690

Species: *Eohaustorius estuarius*

Start Date: 2011 Oct 26; 2011 Oct 28

Organism Lot #: SE111021EE

Sample IDs: Various

Job #: B197763, B193099, B192596, B192006

Lengths at Beginning of Test

Marine Amphipod #	Length (mm)
1	4.0
2	4.0
3	4.0
4	4.0
5	3.5
6	3.0
7	4.0
8	4.0
9	4.0
10	4.0
11	3.5
12	4.0
13	4.5
14	3.0
15	5.0
16	4.0
17	4.5
18	5.0
19	5.0
20	5.0
Average	4.10
SD	0.60
Analyst	AR

Average must be 3-5 mm (Environment Canada 1992, ASTM 2003, PSEP 1995)

Maxxam

Marine Amphipod 10 Day Acute Survival Sediment Test
Length Measurements

Client # & Name: 11373/8690

Species: *Eohaustorius estuarius*

Start Date: 2011 Oct 26; 2011 Oct 28

Organism Lot #: SE111021

Sample IDs: Various

Job #: B197763, B193099, B192596, B192006

Lengths at Beginning of Test

Marine Amphipod #	Length (mm)
1	4.0
2	4.0
3	4.0
4	4.0
5	3.5
6	3.0
7	4.0
8	4.0
9	4.0
10	4.0
11	3.5
12	4.0
13	4.5
14	3.0
15	5.0
16	4.0
17	4.5
18	5.0
19	5.0
20	5.0
Average	4.10
SD	0.60
Analyst	AR

Average must be 3-5 mm (Environment Canada 1992, ASTM 2003, PSEP 1995)

Maxxam

Marine Amphipod 10 Day Acute Survival Sediment Test
Length Measurements

Client # & Name: 11373 + 8690 Species: *Eohaustorius estuarius*

Start Date: 2011 Oct 26 ; 2011 Oct 28 Organism Lot #: SE111021EE

Sample IDs: Various

Job #: B197763 ; B193099 ; B192596 ; B192006

Lengths at Beginning of Test

Marine Amphipod #	Length (mm)
1	4.0
2	4.0
3	4.0
4	4.0
5	3.5
6	3.0
7	4.0
8	4.0
9	4.0
10	4.0
11	3.5
12	4.0
13	4.5
14	3.0
15	5.0
16	4.0
17	4.5
18	5.0
19	5.0
20	5.0
Average	#DIV/0!
SD	#DIV/0!
Analyst	AR

Average must be 3-5 mm (Environment Canada 1992, ASTM 2003, PSEP 1995)

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

MaxXam

Organism: Eohaustorius estuarius
Organism Lot #: SE111021EE
Supplier: Seacology
Customer #: 11373 / 8690

Arrival Date & Time: 2011 Oct 21 @ 14:48
Age upon Arrival: 3-5 mm
Ordered: ~1300
Study/Project # : 2-11-1087/2-11-0691

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
N/A	1	1	24	14.5	7.7	8.4	NO	EC

Container ID: N/A

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
2011 Oct 25 (A)	9	0	27	15.1	7.9	8.2	no	EC
(B)	1	0	28	14.5	7.9	8.3	no	EC
2011 Oct 27 (A)	4	0	28	14.2	7.8	8.2	no	CT

M.G 2011 NOV 07

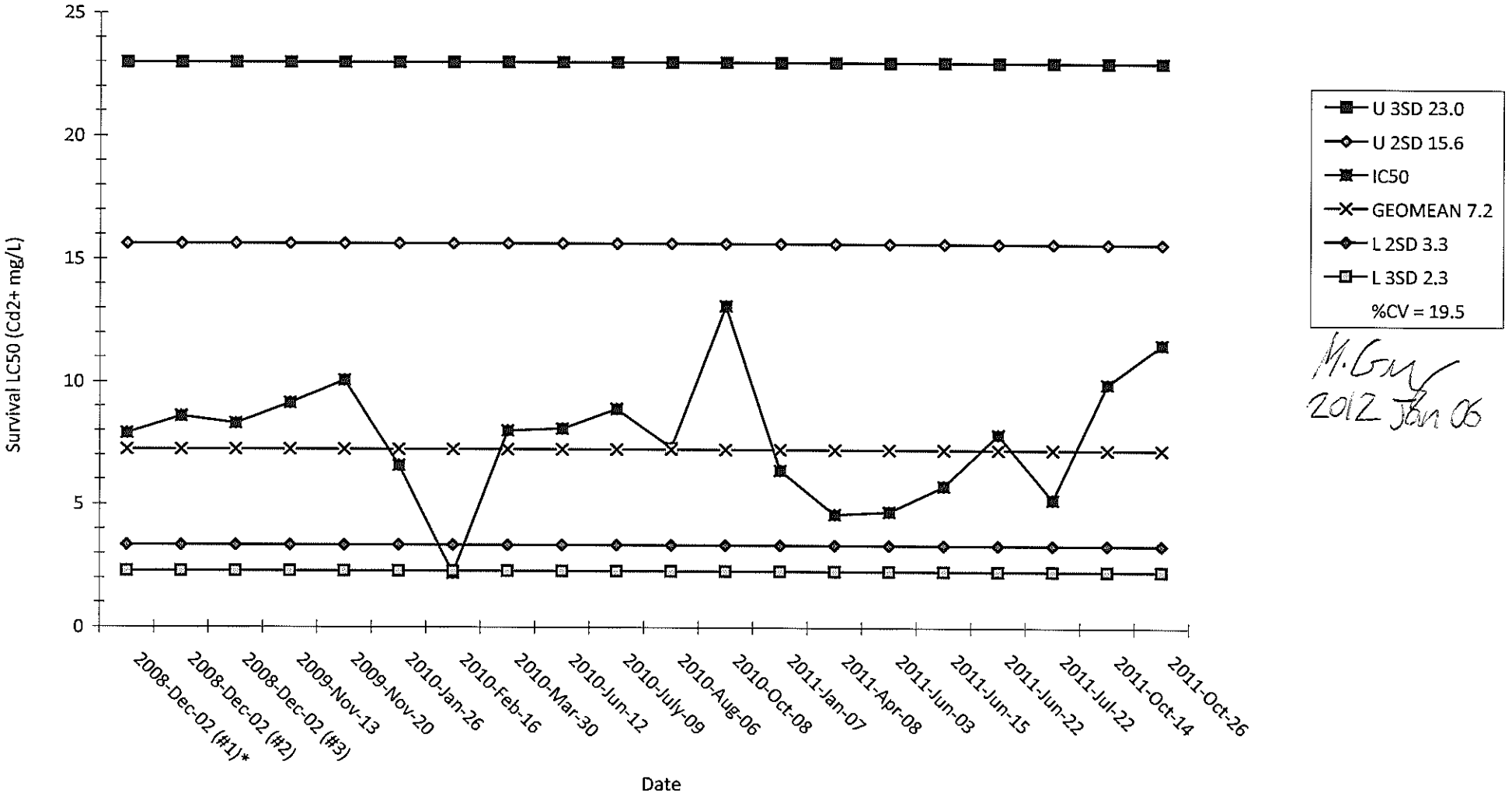
Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
Dur seawater: Salinity = 27‰; 7.8 = pH; 13.4°C = T; 8.6 = DO;	EC	2011 Oct 21

M.G 2011 NOV 07

Maxxam Analytics

Eohaustorius estuarius

96-hr Water-Only Reference Toxicant Control Chart using $Cadmium^{2+}$



M. Gm
2012 Jan 06

Maxxam

Success Through Science

Maxxam Job #: B1A4008
Report Date: 2011/11/01

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1087 AMPHIPOD DAY (0)

Your P.O. #: 2-11-1087

RESULTS OF CHEMICAL ANALYSES OF SEA WATER

Maxxam ID		BY5094	BY5095	BY5096		BY5097		BY5098		BY5099	
Sampling Date		2011/10/26	2011/10/26	2011/10/26		2011/10/26		2011/10/26		2011/10/26	
COC#		G032289	G032289	G032289		G032289		G032289		G032289	
	Units	**T1000 OVER AMPHIPOD**	**T2000 OVER AMPHIPOD**	**FC3500 NE OVER AMPHIPOD**	**RDL**	**M1400 ESE OVER AMPHIPOD**	**RDL**	**CONTROL OVER AMPHIPOD**	**RDL**	**M800 NE OVER AMPHIPOD**	**RDL**
Nutrients											
Ammonia (N)	mg/L	1.7	1.8	1.2	0.01	6.9	0.05	0.029	0.005	1.5	0.01

RDL = Reportable Detection Limit

Maxxam Job #: B1A8087
Report Date: 2011/11/15

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1087 AMPHIPOD DAY 10

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		CB3411		CB3412	CB3413		CB3414		CB3415	CB3416	
Sampling Date		2011/11/07		2011/11/07	2011/11/07		2011/11/07		2011/11/07	2011/11/07	
COC#		G047732		G047732	G047732		G047732		G047732	G047732	
	Units	**M1400 ESE OVER AMPHI**	**RDL**	**T2000 OVER AMPHI**	**FC3500 NE OVER AMPHI**	**RDL**	**CTRL OVERLY AMPHI**	**RDL**	**T1000 OVERLY AMPHI**	**M800NE OVERLY AMPHI**	**RDL**
Nutrients											
Ammonia (N)	mg/L	22	0.3	5.8	5.1	0.05	0.047	0.005	6.0	4.8	0.05

RDL = Reportable Detection Limit

20-D *N.ARENACEODENTATA* SURVIVAL AND GROWTH TEST

Test Summary

Statistics

Raw Data

Supporting Test Data

Acclimation and Holding Conditions

Reference Toxicant Control Chart

Overlying Water Chemistry

20-d *Neanthes* Survival and Growth Test Summary

Client Name/Location	Worley Parsons/ VIctoria, BC
Testing Lab/Location	Maxxam Analytics / Burnaby, BC
Sample Information	
Sample Names	M800NE, M1400ESE, T1000, T2000, FC3500NE
Type of Sample	Field collected sediments
Method of Collection	See Chain of Custody form
Sample Collector	See Chain of Custody form
Sample Volume	32 L
Sample Containers	4-L white food grade plastic buckets
Sample Collection Date	2011 Sep 27; 2011 Sep 28; 2011 Sep 29
Sample Temperature upon Arrival	6-13°C
Date & Time of Sample Receipt	2011 Sep 28 @ 8:45; 2011 Sep 29 @ 8:50; 2011 Sep 29 15:40
Storage Conditions	From receipt to test initiation, the samples were stored in a temperature controlled cold room at 4 ± 2°C
Sediment and Pore Water Characterisation	See Sediment Sample Descriptions sheet and analytical chemistry reports
Sample Preparation	
Homogenisation	Samples were individually mixed until homogenised at ambient laboratory temperature; if necessary, large debris and indigenous macro-organisms were removed during homogenisation (see Sediment Sample Descriptions sheet)
Date of Homogenisation	2011 Oct 25
Sediment – Physical Analyses	TOC, moisture content and grain size were measured in each sediment sample prior to toxicity test initiation. The results of the analyses are not included in this report.
Sediment Porewater – Chemical Analyses	Samples of homogenised sediment were centrifuged for 30 minutes, at 5000 rpm, to produce porewater. The porewater was then analysed for dissolved organic carbon, ammonia, sulphides, and hardness. See chemical analysis report.
Test Organisms	
Species	*Neanthes arenaceodentata*
Source	Aquatic Toxicology Support, WA
Age at Start of Test	Juvenile; 2-3 weeks post emergence
Date of Organism Arrival	2011 Oct 21
Holding and Acclimation Conditions	See Acclimation and Holding Conditions sheets
% Mortality During Holding	0.0

Laboratory Control Sediment and Test Water	
Laboratory Control Sediment Source	Mackenzie Beach, Tofino, BC; Collected by Seacology (North Vancouver, BC)
Laboratory Control Sediment Storage	Stored in a cold room that was at 4 ± 2°C
Laboratory Control Sediment Preparation Procedure	Sediment was sieved (0.5 mm) before use with control/dilution seawater
Overlying Water	Seawater collected at the Vancouver Aquarium, from Burrard Inlet, 40-45' deep inlet, gravity sand filter with sand mesh size 22, filtered through 5µm filter and passed through UV Sterilizer
Type and Quantity of Chemicals Added to Water	None
Pre-treatment of Overlying Water	The seawater was continuously aerated prior to use
Reference Sediment	Not known
Test Conditions & Facilities	
Test Method	USEPA and Puget Sound Estuary Program, Recommended Guidelines for Conducting Laboratory Bioassays on Puget Sound Sediments: Juvenile Polychaete Sediment Bioassay. (1995)
Test Type / Duration	20-d whole sediment toxicity test. Static-renewal
Test Temperature	20°C ± 1°C. See the Test Conditions and Survival Data sheets.
Light levels and Photoperiod	24 hr continuous light, ambient laboratory light levels
Aeration	Continuous and minimal in each test vessel; checked 3 times daily. Compressed oil-free air delivered through microbore airline tubing
Test Start Date	2011 Oct 26
Test Completion Date	2011 Nov 15
Test Vessels	1 L glass jars; covered.
Volume of Sediment	175 mL (~2cm depth)
Volume of Test Water	825 mL
Analysts	M. Grey, D. Greschner, N. Shergill, D. Lai, E. Chen, C. Tra, A. Rakhmangulova, L. Takahashi, M. Brassil, D. Lee
Water Renewal	≈ 33% water renewal, every 3rd day
# Organisms / Vessel	5; randomly assigned to each test vessel
Number of Replicates	5 (plus measurement replicate) for each sediment sample
Feeding Regime	1 mL of 40 mg/mL Tetrafin® Slurry every 2nd day

Observations & Measurements	
Dissolved Oxygen (DO), Temperature, pH and Salinity	At test initiation, test completion, and every third day, in overlying water in the measurement jars. See Test Conditions and Survival Data sheets
Sediment Appearance During Test	See Aeration Checks, Test Conditions and Survival Data sheets
Test Observations	Organism behaviour during the test, visible mortalities and/or abnormal behaviour was recorded on Test Conditions and Survival Data sheets
Survival	All live polychaetes recovered from each test vessel were counted. See Summary of Survival Data sheet
Overlying Water – Chemical Analyses	Samples of the overlying water were analysed for Ammonia on Day 0 (start) and Day 20 (end) of the test. See chemical analysis reports
Anything Unusual about the Test, Deviation from Test Method, other Problems	Sample FC3500NE, replicate B, was accidentally broken during test initiation. At the end of the test, in place of replicate B, worms were recovered from the FC3500NE measurement jar.
Results	
Endpoints	Percentage Survival and Mean Growth. See Summary of Survival And Dry Weights sheets.
Endpoint Results	**Survival** There was no statistically significant difference in mean survival between the test sediments and the laboratory control. **Individual Dry Weight** There was a statistically significant decrease in mean dry weight between test sediments M1400ESE, T1000, FC3500NE and the laboratory control. **Total Dry Weight** There was a statistically significant decrease in total mean dry weight between test sediments M1400ESE, T1000, FC3500NE and the laboratory control. **Growth Rate** There was a statistically significant decrease in mean growth rate between test sediments M1400ESE, T1000, FC3500NE and the laboratory control.
Name and citation of program and methods used for calculating statistical endpoint	CETIS v1.7.0.3 – Parametric and Nonparametric Methods; Equal Variance t Two-Sample Test and Wilcoxon Rank Sum Two Sample test. Data was tested for normality using Shapiro-Wilk's test and homogeneity of variance using Modified Levene's test
Number of surviving organisms in each test vessel	See Summary of Survival sheet

QA/QC	
Test Validity Criteria • Mean survival in the laboratory control must be ≥90% • Mean growth rate in the laboratory control must be ≥0.38mg/day/worm	• Mean survival in the control was 100% • Mean growth rate in the control was 1.00mg/day /worm
Ref Tox Test LC50 (95% CL) (mg/L Cd)	7.3 (6.5, 8.1)
Invalid Ref Tox Test?	No
Ref Tox Test Historic Mean and 2SD Range (mg/L Cd)	8.4; 2SD range: (4.3, 12.4)
Date of Ref Tox Test	2011 Oct 26
Organisms Batch and Condition of Ref Tox Test	Static 48-h water-only test. Same batch of organisms used

CETIS Analytical Report

Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

Analysis ID:	07-6776-0939	Endpoint:	Mean Dry Weight-mg	CETIS Version:	CETISv1.7.0
Analyzed:	04 Jan-12 11:22	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	21-2530-5449	Test Type:	Survival-Growth	Analyst:	
Start Date:	26 Oct-11 13:00	Protocol:	PSEP (1995)	Diluent:	Natural Seawater (Van. Aquarium)
Ending Date:	15 Nov-11 12:00	Species:	Neanthes arenaceodentata	Brine:	Not Applicable
Duration:	19d 23h	Source:	Aquatic Toxicology Support	Age:	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
Control	00-0371-3372	26 Oct-11	26 Oct-11	13h	Worley Parsons	2-11-1087
M800NE	13-1826-3068	29 Sep-11 10:45	30 Sep-11 15:40	27d 2h		
M1400ESE	11-8669-7089	28 Sep-11 16:00	29 Sep-11 08:50	27d 21h		
T1000	15-0713-5538	29 Sep-11 12:05	30 Sep-11 15:40	27d 1h		
T2000	14-9070-1726	29 Sep-11 14:05	30 Sep-11 15:40	26d 23h		
FC3500NE	06-7702-7004	27 Sep-11 16:00	28 Sep-11 08:45	28d 21h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
Control	Marine/Estuarine Sedim	Worley Parsons	Control		
M800NE	Marine/Estuarine Sedim	Worley Parsons	M800NE		
M1400ESE	Marine/Estuarine Sedim	Worley Parsons	M1400ESE		
T1000	Marine/Estuarine Sedim	Worley Parsons	T1000		
T2000	Marine/Estuarine Sedim	Worley Parsons	T2000		
FC3500NE	Marine/Estuarine Sedim	Worley Parsons	FC3500NE		

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	C > T	Not Run					16.14%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
Control		M800NE	-0.3207	1.86	2.874	0.6217	Non-Significant Effect
		M1400ESE	11.91	1.86	2.634	<0.0001	Significant Effect
		T1000	2.957	1.86	2.464	0.0091	Significant Effect
		T2000	0.9387	1.86	4.363	0.1877	Non-Significant Effect
		FC3500NE	2.625	1.86	3.322	0.0152	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Control Trend	Mann-Kendall Trend	-4		0.4790	Non-significant Trend in Controls

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	1018.846	203.7692	5	25.74	<0.0001	Significant Effect
Error	189.9703	7.915428	24			
Total	1208.816	211.6847	29			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	5.984	15.09	0.3077	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9747		0.6739	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	20.58	19.6	21.56	16.95	23.44	1.156	2.585	12.56%	0.0%
M800NE	5	21.08	20.2	21.95	17.49	23.39	1.025	2.293	10.88%	-2.41%
M1400ESE	5	3.714	3.018	4.409	0.9133	5.842	0.818	1.829	49.25%	81.95%
T1000	5	16.66	16.11	17.21	15.04	18.91	0.6477	1.448	8.69%	19.04%
T2000	5	18.38	16.64	20.11	14.06	24.04	2.042	4.565	24.84%	10.7%
FC3500NE	5	15.89	14.73	17.05	11.92	19.71	1.361	3.044	19.16%	22.78%

Analyst: 11 Jan 04 QA: 12 Jan 05

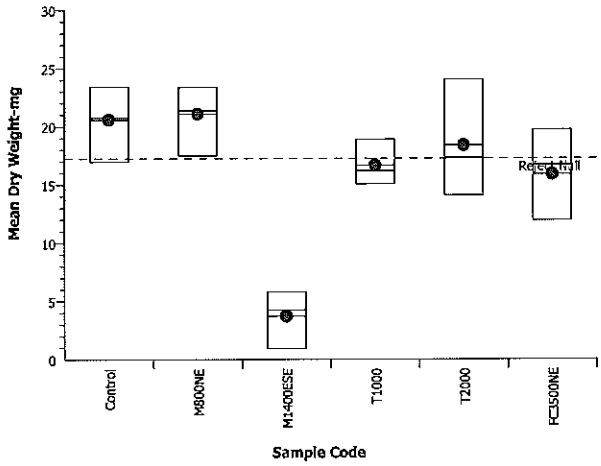
Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

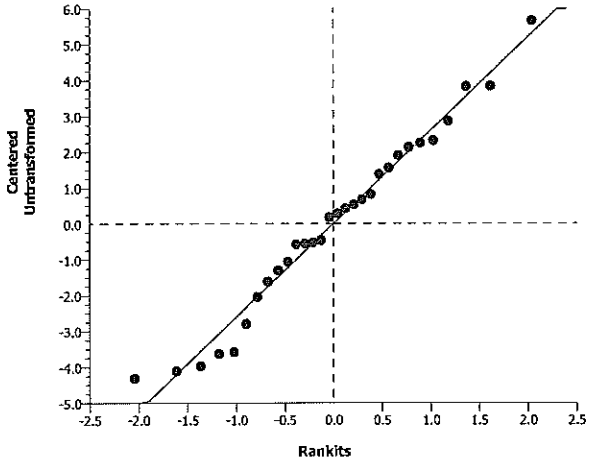
Analysis ID:	07-6776-0939	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.7.0
Analyzed:	04 Jan-12 11:22	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Mean Dry Weight-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	19.27	23.44	22.48	20.75	16.95
M800NE	21.36	22.62	17.49	20.51	23.39
M1400ESE	5.842	4.386	0.9133	3.185	4.242
T1000	15.04	16.2	16.08	17.08	18.91
T2000	24.04	14.06	22.21	17.31	14.27
FC3500NE	13.85	11.92	16.7	17.27	19.71

Graphics





2012 Jan 04 Analyst: M.G 2012 Jan 05 QA: NS

Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

Analysis ID:	10-8746-3971	**Endpoint:**	Total Dry Weight (mg)	**CETIS Version:**	CETISv1.7.0
Analyzed:	04 Jan-12 11:22	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	21-2530-5449	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	26 Oct-11 13:00	**Protocol:**	PSEP (1995)	**Diluent:**	Natural Seawater (Van. Aquarium)
Ending Date:	15 Nov-11 12:00	**Species:**	Neanthes arenaceodentata	**Brine:**	Not Applicable
Duration:	19d 23h	**Source:**	Aquatic Toxicology Support	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
Control	00-0371-3372	26 Oct-11	26 Oct-11	13h	Worley Parsons	2-11-1087
M800NE	13-1826-3068	29 Sep-11 10:45	30 Sep-11 15:40	27d 2h		
M1400ESE	11-8669-7089	28 Sep-11 16:00	29 Sep-11 08:50	27d 21h		
T1000	15-0713-5538	29 Sep-11 12:05	30 Sep-11 15:40	27d 1h		
T2000	14-9070-1726	29 Sep-11 14:05	30 Sep-11 15:40	26d 23h		
FC3500NE	06-7702-7004	27 Sep-11 16:00	28 Sep-11 08:45	28d 21h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
Control	Marine/Estuarine Sedim	Worley Parsons	Control		
M800NE	Marine/Estuarine Sedim	Worley Parsons	M800NE		
M1400ESE	Marine/Estuarine Sedim	Worley Parsons	M1400ESE		
T1000	Marine/Estuarine Sedim	Worley Parsons	T1000		
T2000	Marine/Estuarine Sedim	Worley Parsons	T2000		
FC3500NE	Marine/Estuarine Sedim	Worley Parsons	FC3500NE		

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	C > T	Not Run					22.12%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
Control		M800NE	-0.3207	1.86	14.37	0.6217	Non-Significant Effect
		M1400ESE	11.62	1.86	13.66	<0.0001	Significant Effect
		T1000	2.957	1.86	12.32	0.0091	Significant Effect
		T2000	0.9387	1.86	21.81	0.1877	Non-Significant Effect
		FC3500NE	2.305	1.86	22.76	0.0250	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Control Trend	Mann-Kendall Trend	-4		0.4790	Non-significant Trend in Controls

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	26218.19	5243.637	5	20.21	<0.0001	Significant Effect
Error	6226.808	259.4503	24			
Total	32445	5503.087	29			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	7.802	15.09	0.1675	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9767		0.7331	Normal Distribution

Total Dry Weight (mg) Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	102.9	97.98	107.8	84.74	117.2	5.781	12.93	12.56%	0.0%
M800NE	5	105.4	101	109.7	87.44	117	5.127	11.46	10.88%	-2.41%
M1400ESE	5	17.57	13.71	21.42	2.74	29.21	4.533	10.14	57.71%	82.93%
T1000	5	83.3	80.55	86.06	75.21	94.53	3.239	7.242	8.69%	19.04%
T2000	5	91.89	83.2	100.6	70.32	120.2	10.21	22.83	24.84%	10.7%
FC3500NE	5	74.69	65.51	83.86	35.77	98.56	10.79	24.12	32.3%	27.42%

Analyst: 2012Jan04 QA: 2012Jan05

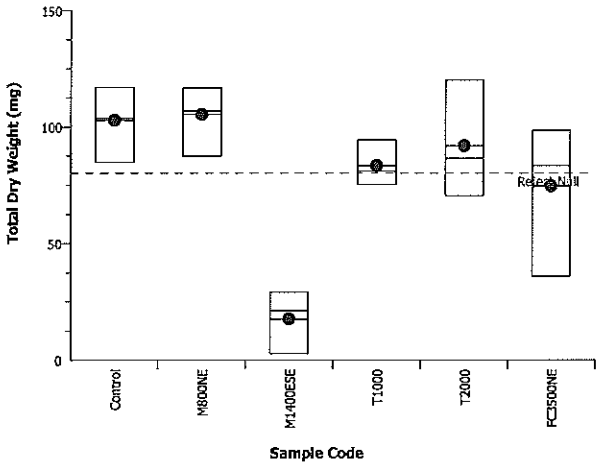
Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

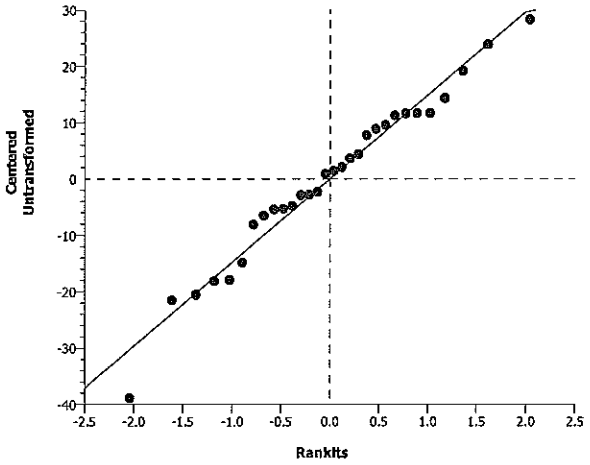
Analysis ID:	10-8746-3971	**Endpoint:**	Total Dry Weight (mg)	**CETIS Version:**	CETISv1.7.0
Analyzed:	04 Jan-12 11:22	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Total Dry Weight (mg) Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	96.36	117.2	112.4	103.8	84.74
M800NE	106.8	113.1	87.44	102.6	117
M1400ESE	29.21	21.93	2.74	12.74	21.21
T1000	75.21	80.99	80.39	85.4	94.53
T2000	120.2	70.32	111.1	86.55	71.33
FC3500NE	69.24	35.77	83.52	86.34	98.56

Graphics





Analyst: 2012 Jan 04 QA: 2012 Jan 05

Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

Analysis ID:	02-7481-0256	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	04 Jan-12 11:21	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes
Batch ID:	21-2530-5449	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	26 Oct-11 13:00	**Protocol:**	PSEP (1995)	**Diluent:**	Natural Seawater (Van. Aquarium)
Ending Date:	15 Nov-11 12:00	**Species:**	Neanthes arenaceodentata	**Brine:**	Not Applicable
Duration:	19d 23h	**Source:**	Aquatic Toxicology Support	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
Control	00-0371-3372	26 Oct-11	26 Oct-11	13h	Worley Parsons	2-11-1087
M800NE	13-1826-3068	29 Sep-11 10:45	30 Sep-11 15:40	27d 2h		
M1400ESE	11-8669-7089	28 Sep-11 16:00	29 Sep-11 08:50	27d 21h		
T1000	15-0713-5538	29 Sep-11 12:05	30 Sep-11 15:40	27d 1h		
T2000	14-9070-1726	29 Sep-11 14:05	30 Sep-11 15:40	26d 23h		
FC3500NE	06-7702-7004	27 Sep-11 16:00	28 Sep-11 08:45	28d 21h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
Control	Marine/Estuarine Sedim	Worley Parsons	Control		
M800NE	Marine/Estuarine Sedim	Worley Parsons	M800NE		
M1400ESE	Marine/Estuarine Sedim	Worley Parsons	M1400ESE		
T1000	Marine/Estuarine Sedim	Worley Parsons	T1000		
T2000	Marine/Estuarine Sedim	Worley Parsons	T2000		
FC3500NE	Marine/Estuarine Sedim	Worley Parsons	FC3500NE		

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					12.02%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
Control		M800NE	27.5		1	0.5000	Non-Significant Effect
		M1400ESE	22.5		1	0.1548	Non-Significant Effect
		T1000	27.5		1	0.5000	Non-Significant Effect
		T2000	27.5		1	0.5000	Non-Significant Effect
		FC3500NE	25		1	0.3452	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Control Trend	Mann-Kendall Trend	10		1.0000	Non-significant Trend in Controls

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.094844	0.0189688	5	1.343	0.2805	Non-Significant Effect
Error	0.3390172	0.01412572	24			
Total	0.4338612	0.03309452	29			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Mod Levene Equality of Variance	1.403	4.248	0.2701	Equal Variances
Distribution	Shapiro-Wilk Normality	0.6632		<0.0001	Non-normal Distribution

Analyst: 2012 Jan 04 QA: 2012 Jan 05

Neanthes 20-d Survival and Growth Sediment Test — Maxxam Analytics

Analysis ID: 02-7481-0256 Endpoint: Survival Rate CETIS Version: CETISv1.7.0
Analyzed: 04 Jan-12 11:21 Analysis: Nonparametric-Two Sample Official Results: Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	1	1	1	1	1	0	0	0.0%	0.0%
M800NE	5	1	1	1	1	1	0	0	0.0%	0.0%
M1400ESE	5	0.88	0.812	0.948	0.6	1	0.08	0.1789	20.33%	12.0%
T1000	5	1	1	1	1	1	0	0	0.0%	0.0%
T2000	5	1	1	1	1	1	0	0	0.0%	0.0%
FC3500NE	5	0.92	0.852	0.988	0.6	1	0.08	0.1789	19.44%	8.0%

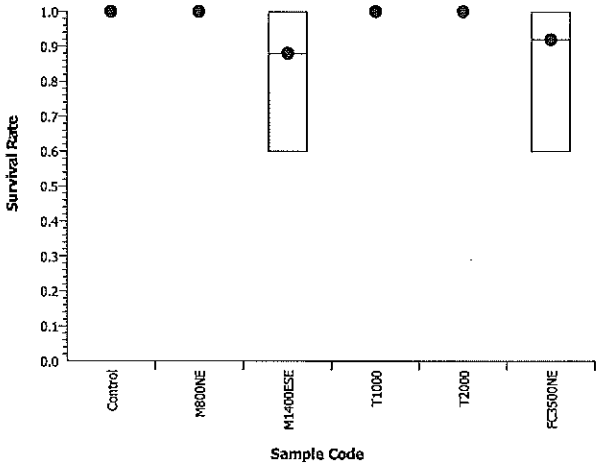
Angular (Corrected) Transformed Summary

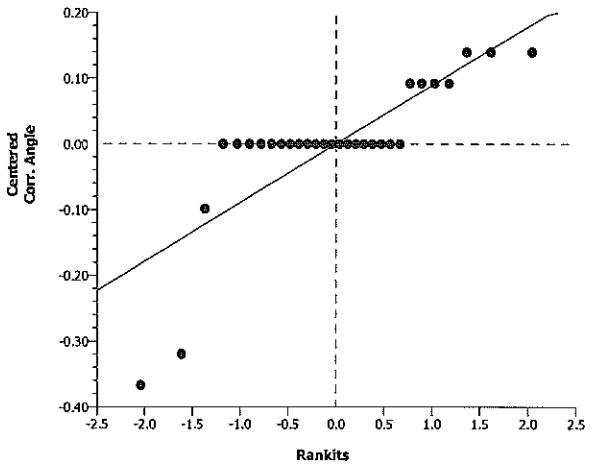
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
M800NE	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
M1400ESE	5	1.206	1.127	1.284	0.8861	1.345	0.09228	0.2063	17.11%	10.37%
T1000	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
T2000	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
FC3500NE	5	1.253	1.175	1.332	0.8861	1.345	0.09184	0.2054	16.38%	6.83%

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	1	1	1	1	1
M800NE	1	1	1	1	1
M1400ESE	1	1	0.6	0.8	1
T1000	1	1	1	1	1
T2000	1	1	1	1	1
FC3500NE	1	0.6	1	1	1

Graphics





Analyst: M.G 2012Jan04 QA: NS 2012Jan05

Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

Analysis ID:	14-2916-3976	**Endpoint:**	Growth Rate-mg/day	**CETIS Version:**	CETISv1.7.0
Analyzed:	04 Jan-12 11:21	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	21-2530-5449	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	26 Oct-11 13:00	**Protocol:**	PSEP (1995)	**Diluent:**	Natural Seawater (Van. Aquarium)
Ending Date:	15 Nov-11 12:00	**Species:**	Neanthes arenaceodentata	**Brine:**	Not Applicable
Duration:	19d 23h	**Source:**	Aquatic Toxicology Support	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
Control	00-0371-3372	26 Oct-11	26 Oct-11	13h	Worley Parsons	2-11-1087
M800NE	13-1826-3068	29 Sep-11 10:45	30 Sep-11 15:40	27d 2h		
M1400ESE	11-8669-7089	28 Sep-11 16:00	29 Sep-11 08:50	27d 21h		
T1000	15-0713-5538	29 Sep-11 12:05	30 Sep-11 15:40	27d 1h		
T2000	14-9070-1726	29 Sep-11 14:05	30 Sep-11 15:40	26d 23h		
FC3500NE	06-7702-7004	27 Sep-11 16:00	28 Sep-11 08:45	28d 21h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
Control	Marine/Estuarine Sedim	Worley Parsons	Control		
M800NE	Marine/Estuarine Sedim	Worley Parsons	M800NE		
M1400ESE	Marine/Estuarine Sedim	Worley Parsons	M1400ESE		
T1000	Marine/Estuarine Sedim	Worley Parsons	T1000		
T2000	Marine/Estuarine Sedim	Worley Parsons	T2000		
FC3500NE	Marine/Estuarine Sedim	Worley Parsons	FC3500NE		

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	C > T	Not Run					16.69%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
Control		M800NE	-0.3207	1.86	0.1437	0.6217	Non-Significant Effect
		M1400ESE	11.91	1.86	0.1317	<0.0001	Significant Effect
		T1000	2.957	1.86	0.1232	0.0091	Significant Effect
		T2000	0.9387	1.86	0.2181	0.1877	Non-Significant Effect
		FC3500NE	2.625	1.86	0.1661	0.0152	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Control Trend	Mann-Kendall Trend	-4		0.4790	Non-significant Trend in Controls

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	2.547115	0.5094231	5	25.74	<0.0001	Significant Effect
Error	0.4749257	0.01978857	24			
Total	3.022041	0.5292116	29			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	5.984	15.09	0.3077	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9747		0.6739	Normal Distribution

Growth Rate-mg/day Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	0.995	0.9458	1.044	0.8134	1.138	0.05781	0.1293	12.99%	0.0%
M800NE	5	1.02	0.9762	1.063	0.8404	1.136	0.05127	0.1146	11.24%	-2.49%
M1400ESE	5	0.1517	0.1169	0.1865	0.01167	0.2581	0.0409	0.09145	60.29%	84.76%
T1000	5	0.799	0.7715	0.8266	0.7181	0.9113	0.03239	0.07242	9.06%	19.69%
T2000	5	0.8849	0.798	0.9717	0.6692	1.168	0.1021	0.2283	25.8%	11.07%
FC3500NE	5	0.7606	0.7027	0.8185	0.5622	0.9516	0.06807	0.1522	20.01%	23.56%

2012 Jan 04 — Analyst: M.G.

2012 Jan 05 — QA: NS

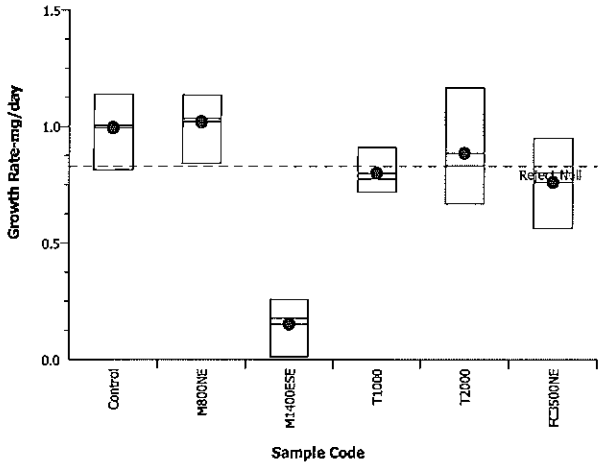
Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

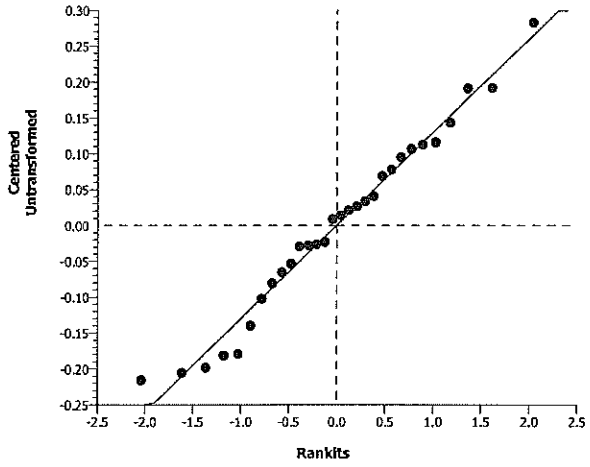
Analysis ID:	14-2916-3976	**Endpoint:**	Growth Rate-mg/day	**CETIS Version:**	CETISv1.7.0
Analyzed:	04 Jan-12 11:21	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Growth Rate-mg/day Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	0.9296	1.138	1.09	1.004	0.8134
M800NE	1.034	1.097	0.8404	0.9917	1.136
M1400ESE	0.2581	0.1853	0.01167	0.1253	0.1781
T1000	0.7181	0.7759	0.7699	0.82	0.9113
T2000	1.168	0.6692	1.077	0.8315	0.6793
FC3500NE	0.6584	0.5622	0.8012	0.8294	0.9516

Graphics





Analyst: M.Gu 2012Jan04 QA: NS 2012Jan05

Maxxam Analytics

20-d *Neanthes arenaceodentata* Survival and Growth Test
Summary of Survival

Client Name and #: 11373 Worley Parsons
Job #: B192006; B192596; B193099

Start Date: 2011 Oct 26
End Date: 2011 Nov 15

Sample ID	Sample #	Replicate	# Exposed	# Surviving	Survival (%)	Mean Survival (%)	SD
Control	-	A	5	5	100	100	0
		B	5	5	100		
		C	5	5	100		
		D	5	5	100		
		E	5	5	100		
M800NE	BR3044-11	A	5	5	100	100	0
		B	5	5	100		
		C	5	5	100		
		D	5	5	100		
		E	5	5	100		
M1400ESE	BQ9606-11	A	5	5	100	88	18
		B	5	5	100		
		C	5	3	60		
		D	5	4	80		
		E	5	5	100		
T1000	BR3045-11	A	5	5	100	100	0
		B	5	5	100		
		C	5	5	100		
		D	5	5	100		
		E	5	5	100		
T2000	BR3046-11	A	5	5	100	100	0
		B	5	5	100		
		C	5	5	100		
		D	5	5	100		
		E	5	5	100		
FC3500NE	BQ5956-11	A	5	5	100	92	18
		B	5	3	60		
		C	5	5	100		
		D	5	5	100		
		E	5	5	100		

NS 2012 Jan 05

Maxxam Analytics **20-d *Neanthes arenaceodentata* Survival and Growth Test**
Mean Growth Rate

Client Name and #: 11373 Worley Parsons
Job #: B192006; B192596; B193099

Start Date: 2011 Oct 26
End Date: 2011 Nov 15

Sample ID	Sample #	Replicate	Initial Weight (mg)	Ind. Dry Weight (mg)	Growth rate (mg/day)	Mean Growth Rate (mg/day)	SD (mg)
Control	-	A	0.68	19.27	0.93	0.99	0.13
		B	0.68	23.44	1.14		
		C	0.68	22.48	1.09		
		D	0.68	20.75	1.00		
		E	0.68	16.95	0.81		
M800NE	BR3044-11	A	0.68	21.36	1.03	1.02	0.11
		B	0.68	22.62	1.10		
		C	0.68	17.49	0.84		
		D	0.68	20.51	0.99		
		E	0.68	23.39	1.14		
M1400ESE	BQ9606-11	A	0.68	5.84	0.26	0.15	0.09
		B	0.68	4.39	0.19		
		C	0.68	0.91	0.01		
		D	0.68	3.18	0.13		
		E	0.68	4.24	0.18		
T1000	BR3045-01	A	0.68	15.04	0.72	0.80	0.07
		B	0.68	16.20	0.78		
		C	0.68	16.08	0.77		
		D	0.68	17.08	0.82		
		E	0.68	18.91	0.91		
T2000	BR3046-11	A	0.68	24.04	1.17	0.88	0.23
		B	0.68	14.06	0.67		
		C	0.68	22.21	1.08		
		D	0.68	17.31	0.83		
		E	0.68	14.27	0.68		
FC3500NE	BQ5956-11	A	0.68	13.85	0.66	0.76	0.15
		B	0.68	11.92	0.56		
		C	0.68	16.70	0.80		
		D	0.68	17.27	0.83		
		E	0.68	19.71	0.95		

NS 2012 Jan 05

Maxxam Analytics

Neanthes arenaceodentata 20-d Test
Dry Weights

Client # & Name: 11373 Worley Parsons
Project # 2-11-1087
Job #: B192006; B192596; B193099
Organism Lot #: AT111021NA

Start Date and Time: 2011 Oct 26 @ 13:00
End Date: 2011 Nov 15
Weighing Dates: 2011 Nov 15; 2011 Nov 21
Stats File ID: NA-11373-0111

Analyst(s): A. Rakhmangulova, L. Takahashi, M. Grey

Boat #	Sample ID	Replicate	# Worms	Boat Wt. (g)	Boat & Worms Wt. (g)	Worm Wt. (mg)	Mean Wt./ Worm (mg)	Mean Wt./ Sample (mg)	SD
1	Control	A	5	1.06882	1.16518	96.36	19.27	20.58	2.59
2		B	5	1.08449	1.20169	117.20	23.44		
3		C	5	1.10149	1.21391	112.42	22.48		
4		D	5	1.08535	1.18912	103.77	20.75		
5		E	5	1.07484	1.15958	84.74	16.95		
6	M800NE	A	5	1.09038	1.19717	106.79	21.36	21.08	2.29
7		B	5	1.09875	1.21187	113.12	22.62		
8		C	5	1.06931	1.15675	87.44	17.49		
9		D	5	1.09336	1.19593	102.57	20.51		
10		E	5	1.10813	1.22509	116.96	23.39		
11	M1400ESE	A	5	1.13353	1.16274	29.21	5.84	3.71	1.83
12		B	5	1.08846	1.11039	21.93	4.39		
13		C	3	1.08528	1.08802	2.74	0.91		
14		D	4	1.05916	1.07190	12.74	3.18		
15		E	5	1.10736	1.12857	21.21	4.24		
16	T1000	A	5	1.09679	1.17200	75.21	15.04	16.66	1.45
17		B	5	1.10121	1.18220	80.99	16.20		
18		C	5	1.09662	1.17701	80.39	16.08		
19		D	5	1.10426	1.18966	85.40	17.08		
20		E	5	1.10059	1.19512	94.53	18.91		
21	T2000	A	5	1.09622	1.21640	120.18	24.04	18.38	4.57
22		B	5	1.09893	1.16925	70.32	14.06		
23		C	5	1.10433	1.21538	111.05	22.21		
24		D	5	1.09400	1.18055	86.55	17.31		
25		E	5	1.08491	1.15624	71.33	14.27		
26	FC3500NE	A	5	1.07710	1.14634	69.24	13.85	15.89	3.04
27		B	3	1.08030	1.11607	35.77	11.92		
28		C	5	1.08223	1.16575	83.52	16.70		
29		D	5	1.07759	1.16393	86.34	17.27		
30		E	5	1.09292	1.19148	98.56	19.71		
31	QA/QC	QA/QC	-	1.05720	1.05750	0.30	-	-	-
32	QA/QC	QA/QC	-	1.07595	1.07611	0.16	-	-	-
1		A	5	1.06880	1.16518	96.38	-	-	-
Analyst			MG	AR	LT				

Proofed by
A. Rakhmangulova
2011 Dec 29

Maxxam Analytics

Neanthes arenaceodentata 20-d Test
Dry Weights

Client # & Name: 11373 Worley Parsons
Project #: 2-11-1087
Job #: BA2000, BA2596, BA3099
Organism Lot #: AT/1021 NA

Start Date and Time: 2011 Oct 26 @ 13:00
End Date: 2011 Nov 15
Weighing Dates: 2011 Nov 15 / 2011 NOV 21
Stats File ID: NA-11373-0111

Analyst(s): A. Rakhmangulova, L TAKAHASHI, M. Gry

Boat #	Sample ID	Replicate	# Worms	Boat Wt. (g)	Boat & Worms Wt. (g)	Wt. of Worms (mg)	Mean Wt./Worm (mg)	Mean Wt./Sample (mg)	SD
1	Control	A	5	1.06882	1.16518	NC	NC	NC	NC
2		B	5	1.08449	1.20169	NC	NC		
3		C	5	1.10149	~~1.21405~~ (C)	NC	NC		
4		D	5	1.08535	1.18912	NC	NC		
5		E	5	1.07484	~~1.15961~~ (B)	NC	NC		
6	MB00NE	A	5	1.09038	1.19717	NC	NC	NC	NC
7		B	5	1.09875	1.21187	NC	NC		
8		C	5	1.06931	1.15675	NC	NC		
9		D	5	1.09336	1.19593	NC	NC		
10		E	5	1.10813	1.22509	NC	NC		
11	MH00ESE	A	5	1.13353	1.16274	NC	NC	NC	NC
12		B	5	1.08846	1.11039	NC	NC		
13		C	5	1.08528	1.08802	NC	NC		
14		D	5	1.05916	1.07196	NC	NC		
15		E	5	1.10736	1.12857	NC	NC		
16	T1000	A	5	1.09679	1.17200	NC	NC	NC	NC
17		B	5	1.10121	1.18220	NC	NC		
18		C	5	1.09662	1.17701	NC	NC		
19		D	5 (X)	1.10426	1.18966	NC	NC		
20		E	5	1.10059	1.19512	NC	NC		
21	T2000	A	5	1.09622	1.21640	NC	NC	NC	NC
22		B	5	1.09893	1.16925	NC	NC		
23		C	5	1.10433	1.21538	NC	NC		
24		D	5	1.09400	1.18055	NC	NC		
25		E	5	1.08491	1.15624	NC	NC		
26	FC8500NE	A	5	1.07710	1.14634	NC	NC	NC	NC
27		B	3	1.08030	1.11607	NC	NC		
28		C	5	1.08223	1.16575	NC	NC		
29		D	5	1.07759	1.16393	NC	NC		
(D) 30 32		E	6	1.07595	1.19148	NC	NC		
31	QA/QC	QA/QC	—	1.05720	1.05750	NC	-	-	-
(D) 32 30	QA/QC	QA/QC	—	1.09292	1.07611	NC	-	-	-
1		A	5	1.06880	1.16518		-	-	-
Analyst			MK	AR	LT				

(X) Head detached from body for one worm. EC 2011 NOV 15

(C) WE LT 2011NOV21 1.21391

(D) switched by accident MK 2011 Nov 15

(B) WE LT 2011NOV21 1.15958

Maxxam Analytics

20 day *Neanthes arenaceodentata* Survival and Growth Test Data

Client # & Name: 11373 Worley Parsons
Client Project #: 09/85
Maxxam Job #: B192596, B192006, B193099
Organism Lot #: AT111021NA
Analyst(s): M.Gry ~~L.TAKAHASHI~~ WE LT2011NOV03, CTRA, A.Rakhmangulova, N.Sherrall, E.Chen, D.Lai, M.Gry for M.Bassil and D.Greschner

Start Date and Time: 2011 Oct 26 @ 13:00
End Date: 2011 Nov 15
Wt. at Start of Test (g): 0.68
Statistics File: NA-11373-0111

Sample ID: Control

Date	2011 Oct 26	2011 OCT 29	2011 NOV 01	2011 NOV 04	2011 NOV 07	2011 NOV 10	2011 Nov 13	2011 NOV 15
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.2	20.0	19.5	20.0	20.0	20.1	20.2	20.3
D.O. (mg/L)	7.9	7.3	7.9	7.5	7.9	7.6	7.5	7.6
pH	8.0	7.9	8.0	8.0	8.1	7.8	7.9	7.9
Salinity (‰)	28	28	29	29	29	29	30	30
Analyst	EC	CT	CT	CT	EC	EC	DJ	EC

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	5	5	5	5	✓ Initial	Final
Analyst	EC	EC	EC	EC	EC	0.010	5.2

Sample ID: M800 NE

Sample #: BR8044-11

Date	2011 oct 26	2011 OCT 29	2011 NOV 01	2011 NOV 04	2011 NOV 07	2011 NOV 10	2011 Nov 13	2011 NOV 15
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.2	20.1	19.9	19.8	19.9	20.1	19.9	20.2
D.O. (mg/L)	7.9	7.1	7.9	7.6	7.9	~~7.0~~ (1) 6.7	7.3	7.5
pH	8.0	8.0	8.1	8.1	8.2	7.8	7.9	8.0
Salinity (‰)	28	29	29	30	30	29	30	30
Analyst	EC	CT	CT	CT	EC	EC	DJ	EC

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	5	5	5	5	✓ Initial	✓ Final
Analyst	EC	MG	MG	EC	MG	1.5	7.1

Additional Comments: (1) WE EC 2011 NOV 10

N:/Biology/Bioassay/Forms/Neanthes/Neanthes Test Data Sheet.xls

FORM: 1604F08v1
2005/08/01

Maxxam Analytics

20 Day *Neanthes arenaceodentata* Survival and Growth Test
Conditions and Survival Data

Client # & Name: 11373 Worley Parsons

Start Date and Time: 2011 Oct 26 @ 13:00

Sample ID: M1400 ESE

Maxxam #: BX9609-11

Date	2011 Oct 26	2011 OCT 29	2011 NOV 01	2011 NOV 04	2011 NOV 07	2011 NOV 10	2011 Nov 13	2011 NOV 15
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.4	20.2	19.8	20.1	20.1	20.3	20.6	20.3
D.O. (mg/L)	7.5	7.3	7.8	7.4	7.8	7.4	7.4	7.5
pH	8.0	8.2	8.3	8.3	8.3	8.1	8.1	8.2
Salinity (‰)	28	29	29	29	30	29	30	30
Analyst	EC	CT	CT	CT	EC	EC	[illegible]	EC

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	5	3	4	5	√Initial	/Final
Analyst	MG	MG	MG	MG	MG	~~1.9~~ 6.2	15

Sample ID: T1000

Maxxam #: BX9645-11

Date	2011 Oct 26	2011 OCT 29	2011 NOV 01	2011 NOV 04	2011 NOV 07	2011 NOV 10	2011 Nov 13	2011 NOV 15
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.1	20.1	19.7	19.9	20.1	20.0	20.6	20.2
D.O. (mg/L)	8.0	7.2	7.8	7.5	7.8	7.3	7.4	7.4
pH	8.0	8.0	8.1	8.2	8.2	7.9	8.6	8.0
Salinity (‰)	28	29	29	29	29	29	30	30
Analyst	EC	CT	CT	CT	EC	EC	[illegible]	EC

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	5	5	5 Ⓐ	5	√Initial	/Final
Analyst	MG	MG	MG	EC	EC	1.9	6.9

Additional Comments: Ⓐ For one mom: head detached from body but recovered onto pan #19. EC 2011 NOV 15

Maxxam Analytics

20 Day *Neanthes arenaceodentata* Survival and Growth Test
Conditions and Survival Data

Client # & Name: 11373 Worley Parsons **Start Date and Time:** 2011 Oct 26 @ 13:00

Sample ID: T2000 **Maxxam #:** BRS0116-11

Date	2011 Oct 26	2011 OCT 29	2011 NOV 01	2011 NOV 04	2011 NOV 07	2011 NOV 10	2011 NOV 13	2011 NOV 15
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.1	20.0	19.9	20.1	20.1	20.2	20.0	20.3
D.O. (mg/L)	7.8	7.3	7.9	7.3	7.8	7.4	7.5	7.6
pH	8.0	8.1	8.2	8.2	8.2	8.1	8.1	8.1
Salinity (‰)	28	29	29	30	30	29	30	30
Analyst	EC	CT	CT	CT	EC	EC	[illegible]	EC

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	5	5	5	5	√ Initial	✓ Final
Analyst	MG	MG	EC	EC	MG	1.9	8.1

Sample ID: F08500 NE **Maxxam #:** BRS958-11

Date	2011 Oct 26	2011 OCT 29	2011 NOV 01	2011 NOV 04	2011 NOV 07	2011 NOV 10	2011 Nov 13	2011 NOV 15
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.1	20.0	19.8	19.2	19.8	20.0	19.8	20.1
D.O. (mg/L)	7.9	7.2	7.8	7.7	7.9	7.4	7.6	7.4
pH	8.0	8.0	8.1	8.2	8.2	8.0	8.1	8.0
Salinity (‰)	28	29	29	30	30	29	30	30
Analyst	EC	CT	CT	CT	EC	EC	[illegible]	EC

Replicate	A	(A) B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	3	5	5	5 5	√ Initial	✓ Final
Analyst	MG	MG	MG	MG	MG	1.2	8.9

Additional Comments: (A) 2011 Nov 15 - Replicate B was broken during the test initiation. Recovered normal from the Measure Jar in its stead. 2011 Nov 15 MG

Maxxam Analytics

Neanthes arenaceodentata 20 Day Survival and Growth Test
Feeding Record

Client # & Name: 11373 Wesley Powers

Start Date & Time: 2011 Oct 26 @ 1300

# of replicates: 36

Total Wt. Tetramarine™ (g): 1.80

Volume of seawater (ml): 45.0

Day	Date	Analyst	Conc'n of Feed (mg/mL)	1 mL Feed (√)
0	2011 Oct 26	EC	40	✓
2	2011 Oct 28	EC	40	✓
4	2011 Oct 30	DML	40	✓
6	2011 NOV 01	CT	40	✓
8	2011 NOV 03	CT	40	✓
10	2011 NOV 05	CT	40	✓
12	2011 NOV 07	EC	40	✓
14	2011 NOV 09	CT	40	✓
16	2011 NOV 11	NS	40	✓
18	2011 NOV 13	[illegible]	40	✓

Add one vial of ground Tetramarine™ to the volume of seawater indiated above. Place slurry on stirplate and let spin for at least 5 minutes. Feed each replicate 1 mL of slurry.

Comments:

M.G 2011 Dec 19

Maxxam Analytics

***Neanthes arenaceodentata* Test**
Aeration Checks

Client # & Name: 11373 Worley Parsons

Start Date & Time: 2011 Oct 26 @ 13:00

Initial when aeration is checked. If air is off record DO and note which replicate(s) in comments section.

Day	-1	0	1	2	3	4	5	6	7	8	9
Date	2011 Oct 25	2011 Oct 26	2011 OCT 27	2011 OCT 28	2011 Oct 29	2011 Oct 30	2011 OCT 31	2011 NOV 01	2011 NOV 02	2011 NOV 03	2011 NOV 04
Early AM		EC	CT	CT	[illegible]	DML	LT	CT	CT	CT	CT
Mid-day		EC	CT	EC	CT	DML	LT	CT	CT	CT	CT
Late PM	MO	EC	CT	CT	CT	DML	LT	CT	CT	CT	CT

	10	11	12	13	14	15	16	17	18	19	Day 20
Date	2011 NOV 05	2011 NOV 06	2011 NOV 07	2011 NOV 08	2011 NOV 09	2011 NOV 10	2011 NOV 11	2011 NOV 12	2011 NOV 13	2011 NOV 14	2011 NOV 15
Early AM	EC	[illegible]	LT	AR	CT	EC	NS	MB	[illegible]	EC	EC
Mid-day	CT	[illegible]	CT	AR	EC	EC	NS	NS	[illegible]	EC	[illegible]
Late PM	CT	[illegible]	CT	AR	CT	EC	NS	NS	[illegible]	EC	[illegible]

Comments:

2011 NOV 12 - T2000 Rep A & measure = each have 1 neathes sitting onto of sediment (not buried) (NS) Rest of replicates & other Conc's all buried - (OS).

2011 NOV 14 - M140DESE Rep B → mold (white) growing on sed surface

M. Cy 2011 Dec 14

Maxxam Analytics

Neanthes arenaceodentata Seawater Measurements

Client # & Name: 1133 Harley Parsons

Test Start Date: 2011 Oct 26

Seawater Arrival Date: 2011 Oct 05; 2011 Nov 08

Type of Seawater: Vancouver Aquarium

Date	Day	Temperature (°C)	D.O. (mg/L)	pH	Salinity (‰)	30% Water Renewal	Analyst
n/a ~~25 NOV 2011 25~~		n/a	n/a	n/a	n/a		n/a
2011 Oct 27	Day -1	19.2	8.0	8.0	27		MG
2011 Oct 26	Day 0	19.1	8.0	8.0	27		EC
2011 OCT 29	Day 3	18.4	7.8	8.0	29	yes	CT
2011 NOV 01	Day 6	18.5	8.0	8.0	30	Yes	CT
2011 NOV 04	Day 9	18.0	8.0	8.0	29	Yes	CT
2011 Nov 07	Day 12	18.9	8.0	8.0	29	yes	EC
2011 NOV 10	Day 15	19.5	7.8	7.9	29	Yes	EC
2011 Nov 13	Day 18	19.7	7.7	8.0	30	yes	[illegible]

Note: Seawater should be filtered, U.V. sterilized and aerated ≥ 24 hours prior to use.

Comments:

2011 Nov 16

Maxxam Analytics ***Neanthes arenaceodentata*** **Initial Dry Weights**

Client # & Name: 11373 Worley Parsons

Start Date and Time: 2011 Oct 26 @ 13:00

Organism Lot: AT111021NA

End Date: 2011 Nov 03

Organism Age: 2-3 weeks post emergence

Stats File ID: NA-11373-0111

Weighing Dates: 2011 Oct 26; 2011 Oct 29

Average weight (Day 0): **0.68**

Analyst(s): A. Rakmangulova, C. Tra

Boat #	# Worms	Boat Weight (g)	Worms + Boat weight (g)	Total Worm weight (g)	Individual worm weight (mg)
N-A	5	1.06366	1.06720	0.00354	0.71
N-B	5	1.10070	1.10384	0.00314	0.63
N-C	5	1.10609	1.10956	0.00347	0.69
Analyst		AR	CT		

Comments:

Maxxam Analytics ***Neanthes arenaceodentata*** **Initial Dry Weights**

Client # & Name: 11373 Worley Parsons

Start Date and Time: 2011 Oct 26 @ 13:00

Organism Lot: AT111021NA

End Date: 2011 Nov 15

Organism Age: 2-3 weeks post emergence

Stats File ID: NA-11373-0111

Weighing Dates: 2011 Oct 26 , 2011 OCT 29

Average weight (Day 0): **0.00**

Analyst(s): A. Rakhmangulova , CTRA

Boat #	# Worms	Boat Weight (g)	Worms + Boat weight (g)	Total Worm weight (g)	Individual worm weight (mg)
N-A	5	1.06366	1.06720	0.00000	0.00
N-B	5	1.10070	1.10384	0.00000	0.00
N-C	5	1.10609	1.10956	0.00000	0.00
Analyst		A. Rakhmangulova	CT		

Comments:

M.C 2011 Nov 16

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

Maxxam

Organism: Neanthes arenaceodentata
Organism Lot #: ATI1102INA
Supplier: Aquatic Toxicology Support
Customer #: 11373

Arrival Date & Time: 2011 Oct 21 @ 11:15
Age upon Arrival: 2 weeks
Ordered: 450
Study/Project # : 2-11-1087

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
n/a	0	0	31	19.4	7.3	6.8	Yes	MG

Container ID: _____

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
2011 Oct 24 Pan A	0	0	32	19.7	7.9	7.6	✓	EC
2011 Oct 24 Pan B	0	0	35	18.0	7.8	7.6	✓	EC
2011 Oct 24 Pan C	0	0	32	19.2	7.8	7.5	✓	EC

M.G 2011 Dec 19

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
Seawater Water Quality (holding conditions): T(°C) = 18.0°C, DO = 8.0 mg/L, pH = 7.6, Sal(ppt) = 28	MG	2011 Oct 21
	MG	2011 Oct 21

M.G 2011 Dec 19

ATI11021NA
MGM
2011 Oct 21

Aquatic Toxicology Support
1849 Charleston Beach Road West
Bremerton, Washington 98312
(360) 813-1202

Order Summary

Species: *Neanthes arenaceodentata**	Emerge Date: 10/5 - 10/7/11
Number Ordered: 440	Number Shipped: 440+104
Date Shipped: 10/20/11	Salinity (ppt): 30

*Smith 1964. CSU Long Beach strain. Feed upon arrival.

Maxxam Analytics **Randomization Chart for Sediment Tests**

Client Name and #: 11373 Worley Parsons
Project #: 2-11-1087
Maxxam Job #: B192006; B192596; B193099

Test Type: 20-d polychaete test
Test Species: Neanthes arenaceodenta
Test Start Date: 2011 Oct 26

Instructions: please follow the position map below when placing vessels on the test bench.

Back Wall

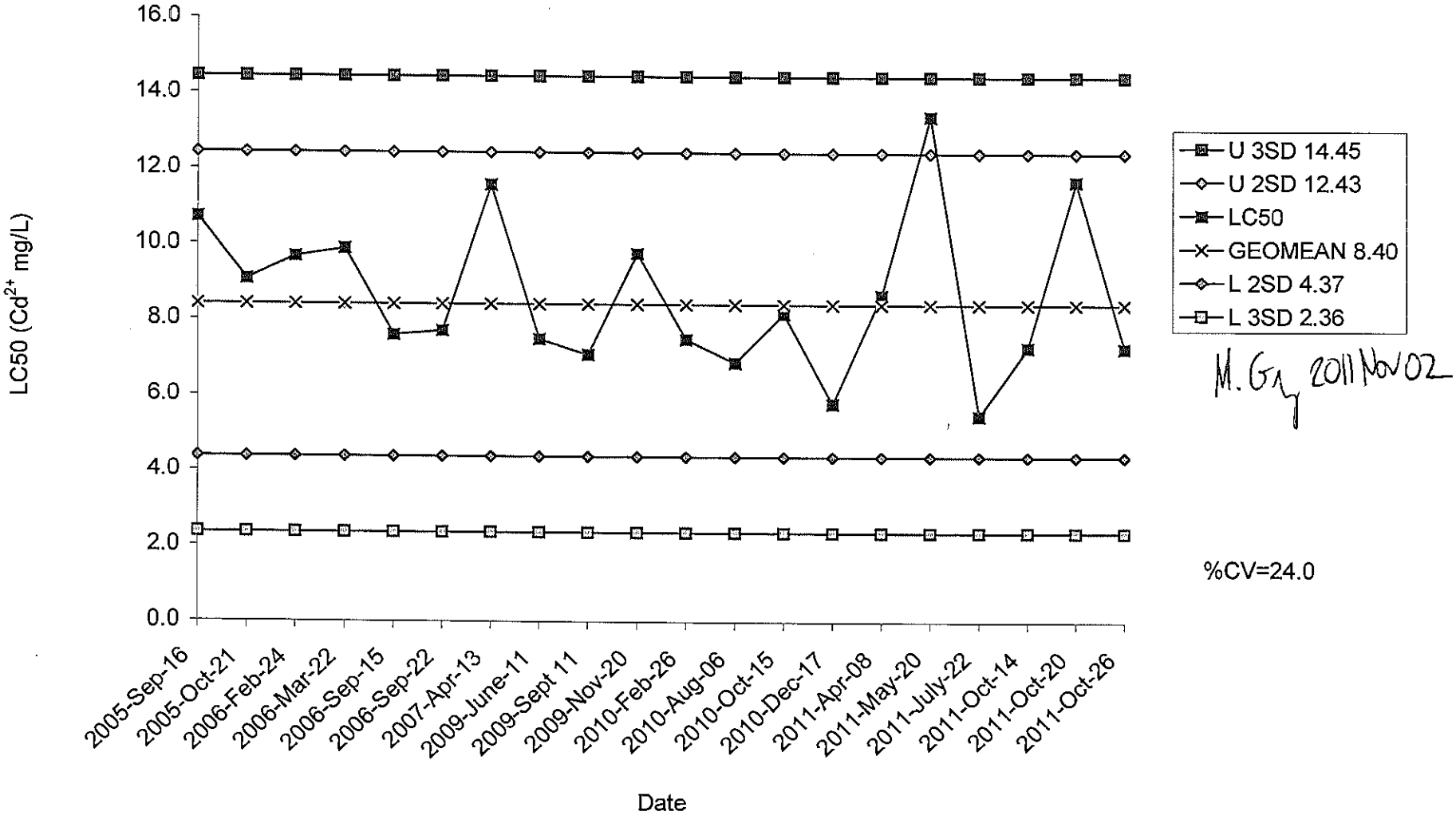
5	10	↑			
4	9				
3	8	13			
2	7	12			
1	6	11	→	→	→

Left — Front of Counter — Right

Position #	Treatment	Replicate	Colour	Position #	Treatment	Replicate	Colour
18	Control	A	Red	12	T1000	A	Yellow
20	Control	B	Red	15	T1000	B	Yellow
9	Control	C	Red	31	T1000	C	Yellow
13	Control	D	Red	26	T1000	D	Yellow
17	Control	E	Red	35	T1000	E	Yellow
3	Control	Measure	Red	28	T1000	Measure	Yellow
1	M800NE	A	Dk Orange	34	T2000	A	Fl Green
27	M800NE	B	Dk Orange	11	T2000	B	Fl Green
19	M800NE	C	Dk Orange	36	T2000	C	Fl Green
7	M800NE	D	Dk Orange	10	T2000	D	Fl Green
25	M800NE	E	Dk Orange	22	T2000	E	Fl Green
29	M800NE	Measure	Dk Orange	4	T2000	Measure	Fl Green
33	M1400ESE	A	Lt Orange	24	FC3500NE	A	Green
6	M1400ESE	B	Lt Orange	21	FC3500NE	B	Green
23	M1400ESE	C	Lt Orange	2	FC3500NE	C	Green
16	M1400ESE	D	Lt Orange	32	FC3500NE	D	Green
30	M1400ESE	E	Lt Orange	8	FC3500NE	E	Green
5	M1400ESE	Measure	Lt Orange	14	FC3500NE	Measure	Green

Maxxam

Neanthes arenaceodentata
96-hr Reference Toxicant Control Chart for Cadmium Chloride



M. Gy 2011 Nov 02

%CV=24.0

Maxxam Job #: B1A4006
Report Date: 2011/11/01

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1087 NEANTHES DAY (0)

Your P.O. #: 2-11-1087

RESULTS OF CHEMICAL ANALYSES OF SEA WATER

Maxxam ID		BY5067	BY5068	BY5069	BY5070		BY5071		BY5072	
Sampling Date		2011/10/26	2011/10/26	2011/10/26	2011/10/26		2011/10/26		2011/10/26	
COC#		G032288	G032288	G032288	G032288		G032288		G032288	
	Units	**M800 NE OVER NEANTHES**	**FC3500 NE OVER NEANTHES**	**T1000 OVER NEANTHES**	**T2000 OVER NEANTHES**	**RDL**	**M1400 ESE OVER NEANTHES**	**RDL**	**CONTROL OVER NEANTHES**	**RDL**
Nutrients										
Ammonia (N)	mg/L	1.5	1.2	1.9	1.9	0.01	6.2	0.05	0.010	0.005

RDL = Reportable Detection Limit

Maxxam

Success Through Science

Maxxam Job #: B1B0842
Report Date: 2011/11/18

Maxxam Analytics (TOX Internal)
Client Project #: NEANTHES 20-D

Sampler Initials: EC

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		CD0767	CD0768	CD0769	CD0770		CD0771		CD0772	
Sampling Date		2011/11/15 09:45	2011/11/15 09:45	2011/11/15 09:45	2011/11/15 09:45		2011/11/15 09:45		2011/11/15 09:45	
COC#		G047739	G047739	G047739	G047739		G047739		G047739	
	Units	**CONTROL OVER NEANTHES**	**T1000 OVER NEANTHES**	**T2000 OVER NEANTHES**	**M800NE OVER NEANTHES**	**RDL**	**M1400ESE OVER NEANTHES**	**RDL**	**FC3500NE OVER NEANTHES**	**RDL**
Nutrients										
Ammonia (N)	mg/L	5.2	6.9	8.1	7.1	0.05	15	0.1	8.9	0.05

RDL = Reportable Detection Limit

28 DAY *NEREIS VIRENS* BIOACCUMULATION TEST

Test Summary

Raw Data

Supporting Test Data

Acclimation and Holding Conditions

Overlying Water Chemistry

Tissue Chemistry

28-d Polychaete Bioaccumulation Test Summary

Client Name/Location	Worley Parsons/ Victoria, B.C.
Testing Lab/Location	Maxxam Analytics / Burnaby, BC
Sample Information	
Sample Names	M800NE, M1400ESE, T1000, T2000, FC3500NE
Type of Sample	Field collected sediments
Method of Collection	See Chain of Custody form
Sample Collector	See Chain of Custody form
Sample Volume	32 L
Sample Containers	4-L white food grade plastic buckets
Sample Collection Date	2011 Sep 27; 2011 Sep 28; 2011 Sep 29
Sample Temperature upon Arrival	6-13°C
Date & Time of Sample Receipt	2011 Sep 28 2 8:45; 2011 Sep 29 @ 8:50; 2011 Sep 29 @ 15:40
Storage Conditions	From receipt to test initiation, the samples were stored in a temperature controlled cold room at 4 ± 2°C
Sediment and Pore Water Characterisation	See Sediment Sample Descriptions sheet and analytical chemistry reports
Sample Preparation	
Homogenisation	Samples were individually mixed until homogenised at ambient laboratory temperature; if necessary, large debris and indigenous macro-organisms were removed during homogenisation (see Sediment Sample Descriptions sheet)
Date of Homogenisation	2011 Nov 08
Sediment – Physical Analyses	TOC, moisture content and grain size were measured in each sediment prior to toxicity test initiation. The results of these analyses are not included in this report.
Sediment Porewater – Chemical Analyses	Samples of homogenised sediment were centrifuged for 30 minutes, at 5000 rpm, to produce porewater. The porewater was then analysed for dissolved organic carbon, ammonia, sulphides and hardness. See chemical analysis reports.
Test Organisms	
Species	*Nereis virens*
Source	Aquatic Research Organisms; Hampton, NH
Age at Start of Test	Adult; non-reproductive stage
Date of Organism Arrival	2011 Nov 08
Holding and Acclimation Conditions	See Acclimation and Holding Conditions sheets

Laboratory Control Information	
Overlying Water	Seawater collected at the Vancouver Aquarium, from Burrard Inlet, 40-45' deep inlet, gravity sand filter with sand mesh size 22, filtered through 5 µm filter and passed through UV Sterilizer
Type and Quantity of Chemicals Added to Water	None
Pre-treatment of Overlying Water	The seawater was UV sterilized and filtered through a 1 um filter, and was continuously aerated prior to use.
Reference Site Sediment	N/A
Baseline Control (T=0)	T=0 worms were collected on Day 0, alongside worms to be used in the bioaccumulation test. They were purged for ≈24 hours in clean seawater, rinsed with deionised water, then patted dry and placed in clean glass sample jars. They were submitted in triplicate for analysis alongside the worms extracted from the test sediments.
Reference Control	No reference control was identified by the client.
Test Conditions & Facilities	
Test Method	USEPA 1993, Guidance Manual: Bedded Sediment Bioaccumulation Tests (EPA/600R-93/183); ASTM 2000, Standard Guide for Determination of the Bioaccumulation of Sediment-Associated Contaminants by Benthic Invertebrates (E1688-00a).
Test Type / Duration	28-d whole sediment bioaccumulation test. Static-renewal
Test Temperature	12°C ± 1°C. See the Test Conditions and Survival Data sheets.
Light levels and Photoperiod	24 hr continuous light, ambient laboratory light levels
Aeration	Continuous and minimal in each test vessel; checked 3 times daily. Compressed oil-free air delivered through glass Pasteur pipettes
Test Start Date	2011 Nov 09
Test Completion Date	2011 Dec 07
Test Vessels	8L glass aquaria.
Sediment Mass at Test Initiation	2.5 kg (≈ 4cm depth)
Volume of Test Water	7L
Analysts	M. Grey, M. Brassil, D. Greschner, C. Tra, L. Takahashi, E. Chen, N. Shergill, D. Lai, J. Baker
Water Renewal	50% water renewal twice weekly, after recording water quality (See Test Conditions Page).
# Organisms and average biomass/ Vessel	3 worms per vessel, the initial biomass per replicate ranged from 14.6 to 15.8g.
Number of Replicates	4
Sediment Addition	None required

Observations & Measurements	
Dissolved Oxygen (DO), Temperature, pH and Salinity	Twice weekly, directly before water renewals. See Test Conditions and Survival Data sheets
Sediment Appearance During Test	See Aeration Checks, Test Conditions and Survival Data sheets
Test Observations	Organism behaviour during the test, visible mortalities and/or abnormal behaviour was recorded on Test Conditions and Survival Data sheets
Survival	All live polychaetes recovered from each test vessel were counted. See Test Conditions Data sheet
Overlying Water – Chemical Analyses	Samples of the overlying water were analysed for Ammonia on Day 0 (start) and Day 28 (end) of the test. See chemical analysis reports
Anything Unusual about the Test, Deviation from Test Method, other Problems	None.
Results	
Endpoints	Metals and methyl mercury Concentration in *Nereis* Tissue; was measured on a composite of each sample and three replicates of the T=0 treatment.
Endpoint Results	The bioaccumulation of select analytes was measured in Nereis tissue, after purging the worms for 24 hours in clean seawater. See Chemistry Results in the "28 day *Nereis virens* Bioaccumulation Test" section.
Number of surviving organisms in each test vessel	See Test Conditions and Survival Data sheet
QA/QC	
Test Validity Criteria • Mean survival in the test sediments must be ≥90% • Initial sediment mass should exceed 1680g (2 times the estimated mass of sediment processed during the test by *Nereis virens*) • Initial sediment depth must be greater than 2cm.	• Mean survival in the test sediments was 100% • Initial sediment mass was 2500g per replicate. The processing rate for this species is 2g wet sediment/ 1g wet worm tissue/day. • Sediment depth was ≈4 cm

Maxxam Analytics

Nereis virens 28-d Test
Summary of the Initial and Final Biomass Measurments

Client # & Name: #11373 Worley Parsons

Project # 2-11-1087

Maxxam Group #: B193099, B192596, B192006

Start Date and Time: 2011 Nov 09 @ 13:00

End Date: 2011 Dec 07

Organism Lot #: AR111108

Analyst(s): E. Chen, J. Baker, L. Takahashi, C. Tra

Sample ID	Replicate	# Worms	Biomass T=0 (g)	Mean Initial biomass/ sample (g)	SD (g)	Biomass T=28 (g)	Total biomass/ sample (g)
T=0 Control	A	3	12.5	12.2	0.91		
	B	3	12.5				
	C	3	13.0				
	D*	3	10.9				
M800NE	A	3	15.8	15.2	0.51	13.5	46.8
	B	3	14.6			9.4	
	C	3	15.3			11.3	
	D	3	15.0			12.6	
M1400ESE	A	3	15.1	15.1	0.17	12.2	45.5
	B	3	14.7			10.9	
	C	3	15.0			10.4	
	D	3	15.0			11.9	
T1000	A	3	15.1	15.5	0.28	11.1	48.8
	B	3	15.7			13.1	
	C	3	15.5			12.7	
	D	3	15.7			11.9	
T2000	A	3	15.3	15.4	0.46	11.6	47.1
	B	3	14.8			11.1	
	C	3	15.5			12.3	
	D	3	15.9			12.2	
FC3500NE	A	3	15.1	15.3	0.31	12.9	51.9
	B	3	15.7			13.0	
	C	3	15.3			12.1	
	D	3	15.0			13.9	
			LT CT EC			JB	

Wtanoff
2012Jan11

Maxxam Analytics

Nereis virens Bioaccumulation Test
Final Weights

Client # & Name: 11373 Worley Parsons **Test Date:** 2011 Nov 09

Balance ID: 10-0718 **Project Number:** 2-11-1087

Analysts: EChen, J. Baker

Final Weights (g)					
Sample ID	**A**	**B**	**C**	**D**	**Total**
M800NE	13.52	9.39	11.26	12.59	46.8
T1000	11.05	13.14	12.68	11.90	48.8
FC3500	12.86	13.02	12.11	13.88	51.89
M1400ESE	12.24	10.88	10.41	11.92	45.5
T2000	11.62	11.07	12.28	12.17	47.1

T= 0 weights (Nov 10 2011) EC

A → 12.5 g

B → 12.5 g

C → 13.0 g

D → 10.9 g

Comments: Final weights measured after worms were purged in clean seawater for ~24 hrs, rinsed with Deionized water, and patted dry. 2011 Dec 10

Maxxam Analytics — ***Nereis virens* inital Weights**

Customer Name/#: 11373 Worley Parsons
Test Start Date and Time: 2011Nov09 @ 13:00
Balance ID: 10-0718
Project Number: 2-11-1087
Analysts: LTAKAHASHI, CTRA

Group Number	Individual Nereis Weights (g) 1	2	3	4	5	Total Weight (g)
1	5.7	4.4	4.5			14.6
2	4.0	7.0	4.9			15.9
3	4.3	8.4	3.1			15.8
4	5.7	4.5	4.5			14.7
5	4.4	4.6	5.8			14.8
6	5.5	4.0	5.8			15.3
7	4.0	3.9	7.4			15.3
8	4.9	4.0	6.2			15.1
9	4.9	4.1	6.0			15.0
10	5.6	4.4	5.7			15.7
11	4.1	5.8	4.8			14.7
12	4.8	6.9	3.4			15.1
13	6.2	4.5	5.0			15.7
14	4.3	7.3	3.4			15.0
15	5.5	3.5	6.0			15.0
16	3.3	6.3	5.5			15.1
17	4.2	4.2	7.1			15.5
18	4.5	8.4	3.1			16.0
19	4.9	7.0	3.8			15.7
20	4.1	5.9	5.3			15.3
21	~~4.1~~ 4.2 WE LT 2011NOV09	~~5.9~~ 7.4	~~5.3~~ 3.9			15.5
22	3.6	6.2	5.2			15.0
23	5.8	4.5	4.0			15.3
24	4.9	4.7	5.5			15.1

LT 2011 NOV 09

Maxxam Analytics **Randomization Chart for Nereis Seeding**

Client Name and #: 11373 Worley Parsons
Project #: 2-11-1087 0
Maxxam Job #: B193099

Test Type: 28-d. Bioaccumulation
Test Species: Nereis virens
Test Start Date: 2011 Nov 09

Instructions: Please seed the group # into the corresponding sample replicate.

Group #	Treatment	Replicate
3	M800NE	A
1	M800NE	B
6	M800NE	C
22	M800NE	D
12	M1400ESE	A
11	M1400ESE	B
14	M1400ESE	C
9	M1400ESE	D
16	T1000	A
10	T1000	B
21	T1000	C
13	T1000	D
20	T2000	A
5	T2000	B
17	T2000	C
2	T2000	D
8	FC3500	A
19	FC3500	B
23	FC3500	C
4	FC3500	D
7	T=0	A
24	T=0	B
18	T=0	C
15	T=0	D

Maxxam Analytics

28 day Nereis Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 11373 Worley Parsons

Start Date and Time: 2011 Nov 09 @ 15:00

Project #: 2-11-1087

End Date: 2011 Dec 07

Organism Lot #: AR111108

Biomass per replicate(g) : 15 ± 1 g

Job#: B192206; B192595; B193099

Organisms per replicate: 3

Analyst(s): LTAKAHASHI, ECHEN, CTRA, M. Greg, NSherglo, DLai
M. Greg for M. Brassil + D. Greschner

Sample ID: T1000

Sample #: BR3045-11 (memo 2011 January)

Date	2011 NOV 09	2011 NOV 14	2011 NOV 17	2011 NOV 21	2011 NOV 24	2011 NOV 28	2011 DEC 01	2011 DEC 05	2011 DEC 07	
Replicate	A	B	C	D	A	B	C	D	A	B
Temp. (ºC)	12.9	11.7	11.8	12.9	12.7	13.6	14.5	12.8	12.2	
D.O. (mg/L)	8.5	8.8	8.7	8.4	8.1	8.1	8.8	8.5	9.1	
pH	8.0	7.9	7.9	8.0	7.9	7.9	8.0	7.8	7.9	
Salinity (‰)	28	29	29	28	28	28	29	30	30	
Analyst	LT/CT	EC	CT	CT	CT	CT	CT	CT/EC	EC	

Replicate	A	B	C	D
# Surviving	3	3	3	3
Analyst	CT	CT	CT	CT

Ammonia (mg/L)	
Day 0	Day 28
1.4	0.95

Sample ID: T2000

Sample #: BR3046-11

Date	2011 NOV 09	2011 NOV 14	2011 NOV 17	2011 NOV 21	2011 NOV 24	2011 NOV 28	2011 DEC 01	2011 DEC 05	2011 DEC 07	
Replicate	A	B	C	D	A	B	C	D	A	B
Temp. (ºC)	12.6	11.7	12.0	13.0	12.4	13.5	13.5	11.9	12.1	
D.O. (mg/L)	8.3	8.9	8.7	8.4	8.2	8.1	8.5	8.4	9.0	
pH	7.7	7.9	7.8	8.1	7.9	7.9	8.0	7.9	7.9	
Salinity (‰)	28	30	29	28	28	28	29	30	30	
Analyst	LT/CT	EC	CT	CT	CT	CT	CT	CT/EC	EC	

Replicate	A	B	C	D
# Surviving	3	3	3	3
Analyst	CT	CT	CT	CT

Ammonia (mg/L)	
Day 0	Day 28
1.6	1.2

Maxxam

28 day Polychaete Bioaccumulation Test
Conditions and Survival Data

Client Name and #:

Start Date and Time: 2011 Nov 09 @ 13:00

Job#: See page 1

Sample ID: M800 NE **Sample #:** BR3041-11

Date	2011 NOV 09	2011 NOV 14	2011 NOV 17	2011 NOV 21	2011 NOV 24	2011 NOV 28	2011 DEC 01	2011 DEC 05	2011 DEC 07	
Replicate	A	B	C	D	A	B	C	D	A	B
Temp. (ºC)	12.5	11.4	11.7	12.8	12.4	13.1	13.1	11.5	11.7	
D.O. (mg/L)	8.6	8.7	8.7	8.5	8.0	8.1	8.6	8.5	9.1	
pH	8.0	7.9	7.9	8.0	7.9	7.9	8.0	7.9	7.9	
Salinity (‰)	28.0	29	29	28	28	28	28	30	30	
Analyst	LT/CT	EC	CT	CT	CT	CT	CT	CT/EC	EC	

Replicate	A	B	C	D
# Surviving	3	3	3	3
Analyst	CT	CT	CT	CT

Ammonia (mg/L)	
Day 0	Day 28
✓ 1.3	1.2

Sample ID: M1400 ESE **Sample #:** BR9606-11

Date	2011 NOV 09	2011 NOV 14	2011 NOV 17	2011 NOV 21	2011 NOV 24	2011 NOV 28	2011 DEC 01	2011 DEC 05	2011 DEC 07	
Replicate	A	B	C	D	A	B	C	D	A	B
Temp. (ºC)	13.3	11.7	11.8	12.8	12.5	13.5	13.1	12.3	12.7	
D.O. (mg/L)	8.3	8.8	8.7	8.0	8.2	7.8	8.6	8.4	8.8	
pH	8.0	8.0	8.1	8.0	8.2	8.1	8.3	8.0	8.1	
Salinity (‰)	28	29	29	28	28	27	28	30	30	
Analyst	LT/CT	EC	CT	CT	CT	CT	CT	CT/EC	EC	

Replicate	A	B	C	D
# Surviving	3	3	3	3
Analyst	CT	CT	CT	CT

Ammonia (mg/L)	
Day 0	Day 28
✓ 4.4	5.3

Maxxam

28 day Polychaete Bioaccumulation Test
Conditions and Survival Data

Client Name and #:

Start Date and Time: 2011 Nov 09 @ 13:00

Job#: See page 1

Sample ID: FC 3500 NE

Sample #: BQ5956-11

Date	2011 NOV 09	2011 NOV 14	2011 NOV 17	2011 NOV 21	2011 NOV 24	2011 NOV 28	2011 DEC 01	2011 DEC 05	2011 DEC 07	
Replicate	A	B	C	D	A	B	C	D	A	B
Temp. (ºC)	12.4	11.8	11.8	12.9	12.5	13.4	12.8	12.1	12.8	
D.O. (mg/L)	8.6	8.9	8.7	7.9	8.4	8.1	8.5	8.6	8.9	
pH	8.0	7.8	7.9	7.8	7.9	7.8	8.0	7.9	7.8	
Salinity (‰)	28	29	29	29	28	28	28	30	30	
Analyst	LT/CT	EC	CT	CT	CT	CT	CT	EC	EC	

Replicate	A	B	C	D
# Surviving	3	3	3	3
Analyst	CT	CT	CT	CT

Ammonia (mg/L)	
Day 0	Day 28
✓ 1.6	1.5

Sample ID:

Sample #:

Date										
Replicate	A	B	C	D	A	B	C	D	A	B
Temp. (ºC)										
D.O. (mg/L)										
pH										
Salinity (‰)										
Analyst										

2011 NOV 09 CT

Replicate	A	B	C	D
# Surviving				
Analyst				

Ammonia (mg/L)	
Day 0	Day 28

Maxxam Analytics

***Nereis virens* 28 Day Bioaccumulation Test**
Aeration Checks

Client # & Name: 11373 Morley Parsons

Start Date & Time: 2011 Nov 09 @ 15:00

Initial when aeration is checked. If air is off record DO and note which replicate(s) in comments section.

	Day -1	0	1	2	3	4	5	6	7	8
Date	2011 Nov 08	2011 NOV 09	2011 Nov 10	2011 NOV 11	2011 Nov 12	2011 Nov 13	2011 NOV 14	2011 NOV 15	2011 NOV 16	2011 NOV 17
Early AM		CT	EC	NS			EC	EC	EC	EC
Mid-day		CT	EC	NS	NS		EC	EC	EC	EC
Late PM	2011 Nov 08	CT	EC	NS	NS		EC	EC	EC	EC

	Day 9	10	11	12	13	14	15	16	17	18
Date	2011 NOV 18	2011 NOV 19	2011 NOV 20	2011 NOV 21	2011 NOV 22	2011 NOV 23	2011 NOV 24	2011 NOV 25	2011 NOV 26	2011 NOV 27
Early AM	EC	DML		CT	CT	CT	CT	CT	DML	
Mid-day	CT	DML		CT	CT	CT	CT	CT	DML	
Late PM	EC	NS		CT	CT	CT	LT	n/a	DML	

	19	20	21	Day 22	23	24	25	26	27	28
Date	2011 NOV 28	2011 NOV 29	2011 NOV 30	2011 DEC 01	2011 DEC 02	2011 DEC 03	2011 DEC 04	2011 DEC 05	2011 DEC 06	2011 DEC 07
Early AM	CT	CT	CT	CT	CT	NS	CT	CT	DML	CT
Mid-day	CT	CT	CT	CT	CT	EC	CT	CT	DML	
Late PM	EC	CT	CT	CT	CT	EC	CT	CT	DML	

Comments:

M.G 2012 Jan 04

Maxxam

Nereis virens Seawater Measurements

Client # & Name: 11373 Horley Ewers

Test Initiation Date: 2011 Nov 09 @ 15:00

Seawater Arrival Date: 2011 Nov 08 ; 2011 Nov 29

Type of Seawater: Vancouver Seawater

Date	Day	Temperature (°C)	D.O. (mg/L)	pH	Salinity (‰)	50% Water Renewal	Analyst
n/a	n/a	n/a	n/a	n/a	n/a		n/a
2011 Nov 08	Day -1	11.9	8.8	7.6	28		MG
2011 Nov 09	Day 0	12.0	8.8	7.7	28		MG
2011 Nov 14	Day 5	12.1	8.9	7.6	28	Yes	EC
2011 Nov 17	Day 8	11.9	8.7	7.8	28	yes	CT
2011 Nov 21	Day 12	12.9	8.3	7.9	27	yes	CT
2011 Nov 24	Day 15	12.0	8.4	7.8	28	yes	CT
2011 Nov 28	Day 19	11.7	8.9	7.6	27	yes	CT
2011 Dec 01	Day 22	13.6	8.6	8.0	30	yes	CT
2011 Dec 05	Day 26	13.2	9.0	7.8	30	yes	CT
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Note: Seawater should be filtered, U.V. sterilized and aerated ≥ 24 hours prior to use.

Comments:

M.G 2012 Jan 04

Maxxam Analytics **Randomization Chart for Sediment Tests**

Client Name and #: 11373 Worley Parsons
Project #: 2-11-1087
Maxxam Job #: B193099; B192596; B192026

Test Type: 28-d Bioaccumulation
Test Species: Nereis virens
Test Start Date: 2011 Nov 09

Instructions: please follow the position map below when placing vessels on the test bench.

Back Wall

5	10	↑			
4	9				
3	8	13			
2	7	12			
1	6	11	→	→	→

Left — Front of Counter — Right

Position #	Treatment	Replicate	Colour	Position #	Treatment	Replicate	Colour
11	T1000	A	red	18	T2000	A	Fl Green
20	T1000	B	red	7	T2000	B	Fl Green
14	T1000	C	red	6	T2000	C	Fl Green
3	T1000	D	red	17	T2000	D	Fl Green
15	M800NE	A	Lt Orange	2	FC3500NE	A	blue
16	M800NE	B	Lt Orange	9	FC3500NE	B	blue
8	M800NE	C	Lt Orange	12	FC3500NE	C	blue
19	M800NE	D	Lt Orange	5	FC3500NE	D	blue
1	M1400ESE	A	Yellow				
13	M1400ESE	B	Yellow				
10	M1400ESE	C	Yellow				
4	M1400ESE	D	Yellow				

AR111108NV

Aquatic Research Organisms

DATA SHEET

CHAIN OF CUSTODY

I. Organism History

Species: Neries virens

Source: Lab reared_____ Hatchery reared_____ Field collected X

Collection date 11/07/11 Receipt date 11/07/11

Lot number 110711NV Strain Wild

Brood Origination Damariscotta River, Boothbay Harbor, Maine

II. Water Quality

Temperature 15 °C Salinity 28-32 ppt DO Saturated

pH 7.8-8.2 Hardness N.A. ppm

III. Culture Conditions

System: Held at 4°C on moist seaweed

Diet: Flake Food_____ Phytoplankton_____ Trout Chow_____

Brine Shrimp_____ Rotifers_____ Other Not feed

Prophylactic Treatments:_____

Comments: Shipped on moistened seaweed, gel ice packs to keep cool.

IV. Shipping Information

Client: MAXAM # of Organisms: 100+

Carrier: FED EX Date Shipped: 11/07/11

Tracking # 9841-9494-3620 # of cartons (1)

RELEASED BY: Steve Sinclair DATE: 11/7/11 TIME: 16:30

RECEIVED BY:_____ DATE: TIME:

1 - 800 - 927 - 1650

PO Box 1271 • One Lafayette Road • Hampton, NH 03842 • (603) 926-1650

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

MaxXam

Organism: Nereis virens
Organism Lot #: AR111108
Supplier: ARO
Customer #: 11373

Arrival Date & Time: 2011 Nov 08 @ 10:00
Age upon Arrival: adult
Ordered: ~100
Study/Project # : 271-1087

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
n/a	2	5	n/a	n/a	n/a	n/a	no	MG

Container ID: 2 Boxes

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst

MG 2011 Nov 09

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
Worms shipped on damp seaweed + newspaper in a	MG	2011 Nov 08
styrofoam cooler fitted with coldpacks. Worms placed	MG	2011 Nov 08
in shallow jars filled w/ seawater and were	MG	2011 Nov 08
assessed for activity/injury levels. Healthy worms	MG	2011 Nov 08
were placed into ~~sorted~~ healthy 5 aquaria filled with	MG	2011 Nov 08
~2-3 cm MB sand.	MG	2011 Nov 08

Maxxam Job #: B1A9187
Report Date: 2011/11/16

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1087

Sampler Initials: LT

Day 0

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		CB9322	CB9323	CB9324		CB9325		CB9326	
Sampling Date		2011/11/09	2011/11/09	2011/11/09		2011/11/09		2011/11/09	
COC#		G047783	G047783	G047783		G047783		G047783	
	Units	**T1000 OVER NERIS**	**T2000 OVER NERIS**	**M800NE OVER NERIS**	**RDL**	**M1400ESE OVER NERIS**	**RDL**	**FC3500NE OVER NERIS**	**RDL**
Nutrients									
Ammonia (N)	mg/L	1.4	1.6	1.3	0.01	4.4	0.05	1.6	0.01

RDL = Reportable Detection Limit

Maxxam

Success Through Science

Maxxam Job #: B1B8842
Report Date: 2011/12/13

Maxxam Analytics (TOX Internal)
Client Project #: CLIENT#11373
Site Location: NEREIS 28-D BIOACCUM
Sampler Initials: CT

Day 28

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		CH8291	CH8292	CH8293		CH8294		CH8295	
Sampling Date		2011/12/07 10:00	2011/12/07 10:00	2011/12/07 10:00		2011/12/07 10:00		2011/12/07 10:00	
COC#		G050337	G050337	G050337		G050337		G050337	
	Units	**T1000 OVER NEREIS**	**T2000 OVER NEREIS**	**M800 NE OVER NEREIS**	**RDL**	**M1400 ESE OVER NEREIS**	**RDL**	**FC3500NE OVER NEREIS**	**RDL**
Nutrients									
Ammonia (N)	mg/L	0.95	1.2	1.2	0.010	5.3	0.050	1.5	0.010

RDL = Reportable Detection Limit

Maxxam

MAXXAM ANALYTICS
4606 Canada Way
Burnaby, BC V5G 1K5

Office 604 734 7276
Toll Free 800 665 8566
Fax 604 731 2386

Debbie Nordbruget
Maxxam Analytics Inc. (ZEN001)
4606 Canada Way
Burnaby, BC
V5G1K5

January 13, 2012

Dear Debbie:

Subject: Methylmercury Speciation Results (Maxxam Ref# CY55)

Please find the following Liquid Chromatography Inductively Coupled Plasma Mass Spectrometry (LC-ICPMS) data for the tissue samples you sent in recently for Methylmercury (MeHg) analysis under Maxxam Job# B1C4944.

A] Sample Preparation:

A 0.5g aliquot of each sample was subjected to an aqueous based extraction according to BBY9SOP-00001. An aliquot of the extract was filtered into an autosampler vial for analysis.

B] Sample analysis:

Samples were analysed according to BBY9SOP-00001 by LC-ICPMS using a Dionex DX-500 Chromatography System and a Thermo X-Series ICPMS. The chromatographic mode employed was reversed phase chromatography using a mercaptoethanol based mobile phase. Following chromatographic separation, the mobile phase was transferred to the ICPMS system for time resolved analysis of ^{202}Hg.

All reported concentrations are relative to wet weight of sample.

If you have any questions or comments, do not hesitate to get in touch.

Yours sincerely,

Jon Le Huray
Supervisor, Analytical Services (Product Testing)

Maxxam

maxxam.ca

MAXXAM ANALYTICS
4606 Canada Way
Burnaby, BC V5G 1K6

Office 604 734 7276
Toll Free 800 665 8566
Fax 604 731 2386

ANALYTICAL REPORT

MAXXAM REF: CY55

Date: January 13, 2012

Mercury as Methylmercury by LC-ICPMS

Client: Maxxam Analytics
Attention: Debbie Nordbruget

Sample Results

Maxxam ID	Client Sample ID	Dilution Factor (w/v)	Mercury as Methylmercury (ng/g)
cy5501	CL3368-01 T=0	19.6	BQL
cy5502	CL3369-01 T=0, DUPLICATE	16.5	BQL
cy5503	CL3370-01 T=0, TRIPLICATE	19.1	BQL
cy5504	CL3371-01 M8000NE(T=28)	18.1	BQL
cy5505	CL3372-01 T1000(T=28)	17.3	BQL
cy5506	CL3373-01 T2000(T=28)	19.6	BQL
cy5506pd	CL3373-01 T2000(T=28) – duplicate	17.0	BQL
cy5507	CL3374-01 M1400ESE(T=28)	16.4	BQL
cy5507psp	CL3374-01 M1400ESE(T=28) – spiked at 94 ng/g	18.8	104
cy5508	CL3375-01 FC3500(T=28)	17.8	BQL

BQL: Below quantitation Limit (0.2 ng/mL multiplied by dilution factor).

Signed:..... Date: 13 Jan 2012

Maxxam

Success Through Science

Maxxam Job #: B1C4944
Report Date: 2012/01/31

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1087 NEREIS BIOACUMULATIO

Your P.O. #: 2-11-1087

RESULTS OF CHEMICAL ANALYSES OF TISSUE

Maxxam ID		CL3368	CL3369	CL3370	CL3371	CL3372	CL3373	CL3374	CL3375	
Sampling Date		2011/11/09	2011/11/09	2011/11/09	2011/12/07	2011/12/07	2011/12/07	2011/12/07	2011/12/07	
COC#		G050371	G050371	G050371	G050371	G050371	G050371	G050371	G050371	
	Units	**T=0**	**T=0, DUPLICATE**	**T=0, TRIPLICATE**	**M8000NE (T=28)**	**T1000 (T=28)**	**T2000 (T=28)**	**M1400ESE (T=28)**	**FC3500 (T=28)**	**RDL**
Parameter										
Lipid Content	%	18.9	10.8	13.8	14.0	13.4	12.0	10.2	14.1	0.1
Subcontract Parameter	N/A	ATTACHED	ATTACHED	ATTACHED	ATTACHED	ATTACHED	ATTACHED	ATTACHED	ATTACHED	N/A

ELEMENTS BY ATOMIC SPECTROSCOPY - DRY WT (TISSUE)

Maxxam ID		CL3368	CL3369	CL3370	CL3371	CL3372	CL3373	CL3374	CL3375	
Sampling Date		2011/11/09	2011/11/09	2011/11/09	2011/12/07	2011/12/07	2011/12/07	2011/12/07	2011/12/07	
COC#		G050371	G050371	G050371	G050371	G050371	G050371	G050371	G050371	
	Units	**T=0**	**T=0, DUPLICATE**	**T=0, TRIPLICATE**	**M8000NE (T=28)**	**T1000 (T=28)**	**T2000 (T=28)**	**M1400ESE (T=28)**	**FC3500 (T=28)**	**RDL**
Mercury by CVAA										
Total Mercury (Hg)	mg/kg	0.05	0.06	0.05	0.05	0.05	0.05	0.06	0.06	0.01

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		CL3368	CL3369	CL3370	CL3371	CL3372	CL3373	CL3374	CL3375	
Sampling Date		2011/11/09	2011/11/09	2011/11/09	2011/12/07	2011/12/07	2011/12/07	2011/12/07	2011/12/07	
COC#		G050371	G050371	G050371	G050371	G050371	G050371	G050371	G050371	
	Units	**T=0**	**T=0, DUPLICATE**	**T=0, TRIPLICATE**	**M8000NE (T=28)**	**T1000 (T=28)**	**T2000 (T=28)**	**M1400ESE (T=28)**	**FC3500 (T=28)**	**RDL**
Mercury by CVAA										
Total Mercury (Hg)	mg/kg	0.006	0.007	0.006	0.007	0.007	0.006	0.008	0.007	0.002

N/A = Not Applicable
RDL = Reportable Detection Limit

Maxxam Job #: B1C4944
Report Date: 2012/01/31

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1087 NEREIS BIOACUMULATIO

Your P.O. #: 2-11-1087

PHYSICAL TESTING (TISSUE)

Maxxam ID		CL3368	CL3369	CL3370	CL3371	CL3372	CL3373	CL3374	CL3375	
Sampling Date		2011/11/09	2011/11/09	2011/11/09	2011/12/07	2011/12/07	2011/12/07	2011/12/07	2011/12/07	
COC#		G050371	G050371	G050371	G050371	G050371	G050371	G050371	G050371	
	Units	**T=0**	**T=0, DUPLICATE**	**T=0, TRIPLICATE**	**M8000NE (T=28)**	**T1000 (T=28)**	**T2000 (T=28)**	**M1400ESE (T=28)**	**FC3500 (T=28)**	**RDL**
Physical Properties										
Moisture	%	88	89	88	86	87	87	87	87	0.3

RDL = Reportable Detection Limit

Maxxam Job #: B1C4944
Report Date: 2012/02/14

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185
Site Location: PO#: 307071-00020-NL04A.1-9141

ELEMENTS BY ATOMIC SPECTROSCOPY - DRY WT (TISSUE)

Maxxam ID		CL3368	CL3369	CL3370	CL3371	CL3372	CL3373	CL3374	CL3375		
Sampling Date		2011/11/09	2011/11/09	2011/11/09	2011/12/07	2011/12/07	2011/12/07	2011/12/07	2011/12/07		
	Units	**T=0**	**T=0, DUPLICATE**	**T=0, TRIPLICATE**	**M8000NE (T=28)**	**T1000 (T=28)**	**T2000 (T=28)**	**M1400ESE (T=28)**	**FC3500 (T=28)**	**RDL**	**QC Batch**
Mercury by CVAA											
Total Mercury (Hg)	mg/kg	0.05	0.06	0.05	0.05	0.05	0.05	0.06	0.06	0.01	5487482
Total Metals by ICPMS											
Total Aluminum (Al)	mg/kg	9	17	20	6	5	24	57	9	3	5555917
Total Antimony (Sb)	mg/kg	0.016	0.020	0.014	0.025	0.019	0.022	0.023	0.025	0.005	5555917
Total Arsenic (As)	mg/kg	18.6	19.2	17.4	15.2	16.4	16.4	14.7	16.0	0.05	5555917
Total Barium (Ba)	mg/kg	0.2	0.3	0.2	<0.1	<0.1	0.2	0.3	<0.1	0.1	5555917
Total Beryllium (Be)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	5555917
Total Bismuth (Bi)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	5555917
Total Boron (B)	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	5	5555917
Total Cadmium (Cd)	mg/kg	0.38	0.48	0.27	0.27	0.29	0.32	0.32	0.27	0.01	5555917
Total Calcium (Ca)	mg/kg	1440	1540	1350	1620	1570	1800	1600	1620	30	5555917
Total Chromium (Cr)	mg/kg	<0.2	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	5555917
Total Cobalt (Co)	mg/kg	0.62	0.84	0.61	0.73	0.80	0.73	0.64	0.63	0.02	5555917
Total Copper (Cu)	mg/kg	11.3	15.1	17.2	8.01	8.03	10.5	8.33	8.34	0.05	5555917
Total Iron (Fe)	mg/kg	496	517	478	385	396	428	510	391	10	5555917
Total Lead (Pb)	mg/kg	1.28	2.05	1.52	1.02	0.91	1.02	0.98	0.87	0.01	5555917
Total Magnesium (Mg)	mg/kg	5210	5660	5300	5250	5590	6030	5210	5700	10	5555917
Total Manganese (Mn)	mg/kg	11.3	15.0	8.9	5.4	1.9	2.5	3.1	2.5	0.1	5555917
Total Molybdenum (Mo)	mg/kg	1.49	2.09	1.43	1.21	1.16	1.30	1.21	1.27	0.05	5555917
Total Nickel (Ni)	mg/kg	0.51	0.68	0.55	0.83	1.10	1.05	0.93	1.22	0.05	5555917
Total Phosphorus (P)	mg/kg	8000	8900	8300	7030	7420	7650	7310	7650	10	5555917
Total Potassium (K)	mg/kg	18500	19600	19100	16800	17800	18700	17200	17600	10	5555917
Total Selenium (Se)	mg/kg	1.04	1.14	0.90	0.97	0.93	0.95	1.05	1.35	0.05	5555917
Total Silver (Ag)	mg/kg	0.15	0.35	0.18	0.12	0.11	0.09	0.14	0.16	0.02	5555917
Total Sodium (Na)	mg/kg	33800	36300	31300	34600	37300	40200	35200	37800	20	5555917
Total Strontium (Sr)	mg/kg	25.2	28.2	23.8	27.3	28.0	31.7	28.7	29.9	0.1	5555917
Total Thallium (Tl)	mg/kg	0.004	0.004	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	5555917
Total Tin (Sn)	mg/kg	0.2	0.3	0.3	0.2	0.2	0.2	0.3	<0.1	0.1	5555917
Total Titanium (Ti)	mg/kg	2	3	2	<1	<1	3	5	<1	1	5555917
Total Uranium (U)	mg/kg	1.04	1.72	1.45	1.68	1.69	1.70	1.69	1.44	0.002	5555917
Total Vanadium (V)	mg/kg	0.8	1.4	0.7	0.8	0.8	1.1	1.0	0.8	0.2	5555917
Total Zinc (Zn)	mg/kg	207	380	157	104	46.6	71.8	44.5	60.8	0.2	5555917

RDL = Reportable Detection Limit

Maxxam Job #: B1C4944
Report Date: 2012/02/14

WORLEYPARSONS CANADA SERVICES LTD
Client Project #: 09185
Site Location: PO#: 307071-00020-NL04A.1-9141

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		CL3368	CL3369	CL3370	CL3371	CL3372	CL3373	CL3374	CL3375		
Sampling Date		2011/11/09	2011/11/09	2011/11/09	2011/12/07	2011/12/07	2011/12/07	2011/12/07	2011/12/07		
	Units	**T=0**	**T=0, DUPLICATE**	**T=0, TRIPLICATE**	**M8000NE (T=28)**	**T1000 (T=28)**	**T2000 (T=28)**	**M1400ESE (T=28)**	**FC3500 (T=28)**	**RDL**	**QC Batch**
Mercury by CVAA											
Total Mercury (Hg)	mg/kg	0.006	0.007	0.006	0.007	0.007	0.006	0.008	0.007	0.002	5491586
Total Metals by ICPMS											
Total Aluminum (Al)	mg/kg	1.1	1.9	2.4	0.8	0.7	3.2	7.6	1.2	0.5	5555933
Total Antimony (Sb)	mg/kg	0.002	0.002	0.002	0.004	0.003	0.003	0.003	0.003	0.001	5555933
Total Arsenic (As)	mg/kg	2.23	2.17	2.08	2.11	2.16	2.20	1.97	2.03	0.01	5555933
Total Barium (Ba)	mg/kg	0.03	0.03	0.03	<0.02	<0.02	0.03	0.05	<0.02	0.02	5555933
Total Beryllium (Be)	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	5555933
Total Bismuth (Bi)	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	5555933
Total Boron (B)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	1	5555933
Total Cadmium (Cd)	mg/kg	0.045	0.055	0.032	0.038	0.039	0.043	0.043	0.034	0.002	5555933
Total Calcium (Ca)	mg/kg	173	174	162	225	207	241	214	206	5	5555933
Total Chromium (Cr)	mg/kg	<0.04	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	5555933
Total Cobalt (Co)	mg/kg	0.074	0.095	0.073	0.102	0.105	0.097	0.086	0.080	0.004	5555933
Total Copper (Cu)	mg/kg	1.36	1.71	2.06	1.11	1.06	1.41	1.12	1.06	0.01	5555933
Total Iron (Fe)	mg/kg	60	58	57	53	52	57	68	50	2	5555933
Total Lead (Pb)	mg/kg	0.153	0.231	0.182	0.142	0.120	0.137	0.131	0.111	0.002	5555933
Total Magnesium (Mg)	mg/kg	625	639	636	730	738	808	699	723	2	5555933
Total Manganese (Mn)	mg/kg	1.36	1.69	1.07	0.75	0.25	0.33	0.42	0.31	0.02	5555933
Total Molybdenum (Mo)	mg/kg	0.18	0.24	0.17	0.17	0.15	0.17	0.16	0.16	0.01	5555933
Total Nickel (Ni)	mg/kg	0.06	0.08	0.07	0.12	0.15	0.14	0.12	0.15	0.01	5555933
Total Phosphorus (P)	mg/kg	960	1010	996	977	979	1020	979	971	2	5555933
Total Potassium (K)	mg/kg	2220	2210	2290	2330	2350	2510	2310	2240	2	5555933
Total Selenium (Se)	mg/kg	0.12	0.13	0.11	0.13	0.12	0.13	0.14	0.17	0.01	5555933
Total Silver (Ag)	mg/kg	0.017	0.040	0.022	0.016	0.014	0.012	0.018	0.021	0.004	5555933
Total Sodium (Na)	mg/kg	4050	4100	3760	4810	4920	5390	4710	4800	4	5555933
Total Strontium (Sr)	mg/kg	3.02	3.19	2.86	3.80	3.70	4.24	3.84	3.79	0.02	5555933
Total Thallium (Tl)	mg/kg	0.0005	0.0004	0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0004	5555933
Total Tin (Sn)	mg/kg	0.03	0.04	0.03	0.03	0.02	0.02	0.05	<0.02	0.02	5555933
Total Titanium (Ti)	mg/kg	0.2	0.3	0.3	<0.2	<0.2	0.3	0.6	<0.2	0.2	5555933
Total Uranium (U)	mg/kg	0.125	0.194	0.174	0.233	0.223	0.228	0.226	0.183	0.0004	5555933
Total Vanadium (V)	mg/kg	0.10	0.16	0.08	0.11	0.11	0.14	0.13	0.10	0.04	5555933
Total Zinc (Zn)	mg/kg	24.9	42.9	18.8	14.4	6.15	9.63	5.97	7.72	0.04	5555933

RDL = Reportable Detection Limit

Maxxam Job #: B1C4944
Report Date: 2012/01/31

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1087 NEREIS BIOACUMULATIO

Your P.O. #: 2-11-1087

General Comments

Sample CL3369-01: Sample was analyzed after holding time expired.

Sample CL3370-01: Sample was analyzed after holding time expired.

maxxam.ca
MAXXAM ANALYTICS
4606 Canada Way
Burnaby, BC V5G 1K5
Office (604) 734 7276
Toll Free: 1-800 665 8566
Fax (604) 731 2386

CAPITAL REGIONAL DISTRICT MARINE SEDIMENT TOXICITY TESTING PROGRAM (SEPTEMBER 2011)

Prepared for:

Capital Regional District
PO Box 1000
625 Fisgard Street
Victoria, BC
V8W 2S6

Prepared by:

Ecotoxicology Group
Maxxam Analytics

Maxxam Project No.: 2-11-1085

Maxxam Job #: B191064 (formerly B192421)

January 2012

EXECUTIVE SUMMARY

Twelve sediment samples were collected by staff members of the Capital Regional District September 14 through September 22, 2011. They were then submitted to Maxxam Analytics on September 28, 2011, and were received in good condition. The samples were stored in the dark, at 4±2°C, until testing commenced.

The following toxicity tests were requested: a 10-day acute survival test with the mysid shrimp, *Americamysis bahia*, a 10-day acute survival test with the marine amphipod, *Eohaustorius estuarius*, a 20-day survival and growth test with the marine polychaete, *Neanthes arenaceodentata*, a 28-day survival, growth and reproduction test with the marine amphipod, *Leptocheirus plumulosus*, and a 48-hour bivalve larval development test with the mussel, *Mytilus galloprovincialis*.

In addition to the above toxicity tests, the client also requested that two 56-day bioaccumulation tests, with the clam, *Macoma nasuta*, and the polychaete worm, *Nereis virens*, be performed on three of the submitted samples, and a 28-day bioaccumulation test with *Nereis virens* be performed on four of the twelve samples.

The total volume collected for each sample ranged from 22 L, for samples used only in toxicity testing, to 99 L for those samples used in bioaccumulation testing. On September 29 and October 06, 2011, laboratory staff homogenised multiple pails of each sediment sample in a large, clean, nalgene barrel. The barrel and all mixing implements were thoroughly cleaned between each sample homogenisation to prevent cross-contamination. The samples were then returned to their original pails and any head space present in the pails was purged with nitrogen gas.

One day prior to the initiation of each toxicity test, the sediment samples were re-homogenised and distributed to the appropriate test vessels. Each vessel was then topped up with natural seawater, and the sediments were then allowed to equilibrate overnight. The 28-day *Leptocheirus plumulosus* and the 10-day mysid shrimp tests were initiated on October 07, and the 20-day polychaete and the 10-day marine amphipod tests were initiated on October 14, 2011.

The bivalve larval development test was initiated on elutriate preparations of the sediment samples, on Oct 25, 2011.

The 56-day clam and polychaete bioaccumulation tests were initiated on October 03 and 04, 2011. The 28-day polychaete bioaccumulation test was initiated on Oct 21, 2011.

All samples were tested within six weeks of sample collection, and there were no instances where the sample hold-time was exceeded for any of the reference test protocols.

The following endpoints were assessed:

In the marine amphipod and the mysid shrimp tests, after a 10 day exposure period, total survival was measured by sieving the contents of each replicate and recovering the survivors. Missing organisms were presumed to have died and decomposed during the exposure period.

In the polychaete growth and survival test, after a 20 day exposure period, survival, dry weight and growth rate, were measured. The sediments were sieved and the live worms were recovered, rinsed, and placed in pre-weighed aluminum weigh boats. The worms were dried for a minimum of 24 hours in a drying oven before they were weighed to 0.01mg on an analytical balance.

In the *Leptocheirus* growth, survival and reproduction test, after a 28 day exposure period, survival, dry weight and reproduction were measured. The contents of each replicate were sieved through a 0.25mm sieve. The adult amphipods were removed, counted and placed in pre-weighed aluminum boats. The remaining material on the sieve, containing the juvenile amphipods, was then rinsed, poured into an appropriate container, preserved and stained with Rose Bengal dye. Once stained, the juveniles from each replicate were counted.

In the 28 day bioaccumulation test, after the exposure period, the worms were extracted from the sediment and purged for 24 hours in clean seawater before they were rinsed, patted dry and then frozen. Composite samples of worm tissue, one for each sediment sample, were submitted alongside worm tissue from a T=0 treatment (the baseline control).

In the 56 day bioaccumulation tests, organisms were extracted from the sediment samples on days 14, 28, and 56. After they were removed from their respective test vessel, the organisms were purged in clean seawater for 24 hours, rinsed with deionised water, patted dry, and then frozen. In the 56 day bioaccumulation tests, the sediments were completely renewed on day 28, to provide the organisms with fresh sediment.

The tests met all applicable test validity criteria, and all statistical and raw data for these tests are included in this report.

In addition to the toxicity tests performed, chemical analyses were conducted on the sediment porewater, and the overlying water sampled at the beginning and end of each test. The results for the porewater analyses were provided directly to the client, and are also available in the Sample Information section of this report. The results for the overlying ammonia analyses are available in the back of their applicable test sections.

The results from the tissue analyses performed in-house are available in their respective sections: 56 day *Nereis virens* bioaccumulation test, 56 day *Macoma nasuta* bioaccumulation test, and 28 day *Nereis Virens* bioaccumulation test.

The following charts summarise any statistically significant differences found between the negative control, a field reference (PB1), and the sediment samples in the toxicity tests.

Sediment Sample	10 day *Eohaustorius estuarius* Test	10 day *Americamysis bahia* Test
	Mean Survival ± SD (%)	Mean Survival ± SD (%)
Laboratory Control	98 ± 3	92 ± 9
PB1	92 ± 7	88 ± 8
PB2	88 ± 9*	86 ± 5
PB3	88 ± 9*	85 ± 7
M1E	87 ± 8*	78 ± 10*
M2E	88 ± 9*	75 ± 4*[1]
M8E	87 ± 8*	87 ± 6
M4E	91 ± 7*	88 ± 10
C2E	85 ± 6*	83 ± 10
M1SE	77 ± 14*[1]	44 ± 18*[1]
C4E	97 ± 4	73 ± 11*[1]
C1E	75 ± 26*	57 ± 18*[1]
M1NW	85 ± 4*[1]	79 ± 13

- Indicates that the sample is significantly different from the laboratory control. [1] Indicates that the sample is significantly different from the reference sediment PB1.

Sediment Sample	*Neanthes arenaceodentata* 20-d Growth and Survival Test		
	Mean Survival ±SD (%)	Mean Dry Weight ± SD (mg)	Mean Growth Rate ± SD (mg/day)
Laboratory Control	100 ± 0	19.79 ± 2.15	0.95 ± 0.11
PB1	100 ± 0	19.45 ± 2.70	0.94 ± 0.13
PB2	100 ± 0	19.49 ± 2.17	0.94 ± 0.11
PB3	100 ± 0	18.45 ± 1.95	0.89 ± 0.10
M1E	96 ± 9	10.59 ± 4.17*[1]	0.49 ± 0.21*[1]
M2E	100 ± 0	10.60 ± 2.46*[1]	0.49 ± 0.12*[1]
M8E	100 ± 0	17.56 ± 2.27	0.85 ± 0.11
M4E	100 ± 0	17.13 ± 3.61	0.82 ± 0.18
C2E	100 ± 0	14.69 ± 1.83*[1]	0.70 ± 0.09*[1]
M1SE	96 ± 9	6.22 ± 1.89*[1]	0.27 ± 0.09*[1]
C4E	96 ± 9	13.67 ± 2.47*[1]	0.65 ± 0.12*[1]
C1E	100 ± 0	11.23 ±4.45*[1]	0.53 ± 0.22*[1]
M1NW	100 ± 0	13.17 ± 2.07*[1]	0.62 ± 0.10*[1]

* Indicates that the sample is significantly different from the laboratory control. [1] Indicates that the sample is significantly different from the reference sediment PB1.

Sediment Sample	*Leptocheirus plumulosus* 28-d Growth, Survival and Reproduction Test		
	Mean Survival ±SD (%)	Mean Dry Weight ± SD (mg)	Mean Offspring ± SD (offspring/surviving adult)
Laboratory Control	87 ± 12	1.16 ± 0.87	3.09 ± 3.05
PB1	68 ± 35	0.45 ± 0.20	0.48 ± 0.39
PB2	52 ± 18*	0.44 ± 0.19	0.63 ± 1.08
PB3	39 ± 29*	0.52 ± 0.29	0.43 ± 0.67
M1E	93 ± 6	0.56 ± 0.10	0.06 ± 0.06*
M2E	90 ± 7	0.76 ± 0.45	0.25 ± 0.29
M8E	69 ± 36	0.45 ± 0.21	0.08 ± 0.12*
M4E	89 ± 9	0.67 ± 0.25	0.51 ± 0.50
C2E	72 ± 12*	1.06 ± 0.24	1.00 ± 0.68
M1SE	55 ± 29*	1.55 ± 0.47	2.05 ± 2.06
C4E	89 ± 15	0.48 ± 0.17	0.37 ± 0.69*
C1E	58 ± 19*	1.56 ± 0.62	2.99 ± 2.71
M1NW	73 ± 18	0.53 ± 0.24	0.06 ± 0.04*

* Indicates that the sample is significantly different from the laboratory control. No comparison testing was performed against the test sediments using the reference sediment, PB1, due to its poor performance in this test.

Sediment Sample	48-h Bivalve Larval Development Test		
	Mean Proportion Normal ± SD (%)	Mean Survival ± SD (%)	Mean Combined: Survived and Normally Developed ± SD (%)
Laboratory Control	94.4 ± 4.4	94.2 ± 11.2	89.4 ± 12.3
Sediment Control	92.9 ± 5.1	73.4 ± 6.4*	68.1 ± 6.0*
PB1	66.7 ± 11.6*	94.5 ± 12.2	75.6 ± 15.0
PB2	74.1 ± 7.6*	88.8 ± 15.4	67.2 ± 17.5*
PB3	76.9 ± 8.3*	102.5 ± 12.0	78.3 ± 7.6*
M1E	90.8 ± 5.0	45.6 ± 19.8*[1]	41.9 ± 19.1*[1]
M2E	89.4 ± 5.7	63.0 ± 25.4*[1]	56.4 ± 23.2*
M8E	84.1 ± 10.3*	93.8 ± 7.9	87.8 ± 9.4
M4E	65.7 ± 4.2*	84.7 ± 9.4*[1]	55.6 ± 6.7*[1]
C2E	57.9 ± 4.5*	100 ± 0	69.8 ± 6.9*
M1SE	64.4 ± 4.6*	66.6 ± 31.3	45.9 ± 26.6*[1]
C4E	73.8 ± 9.2*	98.8 ± 1.8	77.2 ± 11.5
C1E	76.4 ± 9.7*	83.8 ± 22.6	66.9 ± 24.1
M1NW	70.0 ± 9.3*	93.6 ± 4.7	65.7 ± 11.2*

* Indicates that the sample is significantly different from the laboratory control. [1] Indicates that the sample is significantly different from the reference sediment (PB1).

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TEST METHODS, STATISTICS AND TEST VALIDITY CRITERIA

The mysid shrimp test was conducted using the U.S. Army Engineer Research and Development "Protocol for Conducting 10-Day Static Acute Sediment Tests Using *Americamysis bahia*".

The marine amphipod test was conducted using the Environment Canada: EPS 1/RM/35 Reference Method for Determining Acute Lethality of Sediment to Marine or Estuarine Amphipods (1998).

The *Neanthes* test was conducted using USEPA and Puget Sound Estuary Program Recommended Guidelines for Conducting Laboratory Bioassays on Puget Sound Sediments: Juvenile Polychaete Sediment Bioassay (1995).

The *Leptocheirus* test was conducted using US EPA 600/R-01/020 "Methods for Assessing the Chronic Toxicity of Marine and Estuarine Sediment-associated Contaminants with the Amphipod *Leptocheirus plumulosus*" (2001).

The bivalve larval development test was conducted using USEPA and Puget Sound Estuary Program Recommended Guidelines for Conducting Laboratory Bioassays on Puget Sound Sediments: Bivalve Larval Sediment Bioassay (1995).

The Bioaccumulation tests were conducted using the USEPA Guidance Manual: Bedded Sediment Bioaccumulation Tests, EPA/600R-93/183, (1993), and the ASTM Standard Guide for Determination of the Bioaccumulation of Sediment-Associated Contaminants by Benthic Invertebrates, E1688-00a (2000).

Statistical analyses were calculated using CETIS™ (Version 1.7.0.3), an Access based software application (Tidepool Scientific Software).

The test validity criteria, for all tests conducted, are available in the test summary sections.

SAMPLE INFORMATION

Chain of Custody Form

Sediment Sample Descriptions

Porewater Measurements

Porewater Chemistry

B192421

08338332

LABORATORY REQUISITION CAPITAL REGIONAL DISTRICT - ENVIRONMENTAL PROGRAMS GROUP 1 of

Client: CAPITAL REGIONAL DISTRICT
Mail: PO Box 1000, 625 Fisgard St, Victoria, BC V8W 2S6
Ship: 2nd Floor, Victoria, BC
Client rep: Shirley Lyons
Telephone: (250) 360-3261 Fax: (250) 360-3254
Email: slyons@crd.bc.ca
CRD Project ID: Sediment Chemistry
Purchase order:
Quote / Contract:

* Laboratory: Maxxam
Lab contact: Kelly Janda
Lab project id:

B192421

Station Name	Notes	Sample Type	Date sampled day-month-year	Shipped day-month-year	Samples	Sample Matrix	Sediment Chemistry (see list)	Bioaccumulation 56 Day Bivalve (Macoma)	Bioaccumulation 56 Day Polychaete (Nereis virens or Neanthes acecdentata)	Bioaccumulation 28 Day Polychaete (Nereis virens or Neanthes acecdentata)	Toxicity - 10 day Mysid Shrimp (Myeidopsis)	Toxicity - 28 day Amphipod (Leptocelus plumulos	Toxicity - 48 hour Mollusca (Mytilus galoprovincia	Toxicity - 10 day amphipod (Rhepoxynius)	Toxicity - 20 day Neanthes	Pore water - hardness	Pore water - NH3	Pore water - ammonia, unionized	Pore water - dissolved organic carbon	Pore water - salinity	Pore water - sulphide	Pore water - pH	Nitrogen - Total in sediment	Fecal Coliforms in Sediment	Particle Size (from sediment in buckets)
M1NW		SS			1	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
M1S		SS			2	Sediment	x																		
M1SE		SS			3	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
M1SW		SS			4	Sediment	x																		
M1W		SS			5	Sediment	x																		
M2E	Lab triplicate for sediment chemistry	LR			6	Sediment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
M2SE		SS			7	Sediment	x																		
M2NE		FR1			8	Sediment	x																		
M2NE		FR2			9	Sediment	x																		
M2NE		FR3			10	Sediment	x																		
Batch 2 for Sediment Chem																									
M0		SS			1	Sediment	x																		
M1E		SS			2	Sediment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
M4E		SS			3	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
M4SE	Lab triplicate for sediment chemistry	LR			4	Sediment	x																		
M9E		SS			5	Sediment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PB1		SS			6	Sediment	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PB2		SS			7	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PB3		SS			8	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
C1E		SS			9	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
C2E		SS			10	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
C4E		SS			11	Sediment	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

SPECIAL INSTRUCTIONS:

Condition shipped

Naked Anne Temp:
Sept 28, 2011
Time: 14:50 CS:NA

Station	Type	Date Sampled	Time Sampled
M0	SS	2011 Sep 14	14:38
M100E	SS	2011 Sep 21	09:15
M100NW	SS	2011 Sep 15	11:35
M100S	SS	2011 Sep 14	12:00
M100SE	SS	2011 Sep 16	10:25
M100SW	SS	2011 Sep 14	13:40
M100W	SS	2011 Sep 14	15:21
M200E	SS	2011 Sep 21	13:00
M200E	LR1	2011 Sep 21	13:00
M200E	LR2	2011 Sep 21	13:00
M200SE	SS	2011 Sep 16	09:15
M200NE	SS	2011 Sep 15	13:16
M400E	SS	2011 Sep 14	10:06
M400SE	SS	2011 Sep 14	09:17
M800E	SS	2011 Sep 22	09:00
M800E	LR1	2011 Sep 22	09:00
M800E	LR2	2011 Sep 22	09:00
PARRY BAY	SS	2011 Sep 20	10:30
PB Reference #2	SS	2011 Sep 20	12:30
PB Reference #3	SS	2011 Sep 20	13:30
C100E	SS	2011 Sep 19	00:00
C200E	SS	2011 Sep 19	09:30
C400E	SS	2011 Sep 16	13:05

Maxxam Analytics

Sediment Sample Descriptions

Client # / Name: 1399 Capital Regional District

Job #: B192421

Maxxam Sample Name	Sample #	Client Sample Name	Date Homogenised / Subsampled	Grain Size & Colour	Type of Debris Removed (e.g. rock, wood, plant, etc...)	Endemic Animals Removed	Odour	Additional Comments/Observations	Analyst
C100	B28687	M1E	2011 Sept 29	sandy silt / dark grey	decomposing materials, shells, ~~nereis~~, glass pieces, rocks,	nereis, brittle star	sulfide	Homogenized (combined) 9 pails- redistributed to pails. N2 + labelled	CT/CLB
C101	B28686	M2E	2011 Sept 29	softer, silty/ clay, dark grey	glass, rocks, shells, ~~capsules~~, ~~nereis~~, plate(some oxidized)	nereis, molluscs, sea anemone	normal ocean/ beach, faint sulfide	Homogenised 9 pails + redistributed to pails, N2 & labelled	EC/CLB
C102	B28689	M8E	2011 Sept 29	softer, silty/ clay, dark grey	Glass, rocks, shells,	nereis, molluscs	no sulfide, fresh marine	combined & homogenized 9 pails, redist. to original pails, N2, labelled	CLB/EC
C103	B28688	N4E	2011 Oct 06	silty clay, dark grey	clam shells, scallop shells, rocks, glass	small red worms, snails, clams	sulfide	sample sieved through 12.5mm to remove debris	CT/EC
C104	B28694	C2E	2011 Oct 06	sandy silt dark-grey	clam shells, rocks	seaworms (polychaetes)	sulfide + marine	dead seaworms 2cm in length.	MG/
C105	B28685 90	PB1	2011 Oct 06	silty sand brown-grey	some small shell fragments	none	none	NA	MG/
C106	B28685	M1SE	2011 Oct 06	black/dark grey sandy w/ some clay	glass, shells, rocks.	bivalve	sulfide	removed some glass and large rocks.	MG/
C107	B28692	PB3	2011 Oct 06	brown silty	no debris.	few small molluscs	none	NA	MG
C108	B28695	C4E	2011 Oct 06	dark grey and sandy	dark grey	none	rotting organic matter	lots of shell	MG

Maxxam Analytics

Sediment Sample Descriptions

Client # / Name: 1399 Capital Regional District

Job #: B192421

Maxxam Sample Name	Sample #	Client Sample Name	Date Homogenised / Subsampled	Grain Size & Colour	Type of Debris Removed (e.g. rock, wood, plant, etc...)	Endemic Animals Removed	Odour	Additional Comments/Observations	Analyst
C109	C1E	BQ8693	2011 Oct 06	dark grey → black, sandy	shell fragments	N/A	sulfides	1 bucket arrived ½-full!	EC
C110	PB2	BQ8691	2011 Oct 06	dark grey/brown	shells	marine worms	marine	NA	EC
C111	MINW	BQ8684	2011 OCT 06	spongey, fine silt, almost clay,	shell debris, few large rocks	bivalves (large)	marine	NA	EC
			M.G 2011 Nov 08						

Z:\Divisions\Environmental Quality\Ecotoxicology\Private\Ecotox\BIOASSAY\FORMS\Sediment Tests Misc\Sample Description Form.xls

Maxxam Job #: B191064
Report Date: 2012/01/27

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BT7200	BT7201	BT7219			BT7277		
	Units	M1E	M2E	M4E	RDL	QC Batch	M8E	RDL	QC Batch
Parameter									
Special Analysis	N/A	33	33	33	N/A	5546796	33	N/A	5546796
Calculated Parameters									
Total Hardness (CaCO3)	mg/L	6380	6000	6050	0.50	5253110	5790	0.50	5253110
Misc. Inorganics									
Dissolved Organic Carbon (C)	mg/L	16.2	18.5	16.9	0.50	5265795	29.0(1)	5.0	5270538
MISCELLANEOUS									
Sulphide	mg/L	0.121(2)	0.129(2)	0.086(2)	0.050	5255622	0.081(2)	0.050	5255622
Nutrients									
Ammonia (N)	mg/L	16	16	9.3	0.10	5272621	9.4	0.10	5272621
Ammonia (Unionized)	mg/L	0.036	0.028	0.065	0.005	5546783	0.024	0.005	5546783
Physical Properties									
pH	pH Units	7.10	7.20	7.50		5546791	7.20		5546791

Maxxam ID		BT7281			BT7288		BT7290		BT7299		
	Units	M1NW	RDL	QC Batch	M1SE	RDL	C1E	RDL	C2E	RDL	QC Batch
Parameter											
Special Analysis	N/A	33	N/A	5546796	33	N/A	33	N/A	33	N/A	5546796
Calculated Parameters											
Total Hardness (CaCO3)	mg/L	5830	0.50	5253110	3600	0.50	4750	0.50	4720	0.50	5253110
Misc. Inorganics											
Dissolved Organic Carbon (C)	mg/L	18.2	0.50	5265795	44.8	0.50	52.1(1)	5.0	28.0	0.50	5270538
MISCELLANEOUS											
Sulphide	mg/L	0.090(2)	0.050	5255622	13.8	0.25	2.50	0.050	6.93	0.25	5255622
Nutrients											
Ammonia (N)	mg/L	12	0.10	5272621	39	0.50	39	0.50	16	0.10	5272621
Ammonia (Unionized)	mg/L	0.067	0.005	5546783	<0.005	0.005	0.17	0.005	0.11	0.005	5546783
Physical Properties											
pH	pH Units	7.50		5546791	7.30		7.40		7.50		5546791

N/A = Not Applicable
RDL = Reportable Detection Limit
(1) - RDL raised due to sample matrix interference.
(2) - RDL raised due to sample dilution.

Maxxam Job #: B191064
Report Date: 2012/01/27

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BT7300			BT7302			BT7311		BT7317		
	Units	C4E	RDL	QC Batch	PB1	RDL	QC Batch	PB2	RDL	PB3	RDL	QC Batch
Parameter												
Special Analysis	N/A	33	N/A	5546796	33	N/A	5546796	34	N/A	33	N/A	5546796
Calculated Parameters												
Total Hardness (CaCO3)	mg/L	5720	0.50	5253110	4790	0.50	5253110	5820	0.50	5220	0.50	5253110
Misc. Inorganics												
Dissolved Organic Carbon (C)	mg/L	24.9	0.50	5265795	30.6(1)	5.0	5270538	18.7	0.50	17.1	0.50	5265795
MISCELLANEOUS												
Sulphide	mg/L	0.197(2)	0.050	5255622	0.083(2)	0.050	5255622	0.066(2)	0.050	0.070(2)	0.050	5255622
Nutrients												
Ammonia (N)	mg/L	26	0.50	5272621	2.2	0.050	5272621	3.6	0.050	1.0	0.010	5272621
Ammonia (Unionized)	mg/L	0.17	0.005	5546783	0.010	0.005	5546783	0.017	0.005	0.13	0.005	5546783
Physical Properties												
pH	pH Units	7.50		5546791	7.40		5546791	7.40		7.30		5546791

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		BT7200	BT7201	BT7219			BT7277			BT7281			BT7288		
	Units	M1E	M2E	M4E	RDL	QC Batch	M8E	RDL	QC Batch	M1NW	RDL	QC Batch	M1SE	RDL	QC Batch
Total Metals by ICPMS															
Total Calcium (Ca)	ug/L	406000	401000	426000	1000	5269499	355000	600	5268043	404000	1000	5269499	220000	600	5268043
Total Magnesium (Mg)	ug/L	1300000	1220000	1210000	1000	5269499	1190000	600	5268043	1170000	1000	5269499	742000	600	5268043

Maxxam ID		BT7290	BT7299		BT7300		BT7302			BT7311	BT7317		
	Units	C1E	C2E	QC Batch	C4E	QC Batch	PB1	RDL	QC Batch	PB2	PB3	RDL	QC Batch
Total Metals by ICPMS													
Total Calcium (Ca)	ug/L	312000	301000	5268043	337000	5269499	307000	1000	5268043	497000	351000	500	5269499
Total Magnesium (Mg)	ug/L	963000	963000	5268043	1190000	5269499	978000	1000	5268043	1110000	1060000	500	5269499

N/A = Not Applicable
RDL = Reportable Detection Limit
(1) - RDL raised due to sample matrix interference.
(2) - RDL raised due to sample dilution.

Maxxam **Marine Sediment Porewater Measurements**

Client # & Name: 1399 / Capital Regional District Date Measured: 20110ct06

Porewater Collection Method: Centrifugation for 30 mins @ 5000 rpm.

Sample ID	Salinity (‰)	Temperature (°C)	pH	Ammonia (mg/L)	Sulphide (mg/L)	Analyst
M1E	32.5	16.8	7.1	16.2	0.121	MG
M2E	33.0	10.4	7.2	16.4	0.129	MB
M8E	32.5	15.6	7.2	9.35	0.08	MG
M4E	~~32.9~~ ~~45.5~~ ④	20.1	7.5	9.27	0.09	JB
C2E	32.9	20.1	7.5	15.7	6.93	JB
PB1	32.9	16.9	7.4	2.17	0.08	JB
④ ~~MS1E~~ PB3	33.0	18.4	7.3	1.00	0.07	JB
④ ~~PB3~~ MS1E	33.1	16.1	7.3	38.6	13.8	MG
C4E	32.9	19.3	7.5	26.4	0.197	JB
C1E	32.5	17.0	7.4	38.7	2.50	JB
PB2	33.5	18.5	7.4	3.57	0.07	JB
M1NW	32.8	17.2	7.5	11.9	0.09	JB
CCB	18.3	20.4	7.9	6.3	0.012	JB
Control (MB)	~~26.6~~ 18.2	18.2	8.0	0.05	0.006	MG
			May 2011 NO 08			

Comments

④ WEJB20110ct006

DOC and hardness data submitted to client separately. MG-2011Oct15

CCB is the control sediment for the leptocheirus test. Control (MB) is the control sand used for the 10d amphipod, mysid, neanthes, and bivalve tests. MG 2011Oct15

Maxxam Analytics

Summary of Water Quality, Ammonia Measurements and Calculations for Porwater

Un-ionized Ammonia Calculator

This spreadsheet computes concentration of un-ionized ammonia in seawater as a function of total ammonia, pH, temperature, and salinity. pH can be measured on the "NBS" scale or Hansson scales. If this this confuses you, you are probably using the "NBS"

User information is only needed in cells outlined with double lines. This spreadsheet assumes that total ammonia is reported as nitrogen; computed un-ionized ammonia will also be reported as nitrogen.

Porewater

Client Sample ID	Maxxam Sample ID	Temp (°C)	Measured pH (NBS)	Total Ammonia Nitrogen (mg/L)	Salinity (‰)	Working pH	Ionic Strength (M)	pKa (infinite dilution)	pKa (SW)	Mole Fraction	Un-ionized Ammonia-N (mg/L)	Un-ionized Ammonia-N (µg/L)
M1E	BQ8687-01	16.8	7.1	16.2	32	6.95	0.659	9.505	9.60	0.0022	0.0356	35.6
M2E	BQ8686-01	10.4	7.2	16.4	33	7.05	0.680	9.718	9.82	0.0017	0.0275	27.5
M8E	BQ8689-01	15.6	7.2	9.4	32	7.05	0.659	9.544	9.64	0.0025	0.0236	23.6
M4E	BQ8688-01	20.1	7.5	9.3	33	7.35	0.678	9.399	9.50	0.0070	0.0645	64.5
C2E	BQ8694-01	20.1	7.5	15.7	33	7.35	0.678	9.399	9.50	0.0070	0.1093	109.3
PB1	BQ8690-01	16.9	7.4	2.2	33	7.25	0.678	9.502	9.60	0.0044	0.0095	9.5
M1SE	BQ8685-01	18.4	7.3	1.0	33	7.15	0.680	9.454	9.56	0.0039	0.0039	3.9
PB3	BQ8692-01	16.1	7.3	38.6	33	7.15	0.680	9.528	9.63	0.0033	0.1261	126.1
C4E	BQ8695-01	19.3	7.5	26.4	33	7.35	0.680	9.425	9.53	0.0066	0.1731	173.1
C1E	BQ8693-01	17.0	7.4	38.7	32	7.25	0.659	9.499	9.60	0.0044	0.1717	171.7
PB2	BQ8691-01	18.5	7.4	3.6	34	7.25	0.702	9.450	9.56	0.0049	0.0174	17.4
M1NW	BQ8684-01	17.2	7.5	11.9	33	7.35	0.680	9.492	9.59	0.0056	0.0668	66.8
CCB	-	20.4	7.9	6.3	18	7.76	0.372	9.390	9.45	0.0201	0.1264	126.4
CTRL MB	-	18.2	8.0	0.1	29	7.85	0.595	9.460	9.55	0.0195	0.0010	1.0

References

Spreadsheet

http://www.fisheries.org/html/publications/epubs/fhm2e/ammonia_swc.xls

pKa for Ammonia in Freshwater

K. Emerson, R.C. Russo, R.C. Lund, & R.V. Thurson, Aqueous ammonia equilibrium calculations: effects of pH and temperature, J. Fish. Res. Board of Canada,

pKa for Ammonia in Seawater

K.H. Khoo, C.H. Culberson, and R.G. Bates, Thermodynamics of the dissociation of ammonium ion in seawater from % to 40 C, Journal of Solution Chemistry, 6:281-

Ionic Strength of Seawater

M. Whitfield, The hydrolysis of ammonia ions in sea water - a theoretical study, Journal of Marine Biological Association of the United Kingdoms, 54:565-580, 1974.

Measure of pH in Seawater

I. Hansson, A new set of pH scales and standard buffers for sea water, Deep-Sea Research, 20:479-491, 1973.

Interelationship of Hansson's pH scale with the NBS scale

F.J. Millero, The pH of estuarine waters, Limnology and Oceanography, 31:839-847, 1986.

Maxxam Analytics

Control Sediment Preparation (adapted from PSEP methods)

1. Sieve entire contents of control sediment sample through a 0.5-mm sieve into a clean 20-L pail. Use fresh seawater to assist in sieving process.
2. Allow control sediment to settle for at least 4 hrs (preferably 12-16 hrs). Store in cold room (~4°C) in sealed container during this time.
3. Decant overlying water from control sediment, and rinse sediment at least once with clean seawater.
4. If there is any headspace, replace air with nitrogen gas; seal pail and store in cold room.

Source of Control Sediment: Mackenzie Beach, Tofino

Date of Control Sediment Collection: 2011 Oct 12

Date/Batch of Water: October 11 2011.

Notes on Control Sediment Preparation
(Analyst, date of preparation, presence of indigenous organisms, etc.):

Sieved through 500µm sieve using seawater from 11Oct 2011

LT 2011Oct13

A. Ly 2011 Nov 08

Maxxam Analytics

Bioaccumulation Test
Overlying Water Measurements

Client # & Name: 1399 CRD

Test Initiation Date: 2011 Oct04; 2011 Oct05

Project #: 2-11-1085

Job #: B192421

Date	Seawater Arrival Date	Temperature (°C)	D.O. (mg/L)	pH	Salinity (‰)	Analyst
2011 Oct 03	2011 Sept 20	Ⓐ ~~12.6~~ 12.6	Ⓐ ~~7.3~~ 8.3 8.6	8.1	28.6	DML
2011 Oct 04	2011 Sept 20	12.4	8.6	7.9	29.4	JB
2011 Oct 05	2011 Oct 05	12.2	8.9	7.6	27.5	AR
2011 Oct 10	2011 Oct 05	13.5	8.1	7.6	30	EC
2011 OCT 13	2011 OCT 05	12.6	8.8	7.9	27.4	CT
2011 Oct 17	(all 3 tanks same) 2011 Oct 05 Ⓑ	13.2	8.9	8.0	27	EC
2011 Oct 20	2011 Oct 05	14.4	8.5	7.8	27	EC
2011 Oct 24	2011 Oct 05	12.7	8.9	7.8	28	EC
2011 OCT 27	2011 OCT 25	12.6	8.8	8.0	29	CT
2011 Oct 31	2011 Oct 25	13.9	8.8	7.9	29	EC
2011 NOV 07	2011 NOV 01	15.1	8.9	8.0	28	CT
2011 NOV 10	2011 NOV 01	12.5	8.9	7.7	28	EC
2011 NOV 14	2011 NOV 01	12.1	8.9	7.6	28	EC
2011 NOV 17	2011 NOV 08	11.9	8.7	7.8	28	CT
2011 NOV 21	2011 NOV 08	12.9	8.3	7.9	27	CT
2011 NOV 24	2011 NOV 08	12.0	8.4	7.8	28	CT
2011 NOV 28	2011 NOV 08	11.7	8.9	7.6	27	CT
	H. Guy 2012 Jan 10					

Ⓐ WE DML 2011 Oct 3

Ⓑ WEEC 2011 Oct 20

10 DAY *AMERICAMYSIS BAHIA* SURVIVALTEST

Test Summary

Statistics

Raw Data

Supporting Test Data

Acclimation and Holding Conditions

Overlying Water Chemistry

Reference Toxicant Control Chart

10-d *Americamysis bahia* Survival Test Data Summary

Client Name/Location	Capital Regional District/ Victoria, BC
Testing Lab/Location	Maxxam Analytics / Burnaby, BC
Sample Information	
Sample Names	M1E, M2E, M8E, M4E, C2E, PB1, M1SE, PB3, C4E, C1E, PB2, M1NW
Type of Sample	Field collected sediments
Method of Collection	See Chain of Custody form
Sample Collector	See Chain of Custody form
Sample Volume	99 L for M1E, M2E, M8E; 44L for PB1; 22L for M4E, M1SE, PB2, C2E, PB3, C4E, C1E, M1NW.
Sample Containers	4-L white food grade plastic buckets
Sample Collection Date(s)	2011 Sep 14; 2011 Sep 15; 2011 Sep 16; 2011 Sep 19; 2011 Sep 20; 2011 Sep 21; 2011 Sep 22
Sample Temperature upon Arrival	Not recorded at sample receipt.
Date & Time of Sample Receipt	2011 Sep 28 @ 14:50
Storage Conditions	From receipt to test initiation, the samples were stored in a temperature controlled cold room at 4 $\pm$ 2°C
Sediment and Pore Water Characterisation	See Sediment Sample Descriptions sheet and analytical chemistry reports
Sample Preparation	
Homogenisation	Samples were individually mixed until homogenised at ambient laboratory temperature; if necessary, large debris and indigenous macro-organisms were removed during homogenisation (see Sediment Sample Descriptions sheet)
Date of Homogenisation	2011 Oct 06
Sediment – Physical Analyses	TOC, moisture content and grain size were measured in each sediment sample prior to toxicity test initiation. The results of the analyses are not included in this report.
Sediment Porewater – Chemical Analyses	Samples of homogenised sediment were centrifuged for 30 minutes, at 5000 rpm, to produce porewater. The porewater was then analysed for dissolved organic carbon, ammonia, sulphides, and hardness. The results are included in the Sample Information section of this report.

Test Organisms	
Species	*Americamysis bahia*
Source	Aquatic Biosystems, Fort Collins, CO.
Age at Start of Test	4 days
Method of collection	Laboratory reared
Date of Organism Arrival	2011 Oct 05
% Mortality during Holding Period	0.0
Holding and Acclimation Conditions	See Acclimation and Holding Conditions sheets
Laboratory Control Sediment and Test Water	
Laboratory Control Sediment Source	Mackenzie Beach, Tofino, BC; Collected by Seacology (North Vancouver, BC)
Laboratory Control Sediment Storage	Stored in a cold room that was at 4 ± 2°C
Laboratory Control Sediment Preparation Procedure	Sediment was sieved (0.5 mm) before use with control/dilution seawater
Overlying Water	Seawater collected at the Vancouver Aquarium, from Burrard Inlet, 40-45' deep inlet, gravity sand filter with sand mesh size 22, filtered through 5µm filter and passed through UV Sterilizer
Type and Quantity of Chemicals Added to Water	None
Pre-treatment of Overlying Water	The seawater UV sterilized and filtered through a 1µm filter, and was continuously aerated prior to use
Reference Site Sediment	PB1, PB2 and PB3

Test Conditions & Facilities	
Test Method	U.S Army Engineer Research and Development (ERDC) "Protocol for Conducting 10 Day Static Acute Sediment Tests Using *Americamysis bahia*"
Test Type / Duration	10-d whole sediment toxicity test. Static, no water renewal
Test Temperature	20°C ± 1°C. See the Test Conditions and Survival Data sheets.
Light levels and Photoperiod	16 light: 8 dark. Overhead wide spectrum fluorescent; 50 – 100 fc
Aeration	Continuous and minimal in each test vessel; checked 2-3 times daily. Compressed oil-free air delivered through microbore airline tubing
Test Start Date	2011 Oct 07
Test Completion Date	2011 Oct 17
Test Vessels	1 L glass jars with ~ 10 cm inner diameter; covered.
Volume of Sediment	175 mL (~2cm depth)
Volume of Test Water	775 mL
Analysts	M. Grey, C. Tra, E. Chen, L. Takahashi, D. Greschner, M. Brassil, N. Shergill, D. Lai
Water Renewal	None
# Organisms / Vessel	20; randomly assigned to each test vessel
Number of Replicates	5 (plus 1 measurement jar) for each sediment sample
Feeding Regime	~150 Artemia/replicate; daily
Observations & Measurements	
Dissolved Oxygen (DO), Temperature, pH and Salinity	Daily, in overlying water in the measurement beakers. See Test Conditions and Survival Data sheets
Sediment Appearance During Test	See Aeration Checks and Test Observations sheets
Test Observations	Organism behaviour during the test, visible mortalities and/or abnormal behaviour was recorded on Test Observations sheet
Survival	All live mysids recovered from each test vessel were counted. See Mysid Survival Summary sheet
Overlying Water – Chemical Analyses	Samples of the overlying water were analysed for Ammonia on Day 0 (start) and Day 10 (end) of the test. See chemical analysis reports at the end of this section.
Anything Unusual about the Test, Deviation from Test Method, other Problems	The overlying water quality measurements of the sample PB1 were missing on Day 10 of the test.

Results	
Endpoints	Percentage Survival. See Mysid Survival Summary sheet.
Endpoint Results	**Comparison with Laboratory Control** There was a statistically significant decrease in mean survival between the following test sediments and the laboratory control: M1E, M2E, M1SE, C4E, and C1E. **Comparison with Reference Sediment (PB1)** There was a statistically significant decrease in mean survival between the following test sediments and reference sediment PB1: M2E, M1SE, C4E, and C1E.
Name and citation of program and methods used for calculating statistical endpoint	CETIS v1.7.0.3 – Parametric Methods: Equal variance t Two Sample Test Data was tested for normality using Shapiro-Wilk's test and homogeneity of variance using Bartlett's test
Number of surviving organisms in each test vessel	See Test Conditions and Survival Data sheet
QA/QC	
Test Validity Criteria • Mean survival in the test controls for *A. bahia* must be ≥90% • Control survival per replicate must be ≥80% • Dissolved Oxygen levels in any replicate treatment must remain ≥40%	• Mean survival in the control was 92% • Survival in each control replicate was ≥80% • DO levels in all replicates remained above 40% saturation
Ref Tox Test LC50 (95% CL) (g/L KCl)	0.75 (0.66, 0.85)
Invalid Ref Tox Test?	No
Ref Tox Test Historic Mean and 2SD Range (g/L KCl)	0.68; 2SD range: (0.54-0.83)
Date of Ref Tox Test	2011 Oct 07
Organisms Batch and Condition of Ref Tox Test	Static 48-h water-only test. Same batch of organisms used

Americamysis bahia 10-d Static Acute Sediment Test — **Maxxam Analytics**

Analysis ID:	15-1583-8239	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	06 Jan-12 11:44	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	13-5684-4477	**Test Type:**	Survival	**Analyst:**	
Start Date:	07 Oct-11 13:00	**Protocol:**	US Army (ERDC) A. bahia	**Diluent:**	Artifical Sea Water
Ending Date:	17 Oct-11 12:00	**Species:**	Americamysis bahia	**Brine:**	Not Applicable
Duration:	9d 23h	**Source:**	Aquatic Biosystems, CO	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					14.42%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
Control		PB1	0.7661	1.86	0.1805	0.2328	Non-Significant Effect
		PB2	1.38	1.86	0.154	0.1025	Non-Significant Effect
		PB3	1.456	1.86	0.1613	0.0918	Non-Significant Effect
		M1E	2.166	1.86	0.1822	0.0311	Significant Effect
		M2E	3.481	1.86	0.1392	0.0042	Significant Effect
		M8E	1.191	1.86	0.1548	0.1340	Non-Significant Effect
		M4E	0.7462	1.86	0.181	0.2384	Non-Significant Effect
		C2E	1.559	1.86	0.1773	0.0788	Non-Significant Effect
		M1SE	5.327	1.86	0.2044	0.0004	Significant Effect
		C4E	3.071	1.86	0.1687	0.0077	Significant Effect
		C1E	3.938	1.86	0.2107	0.0022	Significant Effect
		MINW	1.606	1.86	0.2172	0.0735	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	1.585004	0.1320836	12	6.44	<0.0001	Significant Effect
Error	1.066511	0.02050983	52			
Total	2.651515	0.1525935	64			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	11.66	26.22	0.4731	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9691		0.1030	Normal Distribution

2012Jan06 Analyst: [illegible] 2012Jan18 QA: LS

Americamysis bahia 10-d Static Acute Sediment Test — **Maxxam Analytics**

Analysis ID:	15-1583-8239	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	06 Jan-12 11:44	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	0.92	0.8855	0.9545	0.8	1	0.04062	0.09083	9.87%	0.0%
PB1	5	0.88	0.8482	0.9118	0.8	1	0.03742	0.08367	9.51%	4.35%
PB2	5	0.86	0.8392	0.8808	0.8	0.95	0.02449	0.05477	6.37%	6.52%
PB3	5	0.85	0.8231	0.8769	0.75	0.95	0.03162	0.07071	8.32%	7.61%
M1E	5	0.78	0.7406	0.8194	0.7	0.95	0.04637	0.1037	13.29%	15.22%
M2E	5	0.75	0.7366	0.7634	0.7	0.8	0.01581	0.03536	4.71%	18.48%
M8E	5	0.87	0.8483	0.8917	0.8	0.95	0.0255	0.05701	6.55%	5.44%
M4E	5	0.88	0.8406	0.9194	0.7	0.95	0.04637	0.1037	11.78%	4.35%
C2E	5	0.83	0.7929	0.8671	0.7	0.95	0.04359	0.09747	11.74%	9.78%
M1SE	5	0.44	0.3722	0.5078	0.25	0.7	0.07969	0.1782	40.5%	52.17%
C4E	5	0.73	0.6883	0.7717	0.55	0.85	0.04899	0.1095	15.01%	20.65%
C1E	5	0.57	0.502	0.638	0.35	0.85	0.08	0.1789	31.38%	38.04%
MINW	5	0.79	0.739	0.841	0.7	1	0.06	0.1342	16.98%	14.13%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	1.309	1.247	1.37	1.107	1.459	0.07259	0.1623	12.4%	0.0%
PB1	5	1.234	1.179	1.289	1.107	1.459	0.06448	0.1442	11.68%	5.68%
PB2	5	1.194	1.16	1.228	1.107	1.345	0.03984	0.08908	7.46%	8.73%
PB3	5	1.182	1.142	1.223	1.047	1.345	0.04747	0.1061	8.98%	9.65%
M1E	5	1.096	1.04	1.152	0.9912	1.345	0.06581	0.1472	13.42%	16.22%
M2E	5	1.048	1.032	1.064	0.9912	1.107	0.01835	0.04102	3.92%	19.92%
M8E	5	1.21	1.175	1.244	1.107	1.345	0.0407	0.091	7.52%	7.57%
M4E	5	1.236	1.181	1.291	0.9912	1.345	0.06487	0.1451	11.74%	5.55%
C2E	5	1.16	1.107	1.213	0.9912	1.345	0.06179	0.1382	11.91%	11.36%
M1SE	5	0.723	0.6528	0.7932	0.5236	0.9912	0.08254	0.1846	25.53%	44.75%
C4E	5	1.03	0.9838	1.076	0.8355	1.173	0.05441	0.1217	11.81%	21.29%
C1E	5	0.8625	0.7885	0.9365	0.6331	1.173	0.08698	0.1945	22.55%	34.09%
MINW	5	1.121	1.043	1.199	0.9912	1.459	0.09148	0.2046	18.25%	14.33%

2012Jan06 2012Jan18
Analyst: M. Grey QA: LS

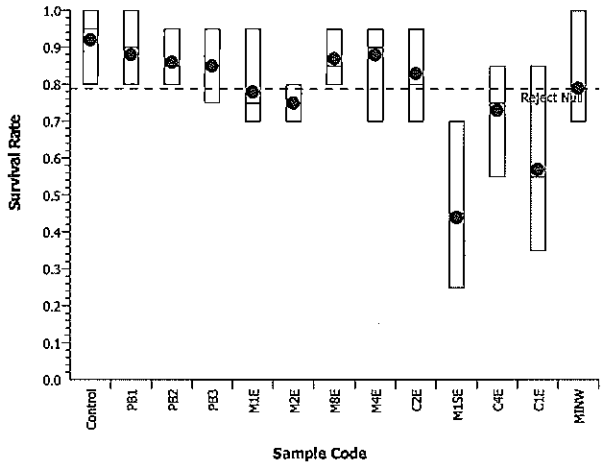
Americamysis bahia 10-d Static Acute Sediment Test — **Maxxam Analytics**

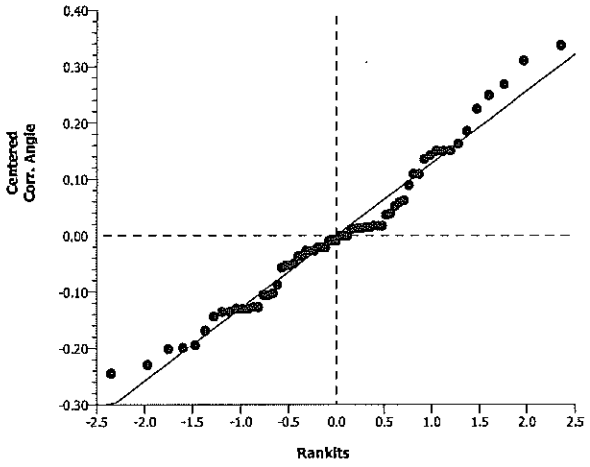
Analysis ID:	15-1583-8239	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	06 Jan-12 11:44	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	0.95	1	0.85	0.8	1
PB1	0.8	1	0.8	0.9	0.9
PB2	0.85	0.8	0.85	0.95	0.85
PB3	0.85	0.95	0.85	0.85	0.75
M1E	0.95	0.7	0.8	0.7	0.75
M2E	0.8	0.75	0.7	0.75	0.75
M8E	0.9	0.85	0.8	0.85	0.95
M4E	0.95	0.9	0.9	0.7	0.95
C2E	0.9	0.95	0.8	0.7	0.8
M1SE	0.25	0.7	0.5	0.45	0.3
C4E	0.75	0.85	0.55	0.75	0.75
C1E	0.55	0.85	0.35	0.55	0.55
MINW	0.7	0.85	0.7	0.7	1

Graphics





2012 Jan 06 2012 Jan 18

Analyst: M. Grey QA: LS

Americamysis bahia 10-d Static Acute Sediment Test — **Maxxam Analytics**

Analysis ID:	00-4258-4347	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 11:08	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	13-5684-4477	**Test Type:**	Survival	**Analyst:**	
Start Date:	07 Oct-11 13:00	**Protocol:**	US Army (ERDC) A. bahia	**Diluent:**	Artifical Sea Water
Ending Date:	17 Oct-11 12:00	**Species:**	Americamysis bahia	**Brine:**	Not Applicable
Duration:	9d 23h	**Source:**	Aquatic Biosystems, CO	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					16.87%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
PB1		PB2	0.5262	1.86	0.1409	0.3065	Non-Significant Effect
		PB3	0.6479	1.86	0.1489	0.2676	Non-Significant Effect
		M1E	1.496	1.86	0.1713	0.0865	Non-Significant Effect
		M2E	2.778	1.86	0.1247	0.0120	Significant Effect
		M8E	0.3239	1.86	0.1418	0.3772	Non-Significant Effect
		M4E	-0.01895	1.86	0.1701	0.5073	Non-Significant Effect
		C2E	0.8317	1.86	0.1661	0.2149	Non-Significant Effect
		M1SE	4.881	1.86	0.1948	0.0006	Significant Effect
		C4E	2.42	1.86	0.1569	0.0209	Significant Effect
		C1E	3.433	1.86	0.2013	0.0045	Significant Effect
		MINW	1.011	1.86	0.2081	0.1708	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	1.367349	0.1243045	11	6.208	<0.0001	Significant Effect
Error	0.9611266	0.02002347	48			
Total	2.328476	0.1443279	59			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	11.52	24.72	0.4009	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9611		0.0533	Normal Distribution

2012Jan09 Analyst: HGV QA: LS 20120118

Americamysis bahia 10-d Static Acute Sediment Test — Maxxam Analytics

Analysis ID:	00-4258-4347	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 11:08	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
PB1	5	0.88	0.8482	0.9118	0.8	1	0.03742	0.08367	9.51%	0.0%
PB2	5	0.86	0.8392	0.8808	0.8	0.95	0.02449	0.05477	6.37%	2.27%
PB3	5	0.85	0.8231	0.8769	0.75	0.95	0.03162	0.07071	8.32%	3.41%
M1E	5	0.78	0.7406	0.8194	0.7	0.95	0.04637	0.1037	13.29%	11.36%
M2E	5	0.75	0.7366	0.7634	0.7	0.8	0.01581	0.03536	4.71%	14.77%
M8E	5	0.87	0.8483	0.8917	0.8	0.95	0.0255	0.05701	6.55%	1.14%
M4E	5	0.88	0.8406	0.9194	0.7	0.95	0.04637	0.1037	11.78%	0.0%
C2E	5	0.83	0.7929	0.8671	0.7	0.95	0.04359	0.09747	11.74%	5.68%
M1SE	5	0.44	0.3722	0.5078	0.25	0.7	0.07969	0.1782	40.5%	50.0%
C4E	5	0.73	0.6883	0.7717	0.55	0.85	0.04899	0.1095	15.01%	17.05%
C1E	5	0.57	0.502	0.638	0.35	0.85	0.08	0.1789	31.38%	35.23%
MINW	5	0.79	0.739	0.841	0.7	1	0.06	0.1342	16.98%	10.23%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
PB1	5	1.234	1.179	1.289	1.107	1.459	0.06448	0.1442	11.68%	0.0%
PB2	5	1.194	1.16	1.228	1.107	1.345	0.03984	0.08908	7.46%	3.23%
PB3	5	1.182	1.142	1.223	1.047	1.345	0.04747	0.1061	8.98%	4.2%
M1E	5	1.096	1.04	1.152	0.9912	1.345	0.06581	0.1472	13.42%	11.17%
M2E	5	1.048	1.032	1.064	0.9912	1.107	0.01835	0.04102	3.92%	15.09%
M8E	5	1.21	1.175	1.244	1.107	1.345	0.0407	0.091	7.52%	2.0%
M4E	5	1.236	1.181	1.291	0.9912	1.345	0.06487	0.1451	11.74%	-0.14%
C2E	5	1.16	1.107	1.213	0.9912	1.345	0.06179	0.1382	11.91%	6.02%
M1SE	5	0.723	0.6528	0.7932	0.5236	0.9912	0.08254	0.1846	25.53%	41.42%
C4E	5	1.03	0.9838	1.076	0.8355	1.173	0.05441	0.1217	11.81%	16.54%
C1E	5	0.8625	0.7885	0.9365	0.6331	1.173	0.08698	0.1945	22.55%	30.12%
MINW	5	1.121	1.043	1.199	0.9912	1.459	0.09148	0.2046	18.25%	9.17%

Analyst: M.G 2012Jan09 QA: 15 2012Jan18

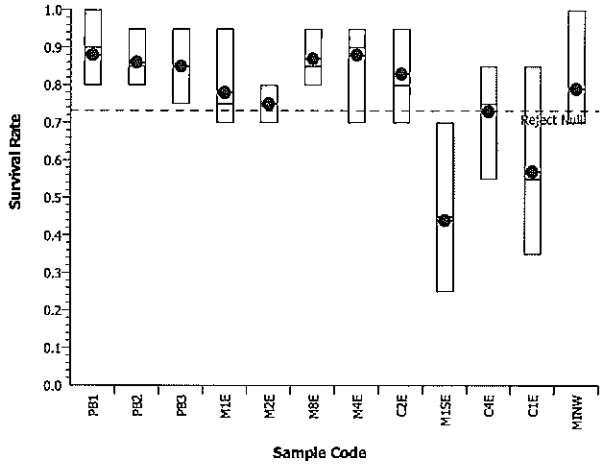
Americamysis bahia 10-d Static Acute Sediment Test — **Maxxam Analytics**

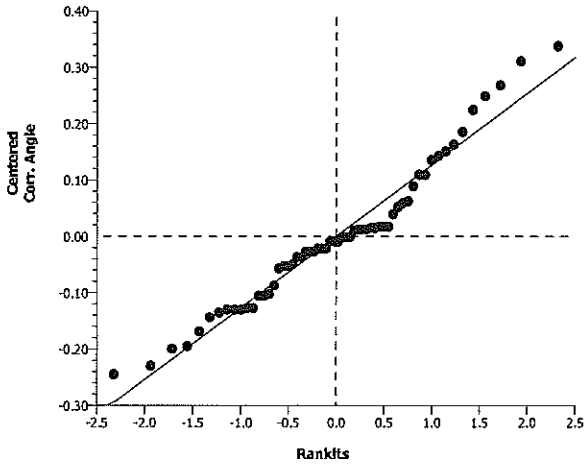
Analysis ID:	00-4258-4347	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 11:08	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
PB1	0.8	1	0.8	0.9	0.9
PB2	0.85	0.8	0.85	0.95	0.85
PB3	0.85	0.95	0.85	0.85	0.75
M1E	0.95	0.7	0.8	0.7	0.75
M2E	0.8	0.75	0.7	0.75	0.75
M8E	0.9	0.85	0.8	0.85	0.95
M4E	0.95	0.9	0.9	0.7	0.95
C2E	0.9	0.95	0.8	0.7	0.8
M1SE	0.25	0.7	0.5	0.45	0.3
C4E	0.75	0.85	0.55	0.75	0.75
C1E	0.55	0.85	0.35	0.55	0.55
MINW	0.7	0.85	0.7	0.7	1

Graphics





Analyst: M.Gj 2012Jan09 QA: CS 2012Jan18

Client # & Name: #1399 CRD Job#: B192421
Start Date: 2011 Oct 07 End Date: 2011 Oct 17

Sample ID	Client ID	Sample #	Replicate	# Surviving	Survival (%)	Mean Survival (%)	SD
Control	-	-	A	19	95	92	9
			B	20	100		
			C	17	85		
			D	16	80		
			E	20	100		
C100	M1E	BQ8687-01	A	19	95	78	10
			B	14	70		
			C	16	80		
			D	14	70		
			E	15	75		
C101	M2E	BQ8686-01	A	16	80	75	4
			B	15	75		
			C	14	70		
			D	15	75		
			E	15	75		
C102	M8E	BQ8689-01	A	18	90	87	6
			B	17	85		
			C	16	80		
			D	17	85		
			E	19	95		
C103	M4E	BQ8688-01	A	19	95	88	10
			B	18	90		
			C	18	90		
			D	14	70		
			E	19	95		
C104	C2E	BQ8694-01	A	18	90	83	10
			B	19	95		
			C	16	80		
			D	14	70		
			E	16	80		
C105	PB1	BQ8690-01	A	16	80	88	8
			B	20	100		
			C	16	80		
			D	18	90		
			E	18	90		
C106	M1SE	BQ8685-01	A	5	25	44	18
			B	14	70		
			C	10	50		
			D	9	45		
			E	6	30		
C107	PB3	BQ8692-01	A	17	85	85	7
			B	19	95		
			C	17	85		
			D	17	85		
			E	15	75		

Sample ID	Client ID	Sample #	Replicate	# Surviving	Survival (%)	Mean Survival (%)	SD
C108	C4E	BQ8695-01	A	15	75	73	11
			B	17	85		
			C	11	55		
			D	15	75		
			E	15	75		
C109	C1E	BQ8693-01	A	11	55	57	18
			B	17	85		
			C	7	35		
			D	11	55		
			E	11	55		
C110	PB2	BQ8691-01	A	17	85	86	5
			B	16	80		
			C	17	85		
			D	19	95		
			E	17	85		
C111	M1NW	BQ8684-01	A	14	70	79	13
			B	17	85		
			C	14	70		
			D	14	70		
			E	20	100		

Proofed: NS 2011 NOV 30

Maxxam Analytics

***Americamysis bahia* 10 Day Sediment Test**
Test Conditions and Survival Data

Client # & Name: 1399 CRD
Start Date & Time: 2011 Oct 07 @ 13:00
Sample Date: Various
End Date: 2011 Oct 17
Maxxam Project #: 2-11-1085
Job number: B192421
Organism Lot #: AB/11005-M
Analyst(s): W Brassil, M. Grey, L TAKAHASHI, N Morgile, CTRA, E Chen, D. Loi, M. Grey for D. Greschner
Sample ID: Control
Sample #: ~~71~~ N/A WE 2011 OCT 07 CT

	Day 0	1	2	3	4	5	6	7	8	9	10
Date	2011 Oct 07	2011 Oct 08	2011 Oct 09	2011 Oct 10	2011 Oct 11	2011 Oct 12	2011 Oct 13	2011 Oct 14	2011 Oct 15	2011 Oct 16	2011 Oct 17
Temperature(°C)	20.5	20.4	20.4	20.8	20.1	20.7	20.6	20.5	20.5	20.1	20.3
D.O. (mg/L)	7.6	7.6	7.8	7.4	7.6	7.7	7.8	7.7	7.6	7.6	7.8
pH	8.0	8.0	7.8	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.7
Salinity (‰)	29.4	30	30	30	30	30	30	30	30	30	30
Analyst	CT/LT	[initials]	[initials]	EC	CT	CT	CT	CT	MG	WB	EC

	# Alive				
Replicate	A	B	C	D	E
	19	20	17	16	20
Analyst	CT	LT	MG	LT	CT

Sample ID: C100
Sample #: BQ8687

	Day 0	1	2	3	4	5	6	7	8	9	10
Date	2011 Oct 07	2011 Oct 08	2011 Oct 09	2011 Oct 10	2011 Oct 11	2011 Oct 12	2011 Oct 13	2011 Oct 14	2011 Oct 15	2011 Oct 16	2011 Oct 17
Temperature(°C)	20.4	20.4	20.3	20.5	20.4	20.5	20.5	20.3	20.6	20.0	20.3
D.O. (mg/L)	7.6	7.7	7.8	7.4	7.5	7.6	7.6	7.6	7.5	7.6	7.6
pH	8.0	8.0	8.0	8.1	8.0	8.2	8.2	8.2	8.2	8.2	8.2
Salinity (‰)	30.1	30	30	30	31	30	30	30	30	30	30
Analyst	CT/LT	[initials]	[initials]	EC	CT	CT	CT	CT	MG	WB	EC

	# Alive				
Replicate	A	B	C	D	E
	19	14	16	14	15
Analyst	LT	CT	LT	CT	LT

Maxxam Analytics ***Americamysis bahia*** **10 Day Sediment Test** Page 2 of 7
Test Conditions and Survival Data

Sample ID: C101 **Sample #:** WS 2011 OCT 07 CT 4 BQ8686

	Day 0	1	2	3 (A)	4	5	6	7	8	9	10
Date	2011 OCT 07	2011 Oct 08	2011 Oct 09	2011 oct 10	2011 OCT 11	2011 OCT 12	2011 OCT 13	2011 OCT 14	2011 Oct 15	2011 oct 16	2011 oct 17
Temperature(°C)	20.3	20.4	20.4	20.9	20.6	20.5	20.0	20.3	20.9	20.4	20.5
D.O. (mg/L)	7.6	7.7	7.8	7.0	7.6	7.7	7.9	7.6	7.5	7.5	7.6
pH	8.0	8.0	8.0	7.8	8.0	8.2	8.2	8.2	8.2	8.2	8.3
Salinity (‰)	30.6	30	30	30	31	30	30	30	30	30	30
Analyst	CT/LT	[illegible]	[illegible]	EC	CT	CT	CT	CT	MG	[illegible]	EC

(A) Used Rep D for C101 WQ measurements.

	# Alive				
Replicate	A	B	C	D	E
WS 2011 OCT 17	19	15	14	15	15
Analyst	LT	LT	LT	CT	NS

Sample ID: C102 **Sample #:** BQ 8689

	Day 0	1	2	3	4	5	6	7	8	9	10
Date	2011 OCT 07	2011 Oct 08	2011 Oct 09	2011 oct 10	2011 OCT 11	2011 oct 12	2011 OCT 13	2011 OCT 14	2011 Oct 15	2011 oct 16	2011 oct 17
Temperature(°C)	20.2	20.3	20.2	20.7	20.4	20.5	20.0	20.5	20.7	20.4	20.4
D.O. (mg/L)	7.7	7.7	7.7	7.4	7.7	7.5	7.7	7.6	7.5	7.5	7.8
pH	8.0	8.0	7.9	8.0	8.0	8.0	8.1	8.0	8.0	8.0	8.1
Salinity (‰)	29.8	30	30	30	31	30	30	30	30	30	30
Analyst	CT/LT	[illegible]	[illegible]	EC	CT	CT	CT	CT	MG	[illegible]	EC

	# Alive				
Replicate	A	B	C	D	E
	18	17	16	17	19
Analyst	CT	CT	LT	LT	CT

Maxxam Analytics *Americiamysis bahia* **10 Day Sediment Test** **Page 3 of 7**
Test Conditions and Survival Data

WE 2011 OCT 07 CT

Sample ID: C103 **Sample #:** ~~15~~ BQ8688

	Day 0	1	2	3	4	5	6	7	8	9	10
Date	2011 OCT 07	2011 Oct 08	2011 Oct 09	2011 Oct 10	2011 OCT 11	2011 oct 12	2011 OCT 13	2011 OCT 14	2011 Oct 15	2011 oct 16	2011 ~~oct 17~~
Temperature(°C)	20.1	20.2	20.2	20.8	20.4	20.5	20.3	20.4	20.6	20.3	20.3
D.O. (mg/L)	7.6	7.6	7.8	7.5	7.6	7.7	7.8	7.7	7.5	7.6	7.7
pH	8.0	7.9	7.9	8.0	8.0	8.1	8.1	8.1	8.0	8.1	8.2
Salinity (‰)	30.1	30	30	30	30	30	30	32	30	30	30
Analyst	CT/LT			EC	CT	CT	CT	CT	MG	WB	EC

	# Alive				
Replicate	A	B	C	D	E
	19	18	18	14	19
Analyst	CT	LT	LT	LT	CT

Sample ID: C104 **Sample #:** BQ 8694

	Day 0	1	2	3	4	5	6	7	8	9	10
Date	2011 OCT 07	2011 Oct 08	WE 2011 OCT 09 WNR	2011 oct 10	2011 OCT 11	2011 oct 12	2011 OCT 13	2011 OCT 14	2011 Oct 15	2011 oct 16	2011 oct 17
Temperature(°C)	19.9	20.0	WE EC 2011 OCT 09 ~~20.8~~	20.6	20.4	20.3	20.3	20.1	20.5	20.3	20.2
D.O. (mg/L)	7.7	7.7	WE EC 2011 OCT 09 ~~7.5~~	7.3	7.6	7.6	7.7	7.8	7.6	7.5	7.5
pH	7.9	7.9	WNR	7.9	~~7.8~~ 8.0 2011 OCT 11 MG CT	7.9	8.0	8.0	8.2	8.1	8.3
Salinity (‰)	29.6	30	WNR	30	31	30	30	30	30	30	30
Analyst	CT/LT		WNR	EC	CT	CT	CT	CT	MG	WB	EC

	# Alive				
Replicate	A	B	C	D	E
	18	19	16	14	16
Analyst	CT	LT	CT	LT	LT

(A) Not recorded, due to technician error. MGray 2011 oct 18.

Maxxam Analytics

***Americiamysis bahia* 10 Day Sediment Test**
Test Conditions and Survival Data

WG 2011 OCT 07 CT

Sample ID: C105 **Sample #:** 2 BQ8690

	Day 0	1	2	3	4	5	6	7	8	9	10
Date	2011 Oct 07	2011 Oct 08	2011 Oct 09	2011 Oct 10	2011 Oct 11	2011 Oct 12	2011 Oct 13	2011 Oct 14	2011 Oct 15	2011 Oct 16	2011 Oct 17
Temperature(°C)	20.2	20.2	20.9	20.8	20.4	20.6	21.4	20.8	21.1	20.4	
D.O. (mg/L)	7.5	7.8	7.4	7.4	7.6	7.7	7.6	7.7	7.5	7.5	
pH	8.0	8.0	7.7	7.9	7.9	7.9	8.0	7.9	7.9	7.9	
Salinity (‰)	30.1	30	30	30	31	30	30	30	30	30	
Analyst	CT/LT			EC	CT	CT	CT	CT	MG	MB	

	# Alive				
Replicate	A	B	C	D	E
	16	Ⓐ 19 20	16	18	18
Analyst	LT	CT	CT	LT	LT

Ⓐ WG 2011 OCT 17 CT

Ⓑ replicate missed on day 10 MG 2011 OCT 17

Sample ID: C106 **Sample #:** BQ8685

	Day 0	1	2	3	4	5	6	7	8	9	10
Date	2011 Oct 07	2011 Oct 08	2011 Oct 09	2011 Oct 10	2011 Oct 11	2011 Oct 12	2011 Oct 13	2011 Oct 14	2011 Oct 15	2011 Oct 16	2011 Oct 17
Temperature(°C)	20.3	20.4	20.2	20.8	20.6	20.4	20.9	20.8	20.9	20.4	20.6
D.O. (mg/L)	7.6	7.7	7.3	7.4	7.5	7.6	7.5	7.5	7.5	7.5	7.7
pH	8.0	8.0	7.8	8.0	8.0	8.0	8.2	8.2	8.2	8.2	8.0
Salinity (‰)	29.9	30	30	30	31	30	30	30	30	30	30
Analyst	CT/LT			EC	CT	CT	CT	CT	MG	MB	EC

	# Alive				
Replicate	A	B	C	D	E
	5	Ⓐ 15 14	10	9	6
Analyst	CT	NS	LT	CT	LT

Ⓐ WGNS 2011 OCT 17

Maxxam Analytics — ***Amerciamysis bahia* 10 Day Sediment Test**
Test Conditions and Survival Data

Sample ID: C107 **Sample #:** ~~6t~~ BQ8692 (WS 2011 OCT 07 CT)

	Day 0	1	2	3	4	5	6	7	8	9	10
Date	2011 Oct 07	2011 Oct 08	2011 Oct 09	2011 Oct 10	2011 Oct 11	2011 Oct 12	2011 OCT 13	2011 OCT 14	2011 Oct 15	2011 Oct 16	2011 Oct 17
Temperature(°C)	20.1	20.2	20.2	20.8	20.4	20.4	20.5	20.3	20.6	20.1	20.3
D.O. (mg/L)	7.6	7.8	7.9	7.4	7.6	7.7	7.6	7.6	7.5	7.6	7.9
pH	8.0	7.9	7.8	8.0	7.9	7.9	8.0	8.0	7.9	8.0	8.0
Salinity (‰)	30.1	30	30	30	30	30	30	30	30	30	30
Analyst	CT/LT	[illegible]	[illegible]	EC	CT	CT	CT	CT	MC	[illegible]	EC

	# Alive				
Replicate	A	B	C	D	E
	17	19	17	17	15
Analyst	CT	NS	CT	LT	LT

Sample ID: C108 **Sample #:** BQ 8695

	Day 0	1	2	3	4	5	6	7	8	9	10
Date	2011 Oct 07	2011 Oct 08	2011 Oct 09	2011 Oct 10	2011 Oct 11	2011 Oct 12	2011 OCT 13	2011 OCT 14	2011 Oct 15	2011 Oct 16	2011 Oct 17
Temperature(°C)	20.2	20.3	20.0	20.9	20.5	20.5	20.5	20.8	20.8	20.2	20.4
D.O. (mg/L)	7.6	7.7	7.8	7.4	7.5	7.7	7.6	7.6	7.6	7.6	7.6
pH	8.0	7.9	7.9	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.2
Salinity (‰)	30.0	30	30	30	31	30	30	30	30	30	30
Analyst	CT/LT	[illegible]	[illegible]	EC	CT	CT	CT	CT	MC	[illegible]	EC

	# Alive				
Replicate	A	B	C	D	E
	15	17	11	15	15
Analyst	NS	CT	LT	LT	LT

Maxxam Analytics ***Americiamysis bahia*** **10 Day Sediment Test**
Test Conditions and Survival Data

Sample ID: C109 **Sample #:** BQ8693

	Day 0	1	2	3	4	5	6	7	8	9	10
Date	2011 Oct 07	2011 Oct 08	2011 Oct 09	2011 Oct 10	2011 Oct 11	2011 Oct 12	2011 Oct 13	2011 Oct 14	2011 Oct 15	2011 Oct 16	2011 Oct 17
Temperature(°C)	20.1	20.2	20.2	20.6	20.3	20.4	20.1	20.4	20.6	20.1	20.2
D.O. (mg/L)	7.4	7.6	7.5	7.4	7.4	7.6	7.9	7.4	7.5	7.6	7.5
pH	7.9	7.9	7.8	8.0	8.0	8.0	8.1	8.2	8.3	8.2	8.4
Salinity (‰)	30.1	30	30	30	30	30	30	30	30	30	30
Analyst	CT/LT	[illegible]	[illegible]	EC	CT	CT	CT	CT	MG	[illegible]	EC

	# Alive				
Replicate	A	B	C	D	E
	11	17	7	11	11
Analyst	LT	CT	NS	LT	CT

Sample ID: C110 **Sample #:** BQ8691

	Day 0	1	2	3	4	5	6	7	8	9	10
Date	2011 Oct 07	2011 Oct 08	2011 Oct 09	2011 Oct 10	2011 Oct 11	2011 Oct 12	2011 Oct 13	2011 Oct 14	2011 Oct 15	2011 Oct 16	2011 Oct 17
Temperature(°C)	20.1	20.2	20.2	20.7	20.2	20.4	20.3	20.3	20.6	20.3	20.0 (*) 20.2
D.O. (mg/L)	7.5	7.7	7.8	7.4	7.7	7.7	7.8	7.7	7.6	7.6	7.7 (*) 7.5
pH	8.0	8.0	7.9	8.0	8.0	8.0	8.1	8.0	8.0 8.0	8.0	8.1
Salinity (‰)	30.0	30	30	30	30	30	30	30	30	30	30
Analyst	CT/LT	[illegible]	[illegible]	EC	CT	CT	CT	CT	MG	[illegible]	EC

(*) WE EC 2011 Oct 17

	# Alive				
Replicate	A	B	C	D	E
	17	16	17	19	17
Analyst	NS	CT	CT	LT	NS

Maxxam Analytics ***Americiamysis bahia*** **10 Day Sediment Test**
Test Conditions and Survival Data

Sample ID: C111 **Sample #:** BQ8684

	Day 0	1	2	3	4	5	6	7	8	9	10
Date	2011 Oct 07	2011 Oct 08	2011 Oct 09	2011 Oct 10	2011 Oct 11	2011 Oct 12	2011 Oct 13	2011 Oct 14	2011 Oct 15	2011 Oct 16	2011 Oct 17
Temperature(°C)	20.1	20.2	20.4	20.6	20.4	20.2	20.2	20.2	20.4	20.1	20.0
D.O. (mg/L)	7.6	7.7	7.7	7.4	7.6	7.8	7.8	7.4	7.6	7.6	7.7
pH	8.0	8.0	7.9	8.1	8.0	8.1	8.2	8.2	8.1	8.1	8.2
Salinity (‰)	30.0	30	30	30 EC 2011 Oct 10	30	30	30	30	30	30	30
Analyst	CT/LT	AS	AS	EC	CT	CT	CT	CT	MG	MB	EC

	# Alive				
Replicate	A	B	C	D	E
	14	17	14	14	20
Analyst	CT	NS	LT	LT	CT

Sample ID: _____ **Sample #:** _____

	Day 0	1	2	3	4	5	6	7	8	9	10
Date											
Temperature(°C)											
D.O. (mg/L)											
pH											
Salinity (‰)											
Analyst											

M. Gy 2011 Oct 12

	# Alive				
Replicate	A	B	C	D	E
Analyst					

Maxxam Analytics

Mysid Acute Toxicity Test
Aeration Checks

Client # & Name: 1399 CRD

Start Date: 2011 Oct 07 @ 13:00

Sample IDs: Various

Initial when aeration is checked. If air is off record DO and note which replicate(s) in comments section.

	Day 0	1	2	3	4	5	6	7	8	9	10
Date	2011 Oct 07	2011 Oct 08	2011 Oct 09	2011 Oct 10	2011 Oct 11	2011 Oct 12	2011 Oct 13	2011 Oct 14	2011 Oct 15	2011 Oct 16	2011 Oct 17
Early AM	MG			EC (A)	CT (D)	CT (E)	CT	CT (F)		DML (G)	MG
Mid-day	MG			EC (B)	CT	CT	CT	CT		DML	
Late PM	MG			EC (C)	CT	CT	CT	MG			

Comments:

(A) C101 measure for not aerating. Replaced w/ new spider line. Readings before replacement: 7.3 mg/L DO, 20.4°C. EC 2011 Oct 10

(B) C101 Rep D not aerating. Measurements: ~~7.6 mg/L DO~~ WE EC 2011 OCT 10 before cut blocked spiderline → 7.1 mg/L DO, 20.5°C EC OCT 10 2011

(C) C105 measure not aerating since mid-day check. Cut blocked bit. Aerating fine. EC 2011 Oct 10

(D) C110 Rep A not aerating, DO = 7.8 mg/L Temp = 20°C CT 2011 Oct 11

(E) C110 Rep B not aerating. DO = 7.6 mg/L Temp = 20.6°C CT 2011 Oct 12

(F) C106 Rep B not aerating. DO = 7.4 mg/L Temp = 20.6°C CT 2011 OCT 14

C104 Measure not aerating. DO = 7.8 @ 21°C

(G) C107 Rep E not aerating. DO = 6.8 Temp = 20.8°C DML 2011 Oct 16

MG 2011 Nov 15

Maxxam Analytics **Randomization Chart for Sediment Tests**

Client Name and #: 1399 CRD
Project #: 2-11-1085
Maxxam Job #: B19242

Test Type: 10-d acute mysid
Test Species: Americamysis bahia
Test Start Date: 2011 Oct 07

Instructions: please follow the position map below when placing vessels on the test bench.

Back Wall

5	10	↑			
4	9				
3	8	13			
2	7	12			
1	6	11	→	→	→

Left Front of Counter Right

Position #	Treatment	Replicate	Colour	Position #	Treatment	Replicate	Colour
8	Control	A	Red	32	C107	A	Purple
50	Control	B	Red	14	C107	B	Purple
64	Control	C	Red	66	C107	C	Purple
36	Control	D	Red	26	C107	D	Purple
41	Control	E	Red	3	C107	E	Purple
71	Control	Measure	Red	61	C107	Measure	Purple
67	C100	A	Dk Orange	10	C108	A	Pink
68	C100	B	Dk Orange	77	C108	B	Pink
63	C100	C	Dk Orange	40	C108	C	Pink
16	C100	D	Dk Orange	23	C108	D	Pink
30	C100	E	Dk Orange	72	C108	E	Pink
78	C100	Measure	Dk Orange	11	C108	Measure	Pink
52	C101	A	Lt Orange	60	C109	A	White
43	C101	B	Lt Orange	37	C109	B	White
31	C101	C	Lt Orange	62	C109	C	White
19	C101	D	Lt Orange	46	C109	D	White
42	C101	E	Lt Orange	76	C109	E	White
4	C101	Measure	Lt Orange	18	C109	Measure	White
25	C102	A	Yellow	24	C110	A	yellow w red star
27	C102	B	Yellow	74	C110	B	yellow w red star
9	C102	C	Yellow	21	C110	C	yellow w red star
12	C102	D	Yellow	65	C110	D	yellow w red star
69	C102	E	Yellow	44	C110	E	yellow w red star
56	C102	Measure	Yellow	75	C110	Measure	yellow w red star
22	C103	A	Fl Green	54	C111	A	red w silver star
55	C103	B	Fl Green	38	C111	B	red w silver star
39	C103	C	Fl Green	53	C111	C	red w silver star
1	C103	D	Fl Green	58	C111	D	red w silver star
49	C103	E	Fl Green	59	C111	E	red w silver star
15	C103	Measure	Fl Green	73	C111	Measure	red w silver star
35	C104	A	Green				
51	C104	B	Green				
28	C104	C	Green				
6	C104	D	Green				
20	C104	E	Green				
34	C104	Measure	Green				
45	C105	A	Blue				
33	C105	B	Blue				
70	C105	C	Blue				
57	C105	D	Blue				
48	C105	E	Blue				
2	C105	Measure	Blue				
29	C106	A	Dark Blue				
47	C106	B	Dark Blue				
17	C106	C	Dark Blue				
7	C106	D	Dark Blue				
13	C106	E	Dark Blue				
5	C106	Measure	Dark Blue				

Maxxam Analytics

10 Day Static Acute Sediment Test using *Americmysis bahia*
Artemia Counts (US Army Corps of Engineers)

Customer Name and #: 1399 CRD **Start date:** 2011 Oct 07

Job #: B192421 **End date:** 2011 Oct 17

		Counts						
Day	Date	1	2	3	4	5	Average	Analyst
~~0~~	2011 oct07	44	45	48	45	49	46	NS
2	2011oct08	57	48	52	45	49	50	AY
3	2011Oct09	41	46	47	53	48	47	AY
4	2011 oct10	59	54	48	43	64	53	EC
5	2011 oct 11	52	47	46	45	49	~~48~~ 48	NS
6	2011 oct 12	47	49	59	45	46	49	EC
7	2011Oct13	60	42	38	48	44	42	CT
8	2011OCT14	52	60	43	55	58	54	CT
9	2011Oct15	47	56	51	49	58	~~52~~ 52	MS
10	2011oct16	53	53	50	47	49	50	CB

Average all 5

Day	Date	Conc. Volume (ml)	Final Volume (ml)	Amount Fed/Fish* (µl)	Analyst
~~0~~	2011oct07	50	100	~7/fish	NS
2	2011oct08	50	150	~7/fish	AY
3	2011Oct09	50	100	~7/fish	AY
4	2011 oct10	50	100	~7/fish	EC
5	2011 oct 11	50	65	~7.5/fish	NS
6	2011 OCT 12	50	100	~7/fish	EC
7	2011 Oct13	50	100	~7/fish	CT
8	2011 OCT14	50	90	~8/fish	CT
9	2011 Oct15	50	100	~8/fish	MS
10	2011oct16	50	100	~8/fish	CB

Ave = 46 x 3 (for 75ml) = 138 / 20 mysids = ~7

* in this case "fish" refers to mysid shrimp.

Instructions: First Concentrate artemia to ~ 50 ml.The target concentration is ~50 atremia per 25uL. Perform one count and dilute artemia suspension with seawater to obtain the correct concentration. Record five counts and determine the average # atremia per 25uL. Feed each test vessel 75mL of artemia suspension. (~150 artemia/ 20 mysids). Adjust the number artemia fed per vessel if mortalities occur. = ~7.5 artemia / mysid.

Maxxam Analytics **Seawater Quality Form**

Instructions:

Client # & Name: #1399 CRD

Source of Seawater: Vancouver Aquarium

Seawater Batch: 2011 Sep 20

Date Used: 2011 Sep 29

Job Number(s): B192421

Water Quality Before Use:

D.O. (mg/L): WE DML 2011 Sept 29 ~~10.0~~ 8.3

pH: 7.9

Temperature (°C): 15.5

Salinity (‰) : 31 (US)

Analyst: DML

AB111005M

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax:970/484-2514

ORGANISM HISTORY

DATE: 10/4/11

SPECIES: *Americamysis bahia* (formerly Mysidopsis)

AB 111005-M

AGE: 1 day

LIFE STAGE: Juvenile

HATCH DATE: 10/3/11

BEGAN FEEDING: Immediately

FOOD: *Artemia* sp.

Water Chemistry Record:	Mean	Range
TEMPERATURE:	25°C	23-26 °C
SALINITY/CONDUCTIVITY:	25 ppt	21-30 ppt
TOTAL HARDNESS (as $CaCO_3$):	--	--
TOTAL ALKALINITY (as $CaCO_3$):	165 mg/l	100-185 mg/l
pH:	7.95	7.20-8.32

Comments:

Facility Supervisor

Pg 1/2

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

MaxXam

Organism: Americamysis bahia (mysids)
Organism Lot #: AB111005-M
Supplier: ABS
Customer #: N/A

Arrival Date & Time: 2011 Oct 05 @ 1030
Age upon Arrival: 2 days
Ordered: 2145
Study/Project #: 2-11-1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
1	0	0	24	20.4	7.4	10.6	2ml + 2ml	NS, EC

Container ID: B1-1, B1-2, B1-3, B1-4

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
2011oct06 B1-1	0	0	25	20.6	7.0	7.1	1+1	EC, NS
2011oct06 B1-2	0	0	25	20.6	7.0	7.1	1+1	EC, NS
2011oct06 B1-3	0	0	25	20.6	7.0	7.1	1+1	EC, NS
2011oct06 B1-4	0	0	25	20.7	7.0	7.1	1+1	EC, NS

NS 2011 oct 06

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
→ Initial SeaH2O (VAN AQUA Rec'd Sept 30) pH = 7.8 sal = 28ppt	NS	2011oct05
DO = 7.5 @ 20.1 °C.	NS	2011oct05
- Rec'd organisms, split Bag 1 into 4 pans (small), checked and removed	NS, EC	2011oct05
bigger mysids. Fed 2ml [artemia]/pan @ 1100. Added ~100ml	NS, EC	2011oct05
of VAN SeaH2O @ 1138, 1331, 1600. Fed 2ml [artemia] @ 2ml.	NS	2011oct05
- Removed uneaten artemia @ 0730.	NS	2011oct06
fed 1 ml / pan [artemia] @ 917 and 1530	NS	2011oct06
- H2OΔ @ 1440, removed uneaten artemia w/ pasteur pipet, topped to VAN AQUA H2O.	NS	2011oct06
- fed 1ml [artemia]/pan @ 833. Used in Tests today.	NS	2011oct07

→

Revision: 01
Revision Date: March 25, 2010
Document Control Number: 80-F-089-01

Form approved by: Janet Pickard
Effective date: Apr 01, 2010

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

Maxxam

pg 2/2

Organism: Americamysis bahia
Organism Lot #: AB111005-m
Supplier: ABS
Customer #: N/A

Arrival Date & Time: 2011 oct 05 @ 1030
Age upon Arrival: 2 days
Ordered: 2145
Study/Project #: 2-11-1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
2	0	0	23	21.1	7.4	12.9	2ml +2ml	NS, EC

Container ID: B2-1, B2-2, B2-3

Daily Conditions During Holding/Acclimation

Date	Observations: # Dead	Observations: # Inactive	Water Quality: Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
2011oct06 B2-1	0	0	22	20.4	8.0	7.4	1+1	NS, EC
2011oct06 B2-2	0	0	27	19.9	7.9	7.4	1+1	NS, EC
2011oct06 B2-3	0	0	25	19.7	7.9	7.4	1+1	NS, EC
2011oct07 B2-1, 2, 3 → No morts, fed 1ml [artemia]/pan @ 833. mysids used in Tests.								NS (Late Entry).

NS 2011oct06

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
Initial Van Aqua (Rec'd Sept 30) data on pg 1/2.	NS, EC	2011oct05
Rec'd organisms, split Bag 2 into 3 pans (large), checked	NS, EC	2011oct05
and removed larger mysids (5). fed 2ml [artemia]/pan B2-1 & B2-3	NS	2011oct05
@ 1105 and 4ml [artemia]/pan B2-2 (more mysids).	NS, EC	2011oct05
Added ≈ 100ml of VAN AQUA Salt H2O @ 1139, 1331, 1600	NS	2011oct05
1600 fed 2ml [artemia]/pan B2-1 & B2-3 and 4ml [artemia] B2-2	NS	2011oct05
B2-2 had more mysids than B2-1 & B2-3 so transferred	NS	2011oct05
B2-2 mysids between B2-3 & B2-1.	NS	2011oct05
- Removed uneaten artemia @ 740. fed 1ml/pan [artemia] @ 917	EC, NS	2011oct06
and @ 1530. H2O Δ @ ~~1500~~ 1500, picked out uneaten artemia and topped up w/ VAN AQUA H2O.		

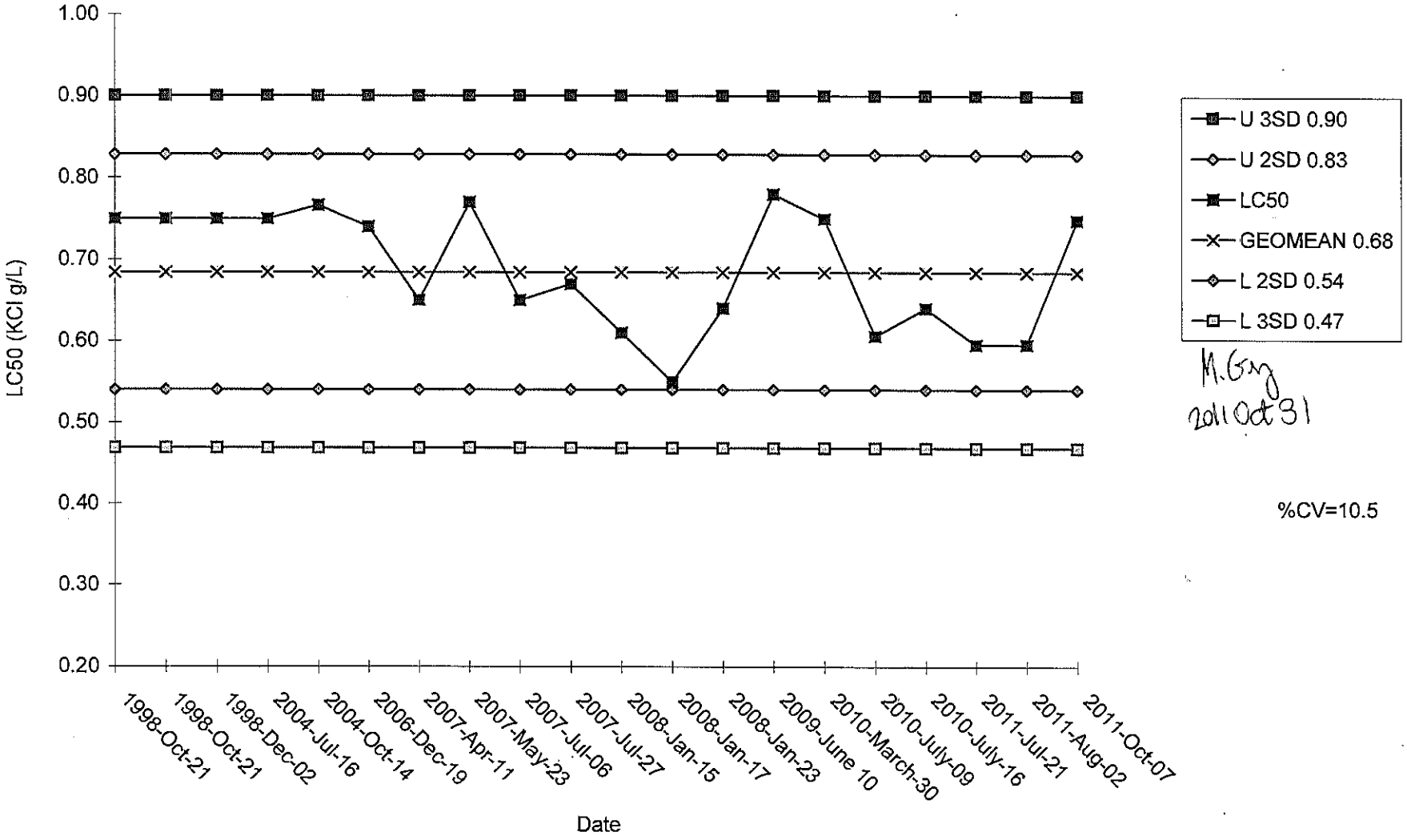
WEMS 2011oct06

Revision: 01
Revision Date: March 25, 2010
Document Control Number: 80-F-089-01

Form approved by: Janet Pickard
Effective date: Apr 01, 2010

Maxxam Analytics

48-hr *Americamysis bahia* Reference Toxicant Control Chart For KCl



M.Gng
2011 Oct 31

%CV=10.5

Maxxam Job #: B196515
Report Date: 2011/10/14

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085 CRD SEDS-MYSID

Your P.O. #: 2-11-1085

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BT6539		BT6540		BT6541		BT6542	BT6543		BT6544		BT6545	
Sampling Date		2011/10/07 11:00		2011/10/07 11:00		2011/10/07 11:00		2011/10/07 11:00	2011/10/07 11:00		2011/10/07 11:00		2011/10/07 11:00	
COC#		G047259		G047259		G047259		G047259	G047259		G047259		G047259	
	Units	**CONTROL OVERLY MYSID**	**RDL**	**C100 OVERLY MYSID**	**RDL**	**C101 OVERLY MYSID**	**RDL**	**C102 OVERLY MYSID**	**C103 OVERLY MYSID**	**RDL**	**C104 OVERLY MYSID**	**RDL**	**C105 OVERLY MYSID**	**RDL**
Nutrients														
Ammonia (N)	mg/L	0.051	0.005	2.8	0.05	2.1	0.03	1.6	1.7	0.01	2.1	0.03	0.65	0.005

Maxxam ID		BT6546		BT6547		BT6548	BT6549		BT6550		BT6551	
Sampling Date		2011/10/07 11:00		2011/10/07 11:00		2011/10/07 11:00	2011/10/07 11:00		2011/10/07 11:00		2011/10/07 11:00	
COC#		G047259		G047259		G047259	G047259		G047259		G047260	
	Units	**C106 OVERLY MYSID**	**RDL**	**C107 OVERLY MYSID**	**RDL**	**C108 OVERLY MYSID**	**C109 OVERLY MYSID**	**RDL**	**C110 OVERLY MYSID**	**RDL**	**C111 OVERLY MYSID**	**RDL**
Nutrients												
Ammonia (N)	mg/L	3.8	0.05	0.55	0.005	2.7	5.6	0.05	0.99	0.005	1.9	0.03

RDL = Reportable Detection Limit

Maxxam

Success Through Science

Maxxam Job #: B199318
Report Date: 2011/10/21

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085;MYSID DAY 10

Your P.O. #: 2-11-1085

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BV5397		BV5398	BV5399		BV5400	BV5401	BV5402	BV5403	
Sampling Date		2011/10/17		2011/10/17	2011/10/17		2011/10/17	2011/10/17	2011/10/17	2011/10/17	
COC#		G047277		G047277	G047277		G047277	G047277	G047277	G047277	
	Units	**CONTROL OVERLY MYSID**	**RDL**	**C100 OVERLY MYSID**	**C101 OVERLY MYSID**	**RDL**	**C102 OVERLY MYSID**	**C103 OVERLY MYSID**	**C104 OVERLY MYSID**	**C105 OVERLY MYSID**	**RDL**
Nutrients											
Ammonia (N)	mg/L	0.19	0.005	8.5	8.9	0.1	6.7	5.7	8.1	2.7	0.05

Maxxam ID		BV5404		BV5405		BV5406	BV5407		BV5408		BV5409	
Sampling Date		2011/10/17		2011/10/17		2011/10/17	2011/10/17		2011/10/17		2011/10/17	
COC#		G047277		G047277		G047277	G047277		G047277		G047281	
	Units	**C106 OVERLY MYSID**	**RDL**	**C107 OVERLY MYSID**	**RDL**	**C108 OVERLY MYSID**	**C109 OVERLY MYSID**	**RDL**	**C110 OVERLY MYSID**	**RDL**	**C111 OVERLY MYSID**	**RDL**
Nutrients												
Ammonia (N)	mg/L	14	0.1	0.28	0.005	9.6	15	0.1	3.9	0.05	11	0.1

RDL = Reportable Detection Limit

10 DAY *EOHAUSTORIUS ESTUARIUS* SURVIVALTEST

Test Summary

Statistics

Raw Data

Supporting Test Data

Acclimation and Holding Conditions

Overlying Water Chemistry

Reference Toxicant Control Chart

10-d *Eohaustorius estuarius* Survival and Reburial Test

Data Summary

Client Name/Location	Capital Regional District/ Victoria, BC
Testing Lab/Location	Maxxam Analytics / Burnaby, BC
Sample Information	
Sample Names	M1E, M2E, M8E, M4E, C2E, PB1, M1SE, PB3, C4E, C1E, PB2, M1NW
Type of Sample	Field collected sediments
Method of Collection	See Chain of Custody form
Sample Collector	See Chain of Custody form
Sample Volume	99 L for M1E, M2E, M8E; 44L for PB1; 22L for M4E, M1SE, PB2, C2E, PB3, C4E, C1E, M1NW.
Sample Containers	4-L white food grade plastic buckets
Sample Collection Date	2011 Sep 14; 2011 Sep 15; 2011 Sep 16; 2011 Sep 19; 2011 Sep 20; 2011 Sep 21; 2011 Sep 22
Sample Temperature upon Arrival	Not recorded at sample receipt.
Date & Time of Sample Receipt	2011 Sep 28 @ 14:50
Storage Conditions	From receipt to test initiation, the samples were stored in a temperature controlled cold room at 4 $\pm$ 2°C
Sediment and Pore Water Characterisation	See Sediment Sample Descriptions sheet and analytical chemistry reports
Sample Preparation	
Homogenisation	Samples were individually mixed until homogenised at ambient laboratory temperature; if necessary, large debris and indigenous macro-organisms were removed during homogenisation (see Sediment Sample Descriptions sheet)
Date of Homogenisation	2011 Oct 13
Sediment – Physical Analyses	TOC, moisture content and grain size were measured in each sediment sample prior to toxicity test initiation. The results of the analyses are not included in this report.
Sediment Porewater – Chemical Analyses	Samples of homogenised sediment were centrifuged for 30 minutes, at 5000 rpm, to produce porewater. The porewater was then analysed for dissolved organic carbon, ammonia, sulphides, and hardness. The results are available in the Sample Information section of this report.

Test Organisms	
Species	*Eohaustorius estuarius*
Source	Amphipods sized 3-5mm, field collected from Mackenzie Beach, Tofino, BC by Seacology (North Vancouver, BC)
Date of Collection	2011 Oct 11
Method of Organism Collection	Amphipods were screened from sediment using mesh with 1mm x 1mm opening. Amphipods were removed from the sieve and counted into food grade plastic containers using a pipette. Sieved sediment was added to each container to make a sediment depth of approximately 10mm. All non-burrowing amphipods and amphipod carcasses were removed. Mortalities were assessed 22 hrs after collection. Every effort was made to remove all predators and non-target species of amphipods from the sediment used to transport the collected amphipods. See Seacology Collection Methodology sheet for more information
Age/size at Start of Test	Juveniles, 3 to 5 mm
Date of Organism Arrival	2011 Oct 12
Holding and Acclimation Conditions	See Acclimation and Holding Conditions sheets
% mortality during Holding Period	0.4 %
Average Body Length (mean ± SD)	3.2 ± 0.6 See Length Measurements sheet
Laboratory Control Sediment and Test Water	
Laboratory Control Sediment Source	Mackenzie Beach, Tofino, BC; Collected by Seacology (North Vancouver, BC)
Laboratory Control Sediment Storage	Stored in a cold room that was at 4 ± 2°C
Laboratory Control Sediment Preparation Procedure	Sediment was sieved (0.5 mm) before use with control/dilution seawater
Overlying Water	Seawater collected at the Vancouver Aquarium, from Burrard Inlet, 40-45’ deep inlet, gravity sand filter with sand mesh size 22, filtered through 5µm filter and passed through UV Sterilizer
Type and Quantity of Chemicals Added to Water	None
Pre-treatment of Overlying Water	The seawater was passed through a UV sterilizer and a 1µm filter, and was continuously aerated prior to use.
Reference Site Sediment	PB1, PB2 and PB3

Test Conditions & Facilities	
Test Method	Environment Canada (1998). Biological Test Method: Reference Method for Determining Acute Lethality of Sediment to Marine or Estuarine Amphipods, EPS 1/RM/35
Test Type / Duration	10-d whole sediment toxicity test. Static, no water renewal
Test Temperature	15°C ± 2°C. See the Test Conditions and Survival Data sheets
Light levels and photoperiod	Overhead full spectrum (fluorescent or equivalent); 500 – 1000 lux, 24 h light
Aeration	Continuous and minimal in each test vessel; checked 2-3 times daily. Compressed oil-free air delivered through microbore airline tubing
Test Start Date	2011 Oct 14
Test Completion Date	2011 Oct 24
Test Vessels	1 L glass jars with ~ 10 cm inner diameter; covered
Volume of Sediment	175 mL (~2cm depth)
Volume of Test Water	775 mL
Analysts	M. Grey, L. Takahashi, C. Tra, A. Rakhmangulova, E. Chen, D. Greschner, D. Lai, D. Lee, N. Shergill
Water Renewal	None
# Organisms / Vessel	20; randomly assigned to each test vessel
Number of Replicates	5 (plus one measurement replicate) for each sediment sample
Feeding Regime	None
Observations & Measurements	
Dissolved Oxygen Concentrations (DO) and Temperature	In overlying water, at the start and end of the test and three times/week (MWF) in the measurement beakers. See Test Conditions and Survival Data sheets
pH and Salinity	In overlying water, at the start and end of the test in the measurement jars. See Test Conditions and Survival Data sheets
Sediment Appearance During Test	See Aeration Checks and Test Observations sheets
Test Observations	Organism behaviour during the test, visible mortalities and/or abnormal behaviour was recorded on Test Observations sheet.
Survival	All live amphipods recovered from each test vessel were counted. See Amphipod Survival Summary sheet
Overlying Water – Chemical Analysis	Samples of the overlying water were analysed for Ammonia on Day 0 (start) and Day 10 (end) of the test. See chemical analysis report at the end of this section.
Anything Unusual about the Test, Deviation from Test Method, other Problems	M1SE, replicate A, was found not aerating on Day 9 of the test. The DO fell below the 50% saturation level and impacted the amphipod survival. The Measure replicate was substituted for replicate A when quantifying amphipod survival.

Results	
Endpoints	Percentage Survival. See Marine Amphipod Survival Summary sheet
Endpoint Results	**Comparison with Laboratory Control** There was a statistically significant decrease in mean survival between all test sediments and the laboratory control except for PB1 and C4E. However, only samples M1SE and C1E demonstrated a greater than 20% reduction in mean survival compared to the laboratory control. **Comparison with Reference Sediment (PB1)** There was a statistically significant decrease in mean survival between the following test sediments and reference sediment PB1: M1SE and M1NW.
Name and citation of program and methods used for calculating statistical endpoint	CETIS v1.7.0.3 – Data were tested for normality using Shapiro-Wilk's test and homogeneity of variance using Bartlett's test. Parametric methods (Equal variance t Two Sample Test) were used to determine if the differences between the sediment samples and the laboratory control were statistically significant.
Number of surviving amphipods in each test vessel	See Test Conditions and Survival Data sheet
QA/QC	
Test Validity Criteria • Mean survival in the test controls for E. estuarius must be ≥90% • Survival in each test control replicate must be ≥ 80%	• Mean survival in the control was 98% • Lowest control replicate survival was 95%
Ref Tox Test LC50 (95% CL) (mg Cd2+/L)	9.9 (7.0, 12.9)
Invalid Ref Tox Test?	No
Ref Tox Test Historic Mean and 2SD Range (mg Cd2+/L)	6.9; 2SD range: (3.4, 14.3)
Date of Ref Tox Test	2011 Oct 14
Organisms Batch and Condition of Ref Tox Test	Static 96-h water-only test. Same batch of organisms used

Eohaustorius 10-d Survival and Reburial Sediment Test — **Maxxam Analytics**

Analysis ID:	11-3770-9431	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	06 Jan-12 13:39	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	03-5796-3835	**Test Type:**	Survival-Reburial	**Analyst:**	
Start Date:	14 Oct-11 18:00	**Protocol:**	EC/EPS 1/RM/35	**Diluent:**	Natural Seawater (Van. Aquarium)
Ending Date:	24 Oct-11 12:00	**Species:**	Eohaustorius estuarius	**Brine:**	Not Applicable
Duration:	9d 18h	**Source:**	Seacology Canada	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					2.99%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
Control		PB1	1.842	1.86	0.1154	0.0514	Non-Significant Effect
		PB2	2.317	1.86	0.1405	0.0246	Significant Effect
		PB3	2.456	1.86	0.1347	0.0198	Significant Effect
		M1E	3.529	1.86	0.1057	0.0039	Significant Effect
		M2E	2.317	1.86	0.1405	0.0246	Significant Effect
		M8E	2.899	1.86	0.1259	0.0100	Significant Effect
		M4E	2.173	1.86	0.1142	0.0308	Significant Effect
		C2E	4.491	1.86	0.09615	0.0010	Significant Effect
		M1SE	3.568	1.86	0.1674	0.0037	Significant Effect
		C4E	0.3796	1.86	0.09429	0.3571	Non-Significant Effect
		C1E	2.653	1.86	0.2396	0.0146	Significant Effect
		MINW	6.666	1.86	0.06646	<0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.5883741	0.04903118	12	2.325	0.0182	Significant Effect
Error	1.096658	0.02108957	52			
Total	1.685032	0.07012074	64			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	16.58	26.22	0.1661	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9498		0.0104	Normal Distribution

2012Jan06 Analyst: M.Grey 20120118 QA: LS

Eohaustorius 10-d Survival and Reburial Sediment Test — **Maxxam Analytics**

Analysis ID: 11-3770-9431 **Endpoint:** Survival Rate **CETIS Version:** CETISv1.7.0
Analyzed: 06 Jan-12 13:39 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	0.98	0.9696	0.9904	0.95	1	0.01225	0.02739	2.8%	0.0%
PB1	5	0.92	0.8945	0.9455	0.85	1	0.03	0.06708	7.29%	6.12%
PB2	5	0.88	0.8455	0.9145	0.8	1	0.04062	0.09083	10.32%	10.2%
PB3	5	0.88	0.8455	0.9145	0.75	1	0.04062	0.09083	10.32%	10.2%
M1E	5	0.87	0.8412	0.8988	0.75	0.95	0.03391	0.07583	8.72%	11.22%
M2E	5	0.88	0.8455	0.9145	0.8	1	0.04062	0.09083	10.32%	10.2%
M8E	5	0.87	0.8412	0.8988	0.8	1	0.03391	0.07583	8.72%	11.22%
M4E	5	0.91	0.8852	0.9348	0.85	1	0.02915	0.06519	7.16%	7.14%
C2E	5	0.85	0.8267	0.8733	0.8	0.95	0.02739	0.06124	7.2%	13.27%
M1SE	5	0.77	0.7152	0.8248	0.65	0.95	0.06442	0.144	18.71%	21.43%
C4E	5	0.97	0.953	0.987	0.9	1	0.02	0.04472	4.61%	1.02%
C1E	5	0.75	0.653	0.847	0.3	0.9	0.114	0.255	33.99%	23.47%
MINW	5	0.85	0.8366	0.8634	0.8	0.9	0.01581	0.03536	4.16%	13.27%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	1.413	1.39	1.437	1.345	1.459	0.0278	0.06215	4.4%	0.0%
PB1	5	1.299	1.252	1.346	1.173	1.459	0.05546	0.124	9.55%	8.09%
PB2	5	1.238	1.179	1.298	1.107	1.459	0.07025	0.1571	12.69%	12.39%
PB3	5	1.235	1.179	1.292	1.047	1.459	0.06692	0.1496	12.11%	12.59%
M1E	5	1.213	1.171	1.255	1.047	1.345	0.04959	0.1109	9.14%	14.2%
M2E	5	1.238	1.179	1.298	1.107	1.459	0.07025	0.1571	12.69%	12.39%
M8E	5	1.217	1.165	1.27	1.107	1.459	0.06176	0.1381	11.35%	13.89%
M4E	5	1.28	1.233	1.326	1.173	1.459	0.05479	0.1225	9.57%	9.45%
C2E	5	1.181	1.144	1.218	1.107	1.345	0.0436	0.0975	8.25%	16.43%
M1SE	5	1.092	1.019	1.165	0.9377	1.345	0.08561	0.1914	17.53%	22.72%
C4E	5	1.394	1.358	1.43	1.249	1.459	0.04241	0.09482	6.8%	1.36%
C1E	5	1.072	0.9646	1.179	0.5796	1.249	0.1258	0.2813	26.25%	24.18%
MINW	5	1.175	1.156	1.194	1.107	1.249	0.02247	0.05024	4.28%	16.86%

Analyst: M. Greg 12 Jan 06 QA: LS 2012 Jan 16

Eohaustorius 10-d Survival and Reburial Sediment Test

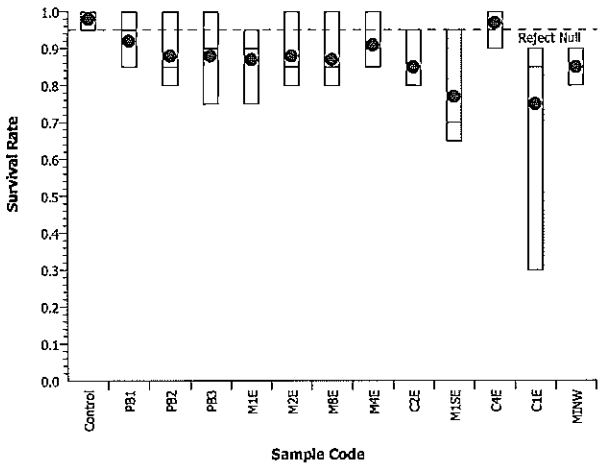
Maxxam Analytics

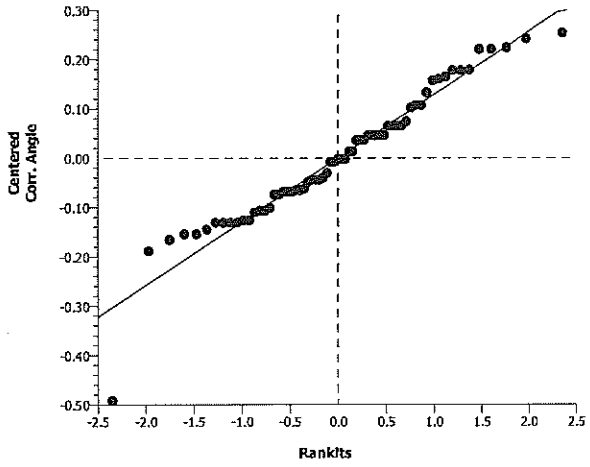
Analysis ID:	11-3770-9431	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	06 Jan-12 13:39	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	1	1	1	0.95	0.95
PB1	0.95	0.85	0.85	0.95	1
PB2	0.85	0.8	0.95	0.8	1
PB3	1	0.9	0.75	0.9	0.85
M1E	0.9	0.85	0.75	0.9	0.95
M2E	0.95	1	0.8	0.8	0.85
M8E	1	0.85	0.85	0.8	0.85
M4E	0.85	0.95	0.9	1	0.85
C2E	0.95	0.8	0.8	0.85	0.85
M1SE	0.7	0.9	0.65	0.95	0.65
C4E	0.9	0.95	1	1	1
C1E	0.9	0.9	0.8	0.85	0.3
MINW	0.85	0.8	0.85	0.85	0.9

Graphics





2012 Jan 06 Analyst: M. Gray

2012Jan18 QA: LS

Eohaustorius 10-d Survival and Reburial Sediment Test — **Maxxam Analytics**

Analysis ID:	15-9387-2524	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	06 Jan-12 13:40	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	03-5796-3835	**Test Type:**	Survival-Reburial	**Analyst:**	
Start Date:	14 Oct-11 18:00	**Protocol:**	EC/EPS 1/RM/35	**Diluent:**	Natural Seawater (Van. Aquarium)
Ending Date:	24 Oct-11 12:00	**Species:**	Eohaustorius estuarius	**Brine:**	Not Applicable
Duration:	9d 18h	**Source:**	Seacology Canada	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					6.48%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
PB1		PB2	0.6795	1.86	0.1664	0.2580	Non-Significant Effect
		PB3	0.7326	1.86	0.1616	0.2423	Non-Significant Effect
		M1E	1.161	1.86	0.1383	0.1396	Non-Significant Effect
		M2E	0.6795	1.86	0.1664	0.2580	Non-Significant Effect
		M8E	0.9886	1.86	0.1544	0.1759	Non-Significant Effect
		M4E	0.2469	1.86	0.145	0.4056	Non-Significant Effect
		C2E	1.672	1.86	0.1312	0.0665	Non-Significant Effect
		M1SE	2.028	1.86	0.1897	0.0385	Significant Effect
		C4E	-1.361	1.86	0.1298	0.8947	Non-Significant Effect
		C1E	1.655	1.86	0.2557	0.0683	Non-Significant Effect
		MINW	2.072	1.86	0.1113	0.0360	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.4150393	0.03773085	11	1.675	0.1083	Non-Significant Effect
Error	1.081205	0.02252511	48			
Total	1.496245	0.06025596	59			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	13.24	24.72	0.2777	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9493		0.0144	Normal Distribution

2012 Jan 09 2012 Jan 18
Analyst: M.Cy QA: LS

Eohaustorius 10-d Survival and Reburial Sediment Test — **Maxxam Analytics**

Analysis ID:	15-9387-2524	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	06 Jan-12 13:40	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
PB1	5	0.92	0.8945	0.9455	0.85	1	0.03	0.06708	7.29%	0.0%
PB2	5	0.88	0.8455	0.9145	0.8	1	0.04062	0.09083	10.32%	4.35%
PB3	5	0.88	0.8455	0.9145	0.75	1	0.04062	0.09083	10.32%	4.35%
M1E	5	0.87	0.8412	0.8988	0.75	0.95	0.03391	0.07583	8.72%	5.44%
M2E	5	0.88	0.8455	0.9145	0.8	1	0.04062	0.09083	10.32%	4.35%
M8E	5	0.87	0.8412	0.8988	0.8	1	0.03391	0.07583	8.72%	5.44%
M4E	5	0.91	0.8852	0.9348	0.85	1	0.02915	0.06519	7.16%	1.09%
C2E	5	0.85	0.8267	0.8733	0.8	0.95	0.02739	0.06124	7.2%	7.61%
M1SE	5	0.77	0.7152	0.8248	0.65	0.95	0.06442	0.144	18.71%	16.3%
C4E	5	0.97	0.953	0.987	0.9	1	0.02	0.04472	4.61%	-5.44%
C1E	5	0.75	0.653	0.847	0.3	0.9	0.114	0.255	33.99%	18.48%
MINW	5	0.85	0.8366	0.8634	0.8	0.9	0.01581	0.03536	4.16%	7.61%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
PB1	5	1.299	1.252	1.346	1.173	1.459	0.05546	0.124	9.55%	0.0%
PB2	5	1.238	1.179	1.298	1.107	1.459	0.07025	0.1571	12.69%	4.68%
PB3	5	1.235	1.179	1.292	1.047	1.459	0.06692	0.1496	12.11%	4.9%
M1E	5	1.213	1.171	1.255	1.047	1.345	0.04959	0.1109	9.14%	6.65%
M2E	5	1.238	1.179	1.298	1.107	1.459	0.07025	0.1571	12.69%	4.68%
M8E	5	1.217	1.165	1.27	1.107	1.459	0.06176	0.1381	11.35%	6.32%
M4E	5	1.28	1.233	1.326	1.173	1.459	0.05479	0.1225	9.57%	1.48%
C2E	5	1.181	1.144	1.218	1.107	1.345	0.0436	0.0975	8.25%	9.08%
M1SE	5	1.092	1.019	1.165	0.9377	1.345	0.08561	0.1914	17.53%	15.93%
C4E	5	1.394	1.358	1.43	1.249	1.459	0.04241	0.09482	6.8%	-7.31%
C1E	5	1.072	0.9646	1.179	0.5796	1.249	0.1258	0.2813	26.25%	17.51%
MINW	5	1.175	1.156	1.194	1.107	1.249	0.02247	0.05024	4.28%	9.55%

Analyst: M.Cy 2012 Jan 09 QA: LS 2012 Jan 16

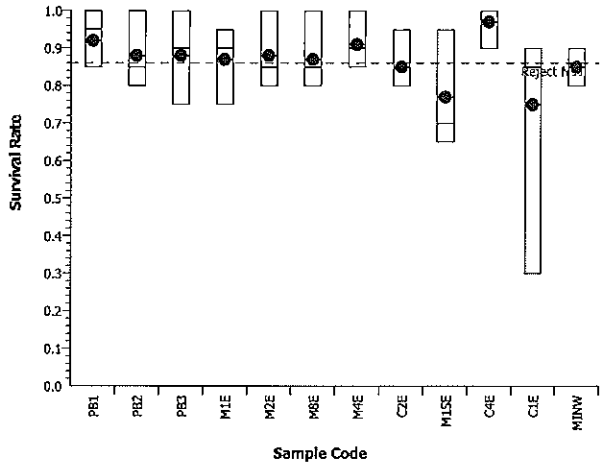
Eohaustorius 10-d Survival and Reburial Sediment Test — **Maxxam Analytics**

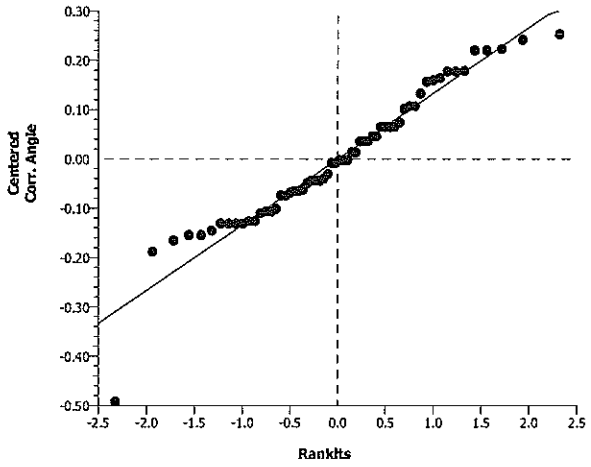
Analysis ID:	15-9387-2524	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	06 Jan-12 13:40	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
PB1	0.95	0.85	0.85	0.95	1
PB2	0.85	0.8	0.95	0.8	1
PB3	1	0.9	0.75	0.9	0.85
M1E	0.9	0.85	0.75	0.9	0.95
M2E	0.95	1	0.8	0.8	0.85
M8E	1	0.85	0.85	0.8	0.85
M4E	0.85	0.95	0.9	1	0.85
C2E	0.95	0.8	0.8	0.85	0.85
M1SE	0.7	0.9	0.65	0.95	0.65
C4E	0.9	0.95	1	1	1
C1E	0.9	0.9	0.8	0.85	0.3
MINW	0.85	0.8	0.85	0.85	0.9

Graphics





2012Jan09 2012Jan18
Analyst: M.Cy QA: LS

Client # & Name: #1399 CRD Job#: B192421

Start Date: 2011 Oct 07 End Date: 2011 Oct 17

Sample ID	Client ID	Sample #	Replicate	# Surviving	Survival (%)	Mean Survival (%)	SD
Control	-	-	A	20	100	98	3
			B	20	100		
			C	20	100		
			D	19	95		
			E	19	95		
C100	M1E	BQ8687-01	A	18	90	87	8
			B	17	85		
			C	15	75		
			D	18	90		
			E	19	95		
C101	M2E	BQ8686-01	A	19	95	88	9
			B	20	100		
			C	16	80		
			D	16	80		
			E	17	85		
C102	M8E	BQ8689-01	A	20	100	87	8
			B	17	85		
			C	17	85		
			D	16	80		
			E	17	85		
C103	M4E	BQ8688-01	A	17	85	91	7
			B	19	95		
			C	18	90		
			D	20	100		
			E	17	85		
C104	C2E	BQ8694-01	A	19	95	85	6
			B	16	80		
			C	16	80		
			D	17	85		
			E	17	85		
C105	PB1	BQ8690-01	A	19	95	92	7
			B	17	85		
			C	17	85		
			D	19	95		
			E	20	100		
C106	M1SE	BQ8685-01	A	14	70	77	14
			B	18	90		
			C	13	65		
			D	19	95		
			E	13	65		
C107	PB3	BQ8692-01	A	20	100	88	9
			B	18	90		
			C	15	75		
			D	18	90		
			E	17	85		

Sample ID	Client ID	Sample #	Replicate	# Surviving	Survival (%)	Mean Survival (%)	SD
C108	C4E	BQ8695-01	A	18	90	97	4
			B	19	95		
			C	20	100		
			D	20	100		
			E	20	100		
C109	C1E	BQ8693-01	A	18	90	75	25
			B	18	90		
			C	16	80		
			D	17	85		
			E	6	30		
C110	PB2	BQ8691-01	A	17	85	88	9
			B	16	80		
			C	19	95		
			D	16	80		
			E	20	100		
C111	M1NW	BQ8684-01	A	17	85	85	4
			B	16	80		
			C	17	85		
			D	17	85		
			E	18	90		

proofed NS 2011 NOV 30

Maxxam Analytics

Enviro. Canada Marine Amphipod 10 Day Sediment Test
Test Conditions and Survival Data

Client # & Name: 1399 CRD
Start Date & Time: 2011 Oct 14 18:00
Sample Date: Various
End Date: 2011 Oct 24
Sample Received: Sept 28, 2011
Species: Eohaustorius estuarius
Maxxam Project #: 2-11-1085
Organism Lot #: SE111012EE
Job #: 1982921
Analyst(s): M.Gray, Danny Lee [illegible], CTRA, Ethan [illegible], A.Rakhmangulova
Sample ID: ~~C100~~ Control WG 2011 OCT 14 CT M.Grey for D.Greschner
Sample #: N/A

	Day 0	3	5	7	10
Day	Friday	Monday	Wednesday	Friday	Monday
Date	2011 OCT 14	2011 Oct 17	2011 Oct 19	2011 Oct 21	2011 OCT 24
Temperature(°C)	14.3	14.1	14.8	14.8	14.6
D.O. (mg/L)	8.2	8.8	8.3	8.8	8.5
pH	7.7				7.8
Salinity (‰)	29				29
Analyst	CT	EC	[illegible]	EC	MG / CT

	# Alive				
Replicate	A	B	C	D	E
	20	20	20	19	~~19~~ 18 (A) MG 2011 Oct 24
Analyst	CT	CT	CT	MG	MG

(A) are dead found MG 2011 Oct 24

Ammonia Sample (mg/L)

Initial ✓	✓ Final
0.036	0.050

Sample ID: C100
Sample #: BQ8687-01

	Day 0	3	5	7	10
Day	Friday	Monday	Wednesday	Friday	Monday
Date	2011 OCT 14	2011 Oct 17	2011 Oct 19	2011 Oct 21	2011 OCT 24
Temperature(°C)	14.3	14.2	14.5	14.8	14.3
D.O. (mg/L)	8.2	8.3	8.4	8.8	8.5
pH	7.9				8.2
Salinity (‰)	30				30
Analyst	CT	EC	[illegible]	EC	MG / CT

	# Alive				
Replicate	A	B	C	D	E
	18	17	15	18	19 (B)
Analyst	CT	CT	CT	CT	CT

(B) ONE dead found 2011 OCT 24 CT

Ammonia Sample (mg/L)

Initial ✓	✓ Final
2.5	7.1

FORM:1603F5V1

Enviro. Canada Marine Amphipod 10 Day Sediment Test
Test Conditions and Survival Data

Sample ID: C101 **Sample #:** B28686-01

	Day 0	3	5	7	10
Day	Friday	Monday	Wednesday	Friday	Monday
Date	2011 OCT 14	2011 Oct 17	2011 Oct 19	2011 Oct 21	2011 OCT 24
Temperature(°C)	14.2	14.3	14.3	14.6	14.4
D.O. (mg/L)	8.3	8.3	8.4	8.7	8.6
pH	7.9				8.2
Salinity (‰)	30				30
Analyst	CT	EC	dc	EC	MF/ CT

	# Alive				
Replicate	A	B	C	D	E
	19	20	16	16	17
Analyst	CT	NS	CT	CT	MG

Ammonia Sample (mg/L)

Initial ✓	✓ Final
2.7	7.5

Sample ID: C102 **Sample #:** B28688-01

well 6 2010053

	Day 0	3	5	7	10
Day	Friday	Monday	Wednesday	Friday	Monday
Date	2011 OCT 14	2011 Oct 17	2011 Oct 19	2011 Oct 21	2011 OCT 24
Temperature(°C)	13.8	14.3	14.1	14.8	14.3
D.O. (mg/L)	8.6	8.3	8.5	8.4	8.6
pH	7.9				8.1
Salinity (‰)	30				30
Analyst	CT	EC	dc	EC	MF/ CT

	# Alive				
Replicate	A	B	C	D	E
	20	17	17	16	17
Analyst	CT	NS	CT	NS	CT

Ammonia Sample (mg/L)

Initial ✓	✓ Final
2.0	6.1

Enviro. Canada Marine Amphipod 10 Day Sediment Test
Test Conditions and Survival Data

Sample ID: C103 **Sample #:** B28688-01

	Day 0	3	5	7	10
Day	Friday	Monday	Wednesday	Friday	Monday
Date	2011 OCT 14	2011 Oct 17	2011 Oct 19	2011 Oct 21	2011 OCT 24
Temperature(°C)	14.2	14.4	14.1	14.9	14.3
D.O. (mg/L)	8.6	8.2	8.5	8.5	8.6
pH	7.9				8.1
Salinity (‰)	29				30
Analyst	CT	EC	[illegible]	EC	MG / CT

	# Alive				
Replicate	A	B	C	D	E
	17	19	18	20	17
Analyst	CT	CT	NS	NS	CT

Ammonia Sample (mg/L)

Initial	Final
1.7	4.7

Sample ID: C104 **Sample #:** B28694-01

	Day 0	3	5	7	10
Day	Friday	Monday	Wednesday	Friday	Monday
Date	2011 OCT 14	2011 Oct 17	2011 Oct 19	2011 Oct 21	2011 OCT 24
Temperature(°C)	14.2	14.3	14.1	14.8	14.3
D.O. (mg/L)	8.3	8.3	8.5	8.4	8.6
pH	7.8				8.1
Salinity (‰)	29				30
Analyst	CT	EC	[illegible]	EC	MG / CT

	# Alive				
Replicate	A	B	C	D	E
	19	16	16	17	17
Analyst	A NS	CT	AR	AR	CT

We NS 2011 Oct 24

Ammonia Sample (mg/L)

Initial	Final
2.3	5.7

Enviro. Canada Marine Amphipod 10 Day Sediment Test
Test Conditions and Survival Data

Sample ID: C105 **Sample #:** BQ8690-01

	Day 0	3	5	7	10
Day	Friday	Monday	Wednesday	Friday	Monday
Date	2011 OCT 14	2011 Oct 17	2011 Oct 19	2011 Oct 21	2011 OCT 24
Temperature(°C)	14.3	14.3	14.1	14.5	14.3
D.O. (mg/L)	8.3	8.2	8.4	8.7	8.6
pH	7.8				8.0
Salinity (‰)	29				30
Analyst	CT	EC	dr	EC	MG/CT

	# Alive				
Replicate	A	B	C	D	E
	19	17	17	19	20
Analyst	AR	CT	AR	CT	NS

Ammonia Sample (mg/L)

✓ Initial	✓ Final
0.85	2.3

Sample ID: C106 **Sample #:** BQ8685-01

	Day 0	3	5	7	10
Day	Friday	Monday	Wednesday	Friday	Monday
Date	2011 OCT 14	2011 Oct 17	2011 Oct 19	2011 Oct 21	2011 OCT 24
Temperature(°C)	14.4	14.4	14.2	14.8	14.3
D.O. (mg/L)	8.2	8.2	8.5	8.7	8.5
pH	7.9				8.2
Salinity (‰)	29				30
Analyst	CT	EC	dr	EC	MG/CT

	# Alive				
Replicate	A	B	C	D	E
	* 14	18	13	19	13
Analyst	NS	AR	CT	AR	NS

*use replicate beaker - DO gradient in actual Rep A. (NS)

Ammonia Sample (mg/L)

✓ Initial	✓ Final
4.2	9.8

Enviro. Canada Marine Amphipod 10 Day Sediment Test
Test Conditions and Survival Data

Sample ID: C107 **Sample #:** B028692-01

	Day 0	3	5	7	10
Day	Friday	Monday	Wednesday	Friday	Monday
Date	2011 OCT 14	2011 OCT 17	2011 OCT 19	2011 OCT 21	2011 OCT 24
Temperature(°C)	14.3	14.5	14.1	~~15.0~~ 14.7	14.3
D.O. (mg/L)	8.3	8.1	8.5	8.7	8.6
pH	7.9				8.0
Salinity (‰)	30				30
Analyst	CT	EC	AR	EC	MG/CT

	# Alive				
Replicate	A	B	C	D	E
	20	18	15	18	17
Analyst	CT	AR	CT	CT	AR

*WEEC 2011 OCT 21

Ammonia Sample (mg/L)

✓ Initial	✓ Final
0.67	2.1

Sample ID: C108 **Sample #:** B028695

	Day 0	3	5	7	10
Day	Friday	Monday	Wednesday	Friday	Monday
Date	2011 OCT 14	2011 OCT 17	2011 OCT 19	2011 OCT 21	2011 OCT 24
Temperature(°C)	14.1	14.4	14.0	14.7	14.1
D.O. (mg/L)	8.2	8.2	8.5	8.4	8.5
pH	7.9				8.2
Salinity (‰)	29				30
Analyst	CT	EC	AR	EC	MG/CT

	# Alive				
Replicate	A	B	C	D	E
	18	19	20	20	20
Analyst	CT	CT	AR	CT	AR

Ammonia Sample (mg/L)

✓ Initial	✓ Final
3.1	7.8

Enviro. Canada Marine Amphipod 10 Day Sediment Test
Test Conditions and Survival Data

Sample ID: C109 **Sample #:** B28693-01

	Day 0	3	5	7	10
Day	Friday	Monday	Wednesday	Friday	Monday
Date	2011 OCT 14	2011 Oct 17	2011 Oct 19	2011 Oct 21	2011 OCT 24
Temperature(°C)	14.2	14.4	13.9	14.9	14.5
D.O. (mg/L)	8.2	8.2	8.3	8.4	8.6
pH	7.9				8.2
Salinity (‰)	29				30
Analyst	CT	EC	LT	EC	MG/CT

	# Alive				
Replicate	A	B	C	D	E
	18	18	16	17	6
Analyst	MR	EC	LT	LT	CT

Ammonia Sample (mg/L)

✓ Initial	✓ Final
6.0	14

Sample ID: C110 **Sample #:** B28691-01

	Day 0	3	5	7	10
Day	Friday	Monday	Wednesday	Friday	Monday
Date	2011 OCT 14	2011 Oct 17	2011 Oct 19	2011 Oct 21	2011 OCT 24
Temperature(°C)	14.1	14.5	14.1	14.7	14.4
D.O. (mg/L)	8.3	8.2	8.4	8.7	8.5
pH	7.9				8.1
Salinity (‰)	30				30
Analyst	CT	EC	LT	EC	MG/CT

	# Alive				
Replicate	A	B	C	D	E
	17	16	19	16	20
Analyst	LT	LT	CT	CT	EC

Ammonia Sample (mg/L)

✓ Initial	✓ Final
Nov 16, 2011 3.4	3.9

1.2

Enviro. Canada Marine Amphipod 10 Day Sediment Test
Test Conditions and Survival Data

Sample ID: C111 **Sample #:** B08684-01

	Day 0	3	5	7	10
Day	Friday	Monday	Wednesday	Friday	Monday
Date	2011 OCT 14	2011 OCT 17	2011 Oct 19	2011 Oct 21	2011 OCT 24
Temperature(°C)	14.2	14.4	14.0	14.6	14.5
D.O. (mg/L)	8.3	8.3	8.5	8.9	8.5
pH	7.9				8.2
Salinity (‰)	29				30
Analyst	CT	EC	LT	EC	MS/ CT

	# Alive				
Replicate	A	B	C	D	E
	17	16	17	17	18
Analyst	CT	LT	LT	EC	CT

Ammonia Sample (mg/L)

Initial	Final
2.4	4.9

Sample ID: **Sample #:**

	Day 0	3	5	7	10
Day	Friday	Monday	Wednesday	Friday	Monday
Date					
Temperature(°C)					
D.O. (mg/L)					
pH					
Salinity (‰)					
Analyst					

	# Alive				
Replicate	A	B	C	D	E
Analyst					

Ammonia Sample (mg/L)

Initial	Final

Maxxam Analytics

Marine Amphipod 10 Day Acute Survival Sediment Test
Aeration Checks

WE LT 13 Oct 2011

Client # & Name: 1399 CRD

Start Date & Time: 2011 Oct 14 @ ~~1645~~

Initial when aeration is checked. If air is off record DO and note which replicate(s) in comments section.

Day	-1	0	1	2	3	4	5	6	7	8	9	10
Date	2011 Oct 13	2011 Oct 14	2011 Oct 15	2011 Oct 16	2011 Oct 17	2011 Oct 18	2011 Oct 19	2011 Oct 20	2011 OCT 21	2011 Oct 22	2011 Oct 23	2011 Oct 24
Early AM		MG		DML	EC	MG		EC	CT		EC (*)	LT
Mid-day		MG		DML	EC	MG		EC	EC		EC	
Late PM	✓ LT	EC		DML	EC	MG		LT	CT		EC	MG 2011 Oct 24

Comments:

Aeration done @ 1645 on October 13 2011 LT 13 Oct 2011

C104, C106, C109 showed amphipods avoiding sediment EC 2011 oct 14

2011 Oct 18 - some mold growing on surface of C109. Dead amphipod visible on surface of C106 - measure + C109 - repB MG

2011 Oct 18 - All amphipods burried in sediment. MG

2011 oct 20 - amphipod near surface of C106 measure beaker (alive) EC

- C109 Rep A low aeration rate DO = 7.7 (90+ sat %), T = 15.3°C ; unblocked now EC

2011 oct 21 - C109 showed Eohs emerged in water column (Rep B) EC

(*) 2011 Oct 23 - C106 Rep A was not aerating → all Eohs dead on sed surface DO = 4.8 mg/L ; T = 14.4°C EC

→ many, not all Eohs, one is upside down & burrowing & still kicking legs

M. Gay 2011 Nov 11

Maxxam Analytics

Marine Amphipod
10 Day Acute Survival Sediment Test

Instructions: Add 175 mL sediment to each test vessel.
Add 900 mL control seawater to each test vessel by pouring the seawater over a diffuser held just above the water level. Use a separate diffuser for each sediment.
Randomize the test vessels, add a lid, insert airline

Client # & Name: 1399 CRD

Source of Seawater: Vancouver Aquarium

Seawater Batch: 2011 Sept 30

Date Used: 2011 Oct 13

Sample IDs: Various

Water Quality Before Use:

D.O. (mg/L): 8.5 pH: 7.8

Temperature (°C): 15.4 Salinity (‰): 30

Analyst: MG

Maxxam Analytics **Randomization Chart for Sediment Tests**

Client Name and #: 1399 CRD
Project #: 2-11-1085
Maxxam Job #: B192421

Test Type: 10-d Amphipod Test
Test Species: Eohaustorius estuarius
Test Start Date: 2011 Oct 14

Instructions: please follow the position map below when placing vessels on the test bench.

Back Wall

5	10	↑			
4	9				
3	8	13			
2	7	12			
1	6	11	→	→	→

Left — Front of Counter — Right

Position #	Treatment	Replicate	Colour	Position #	Treatment	Replicate	Colour
75	Control	A	Red	44	C107	A	Purple
3	Control	B	Red	42	C107	B	Purple
16	Control	C	Red	64	C107	C	Purple
21	Control	D	Red	23	C107	D	Purple
15	Control	E	Red	17	C107	E	Purple
13	Control	Measure	Red	7	C107	Measure	Purple
10	C100	A	Dk Orange	58	C108	A	Pink
72	C100	B	Dk Orange	50	C108	B	Pink
32	C100	C	Dk Orange	55	C108	C	Pink
52	C100	D	Dk Orange	20	C108	D	Pink
54	C100	E	Dk Orange	33	C108	E	Pink
60	C100	Measure	Dk Orange	78	C108	Measure	Pink
57	C101	A	Lt Orange	63	C109	A	White
59	C101	B	Lt Orange	61	C109	B	White
28	C101	C	Lt Orange	73	C109	C	White
12	C101	D	Lt Orange	41	C109	D	White
14	C101	E	Lt Orange	27	C109	E	White
18	C101	Measure	Lt Orange	8	C109	Measure	White
51	C102	A	Yellow	39	C110	A	yellow w red star
74	C102	B	Yellow	66	C110	B	yellow w red star
69	C102	C	Yellow	31	C110	C	yellow w red star
35	C102	D	Yellow	68	C110	D	yellow w red star
38	C102	E	Yellow	11	C110	E	yellow w red star
62	C102	Measure	Yellow	26	C110	Measure	yellow w red star
67	C103	A	Fl Green	9	C111	A	red w silver star
56	C103	B	Fl Green	22	C111	B	red w silver star
71	C103	C	Fl Green	49	C111	C	red w silver star
40	C103	D	Fl Green	47	C111	D	red w silver star
4	C103	E	Fl Green	70	C111	E	red w silver star
25	C103	Measure	Fl Green	19	C111	Measure	red w silver star
29	C104	A	Green				
77	C104	B	Green				
5	C104	C	Green				
1	C104	D	Green				
43	C104	E	Green				
30	C104	Measure	Green				
48	C105	A	Blue				
53	C105	B	Blue				
37	C105	C	Blue				
46	C105	D	Blue				
2	C105	E	Blue				
45	C105	Measure	Blue				
34	C106	A	Dark Blue				
65	C106	B	Dark Blue				
24	C106	C	Dark Blue				
36	C106	D	Dark Blue				
76	C106	E	Dark Blue				
6	C106	Measure	Dark Blue				

Maxxam Analytics

Marine Amphipod 10 Day Acute Survival Sediment Test
Length Measurements

Client # & Name: 1399 CRD

Species: *Eohaustorius estuarius*

Start Date: 2011 Oct 14

Organism Lot #: SE111012EE

Sample IDs: Various

Job #: B192421

Lengths at Beginning of Test

Marine Amphipod #	Length (mm)
1	3.0
2	2.0
3	4.0
4	3.5
5	3.5
6	2.5
7	2.0
8	3.5
9	2.5
10	4.0
11	3.0
12	3.5
13	3.5
14	2.5
15	3.0
16	4.0
17	3.5
18	3.0
19	3.0
20	3.5
Average	3.2
SD	0.6
Analyst	MG

proofed NS 2011 NOV 30

Average must be 3-5 mm (Environment Canada 1992, ASTM 2003, PSEP 1995)

Maxxam

Marine Amphipod 10 Day Acute Survival Sediment Test
Length Measurements

Client # & Name: 1399 CRD

Species: *Eohaustorius estuarius*

Start Date: 2011 Oct 14

Organism Lot #: SE111012EE

Sample IDs: Various

Job #: B192421

Lengths at Beginning of Test

Marine Amphipod #	Length (mm)
1	3.0
2	2.0
3	4.0
4	3.5
5	3.5
6	2.5
7	2.0
8	3.5
9	2.5
10	4.0
11	3.0
12	3.5
13	3.5
14	2.5
15	3.0
16	4.0
17	3.5
18	3.0
19	3.0
20	3.5
Average	#DIV/0!
SD	#DIV/0!
Analyst	MG

Average must be 3-5 mm (Environment Canada 1992, ASTM 2003, PSEP 1995)

SE111012

SEACOLOGY

Marine Life Supply — A Commitment to Excellence in the Supply of Temperate Marine Biota

Hello Janet,

Here is a summary of the collection activities for the *Eohaustarius estuarius* delivered 12 Oct 2011.

Amphipods were collected from Mackenzie Beach, Tofino B.C. Mackenzie Beach is located near Tofino, BC on the west coast of Vancouver Island (Lat. 49° 8' 01"Long. 125° 54' 20").

Amphipods were collect 11 Oct 2011

Amphipods collected per container = 110 amphipods

Total number collected = 20 containers x 110 amphipods/container = 2200 amphipods

Complete a water change and remove all dead amphipods 12:00 PDT, 12 Oct 2011

Total dead amphipods removed from all containers = 14

Total Number of amphipods = 2200 amphipods - 14 amphipods = 2186 amphipods

Amphipods/container to Maxxam = 2186 Amphipods / 20 Container = 109 amphipods/container

Total Number of Containers delivered to Maxxam 19

Total Amphipods delivered to Maxxam = 19 container x 109 amphipods/container = 2071 amphipods

Salinity of water in containers = 27 ppt

Temperature of containers = 14 C.

Deliver amphipods to Maxxam 12 Oct 2011

Amphipods were screened from sediment using mesh with 1mm x 1mm opening. Amphipods were removed from the sieve and counted into food grade plastic containers using a pipette. Sieved sediment was added to each container to make a sediment depth of approximately 10mm. All non burrowing amphipods and amphipod carcasses were removed immediately. Total dead amphipods were counted 18 hours after collection.

All predators and non target species of amphipods were removed immediately when observed in containers prior to addition of sand sediment used to transport the collected amphipods. All sand and salt water used to sieve and ship amphipods was sieved using a 1 mm x 1mm mesh opening.

Storm conditions prevailed at the collection site during collection. Wave action resulted in frequent redistribution of sediments at the collection site. Predatory amphipods were more numerous than usual in these disturbed conditions. This included small sized predatory amphipods that were able to pass through the 1mm mesh opening of the sieve normally used to filter control sediments and sediments used to transport *E. estuarius*.

Thank you for using the supplies and services of Seacology,
Douglas Swanston
Seacology

SEACOLOGY - 3025 Sunnyhurst Rd. North Vancouver B.C. Canada V7K 2G4 Tel/ Fax:: (604) 987 - 4675 Email: seacology@telus.net Website: http://www3.telus.net/seacology

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

MaxXam

Organism: Eohaustorius estuarius
Organism Lot #: SE111012EE
Supplier: Seacology
Customer #: 1399 CRD

Arrival Date & Time: 2011 Oct 12 @ 14:30
Age upon Arrival: adult
Ordered: 207 1
Study/Project # : 211-1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
n/a	1	1	24	14.9	7.5	7.9	n/a	EC/MG

Container ID: Tank A + Tank B

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
13 Oct 2011 Tank A	6		44.5	17.7	7.7	~~7.4~~ 7.15	WE LT 2011 OCT 13	LT
13 Oct 2011 Tank B	2		45.1	16.4	7.8	8.07		LT

M.G 2011 NOV 08

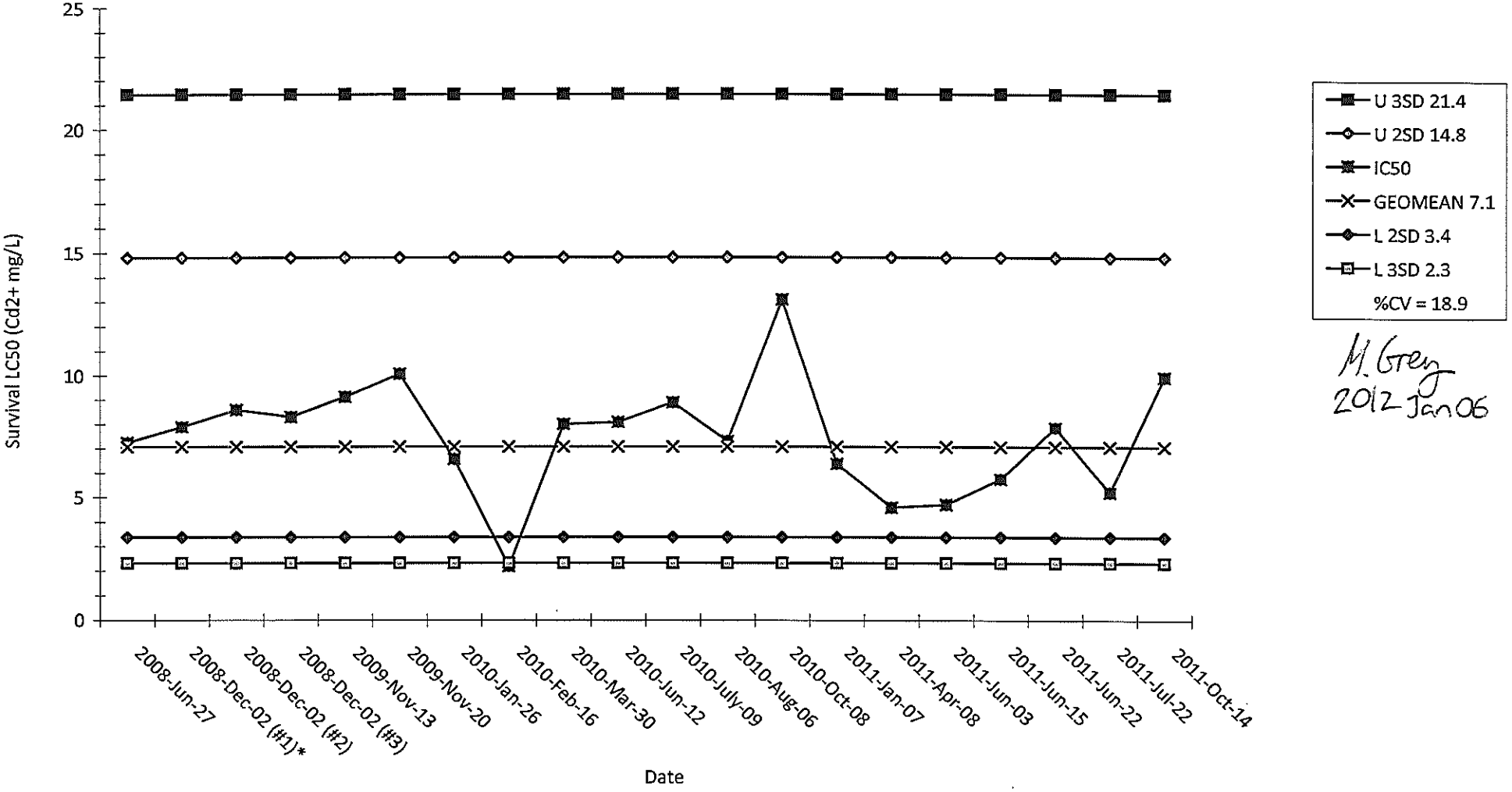
Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date

M.G 2011 Nov 08

Maxxam Analytics

Eohaustorius estuarius

96-hr Water-Only Reference Toxicant Control Chart using $Cadmium^{2+}$



M. Grey
2012 Jan 06

Maxxam

Success Through Science

Maxxam Job #: B199298
Report Date: 2011/10/21

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085 EOHS DAY O

Sampler Initials: CT

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BV5315		BV5316	BV5317		BV5318		BV5319		BV5320		BV5321	
Sampling Date		2011/10/14		2011/10/14	2011/10/14		2011/10/14		2011/10/14		2011/10/14		2011/10/14	
COC#		G047279		G047279	G047279		G047279		G047279		G047279		G047279	
	Units	**CONTROL OVERLY E0HS**	**RDL**	**C100 OVERLY E0HS**	**C101 OVERLY E0HS**	**RDL**	**C102 OVERLY E0HS**	**RDL**	**C103 OVERLY E0HS**	**RDL**	**C104 OVERLY E0HS**	**RDL**	**C105 OVERLY E0HS**	**RDL**
Nutrients														
Ammonia (N)	mg/L	0.036	0.005	2.5	2.7	0.05	2.0	0.03	1.7	0.01	2.3	0.03	0.85	0.005

Maxxam ID		BV5322		BV5323		BV5324	BV5325		BV5326		BV5337	
Sampling Date		2011/10/14		2011/10/14		2011/10/14	2011/10/14		2011/10/14		2011/10/14	
COC#		G047279		G047279		G047279	G047279		G047279		G047282	
	Units	**C106 OVERLY E0HS**	**RDL**	**C107 OVERLY E0HS**	**RDL**	**C108 OVERLY E0HS**	**C109 OVERLY E0HS**	**RDL**	**C110 OVERLY E0HS**	**RDL**	**C111 OVERLY E0HS**	**RDL**
Nutrients												
Ammonia (N)	mg/L	4.2	0.05	0.67	0.005	3.1	6.0	0.05	1.2	0.01	2.4	0.03

RDL = Reportable Detection Limit

Maxxam Job #: B1A2834
Report Date: 2011/10/31

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085;10-D EOHS

Your P.O. #: 2-11-1085

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BX7723		BX7724	BX7725	BX7726	BX7727	BX7728		BX7729	
Sampling Date		2011/10/24 10:00		2011/10/24 10:00	2011/10/24 10:00	2011/10/24 10:00	2011/10/24 10:00	2011/10/24 10:00		2011/10/24 10:00	
COC#		G032320		G032320	G032320	G032320	G032320	G032320		G032320	
	Units	**CONTROL OVERLY EOHS**	**RDL**	**C100 OVERLY EOHS**	**C101 OVERLY EOHS**	**C102 OVERLY EOHS**	**C103 OVERLY EOHS**	**C104 OVERLY EOHS**	**RDL**	**C105 OVERLY EOHS**	**RDL**
Nutrients											
Ammonia (N)	mg/L	0.050	0.005	7.1	7.5	5.1	4.7	5.7	0.05	2.3	0.03

Maxxam ID		BX7730	BX7731	BX7732		BX7733		BX7734		BX7735	
Sampling Date		2011/10/24 10:00	2011/10/24 10:00	2011/10/24 10:00		2011/10/24 10:00		2011/10/24 10:00		2011/10/24 10:00	
COC#		G032320	G032320	G032320		G032320		G032321		G032321	
	Units	**C106 OVERLY EOHS**	**C107 OVERLY EOHS**	**C108 OVERLY EOHS**	**RDL**	**C109 OVERLY EOHS**	**RDL**	**C110 OVERLY EOHS**	**RDL**	**C111 OVERLY EOHS**	**RDL**
Nutrients											
Ammonia (N)	mg/L	9.8	2.1	7.8	0.05	14	0.1	3.4	0.05	4.9	0.1

RDL = Reportable Detection Limit

20 DAY *NEANTHES ARENACEODENTATA* SURVIVAL AND GROWTH TEST

Test Summary

Statistics

Raw Data

Supporting Test Data

Acclimation and Holding Conditions

Overlying Water Chemistry

Reference Toxicant Control Chart

20-d *Neanthes* Survival and Growth Test Summary

Client Name/Location	Capital Regional District/ Victoria, BC
Testing Lab/Location	Maxxam Analytics / Burnaby, BC
Sample Information	
Sample Names	M1E, M2E, M8E, M4E, C2E, PB1, M1SE, PB3, C4E, C1E, PB2, M1NW
Type of Sample	Field collected sediments
Method of Collection	See Chain of Custody form
Sample Collector	See Chain of Custody form
Sample Volume	99 L for M1E, M2E, M8E; 44L for PB1; 22L for M4E, M1SE, PB2, C2E, PB3, C4E, C1E, M1NW.
Sample Containers	4-L white food grade plastic buckets
Sample Collection Date	2011 Sep 14; 2011 Sep 15; 2011 Sep 16; 2011 Sep 19; 2011 Sep 20; 2011 Sep 21; 2011 Sep 22
Sample Temperature upon Arrival	Not recorded at sample receipt.
Date & Time of Sample Receipt	2011 Sep 28 @ 14:50
Storage Conditions	From receipt to test initiation, the samples were stored in a temperature controlled cold room at 4 $\pm$ 2°C
Sediment and Pore Water Characterisation	See Sediment Sample Descriptions sheet and analytical chemistry reports
Sample Preparation	
Homogenisation	Samples were individually mixed until homogenised at ambient laboratory temperature; if necessary, large debris and indigenous macro-organisms were removed during homogenisation (see Sediment Sample Descriptions sheet)
Date of Homogenisation	2011 Oct 13
Sediment – Physical Analyses	TOC, moisture content and grain size were measured in each sediment sample prior to toxicity test initiation. The results of the analyses are not included in this report.
Sediment Porewater – Chemical Analyses	Samples of homogenised sediment were centrifuged for 30 minutes, at 5000 rpm, to produce porewater. The porewater was then analysed for dissolved organic carbon, ammonia, sulphides, and hardness. The results are included in the Sample Information section of this report.

Test Organisms	
Species	*Neanthes arenaceodentata*
Source	Aquatic Toxicology Support, WA
Method of Collection	Laboratory reared
Age at Start of Test	Juvenile; 2-3 weeks post emergence
Date of Organism Arrival	2011 Oct 12
Holding and Acclimation Conditions	See Acclimation and Holding Conditions sheets
% Mortality During Holding	0.0
Initial weight at test initiation	15 worms were selected at random, at the beginning of the test, for initial dry weight measurements. The mean initial dry weight was 0.72 mg/worm.
Laboratory Control Sediment and Test Water	
Laboratory Control Sediment Source	Mackenzie Beach, Tofino, BC; Collected by Seacology (North Vancouver, BC)
Laboratory Control Sediment Storage	Stored in a cold room that was at 4 ± 2°C
Laboratory Control Sediment Preparation Procedure	Sediment was sieved (0.5 mm) before use with control/dilution seawater
Overlying Water	Seawater collected at the Vancouver Aquarium, from Burrard Inlet, 40-45' deep inlet, gravity sand filter with sand mesh size 22, filtered through 5µm filter and passed through UV Sterilizer
Type and Quantity of Chemicals Added to Water	None
Pre-treatment of Overlying Water	The seawater was U.V sterilised, filtered through 1 µm, warmed to 20 ± 1C, and continuously aerated prior to use
Reference Sediment	PB1, PB2 and PB3

Test Conditions & Facilities	
Test Method	USEPA and Puget Sound Estuary Program, Recommended Guidelines for Conducting Laboratory Bioassays on Puget Sound Sediments: Juvenile Polychaete Sediment Bioassay. (1995)
Test Type / Duration	20-d whole sediment toxicity test. Static-renewal
Test Temperature	20°C ± 1°C. See the Test Conditions and Survival Data sheets.
Light levels and Photoperiod	24 hr continuous light, ambient laboratory light levels
Aeration	Continuous and minimal in each test vessel; checked 3 times daily. Compressed oil-free air delivered through microbore airline tubing
Test Start Date	2011 Oct 14
Test Completion Date	2011 Nov 03
Test Vessels	1 L glass jars; covered.
Volume of Sediment	175 mL (~2cm depth)
Volume of Test Water	825 mL
Analysts	M. Grey, D. Greschner, D. Lai, E. Chen, C. Tra, L. Takahashi, M. Brassil
Water Renewal	≈ 33% water renewal, every 3rd day
# Organisms / Vessel	5; randomly assigned to each test vessel
Number of Replicates	5 (plus measurement replicate) for each sediment sample
Feeding Regime	1 mL of 40 mg/mL Nutrafin® Slurry every 2nd day
Observations & Measurements	
Dissolved Oxygen (DO), Temperature, pH and Salinity	Every third day, in overlying water in the measurement jars. See Test Conditions and Survival Data sheets
Sediment Appearance During Test	See Aeration Checks, Test Conditions and Survival Data sheets
Test Observations	Organism behaviour during the test, visible mortalities and/or abnormal behaviour was recorded on Test Conditions and Survival Data sheets
Survival	All live polychaetes recovered from each test vessel were counted. See Summary of Survival Data sheet
Overlying Water – Chemical Analyses	Samples of the overlying water were analysed for Ammonia on Day 0 (start) and Day 20 (end) of the test. See chemical analysis reports
Anything Unusual about the Test, Deviation from Test Method, other Problems	None.

Results	
Endpoints	Percentage Survival and Mean Growth. See Summary of Survival, Dry Weight and Growth Rate sheets.
Endpoint Results	**Survival** There was no statistically significant difference in mean survival between the test sediments and the laboratory control, or between the test sediments and the reference sediment, PB1. **Individual Dry Weight and Growth Rate** There was a statistically significant decrease in mean dry weight and growth rate, between the test sediments and the laboratory control except for the following samples: PB1, PB2, PB3, M4E, and M8E. There was a statistically significant decrease in mean dry weight and growth rate, between the test sediments and the reference sediment, PB1, except for the following samples: PB2, PB3, M4E, and M8E.
Name and citation of program and methods used for calculating statistical endpoint	CETIS v1.7.0.3 – Parametric and Nonparametric Methods; Equal Variance t Two-Sample Test and Wilcoxon Rank Sum Two Sample test. Data was tested for normality using Shapiro-Wilk's test and homogeneity of variance using Modified Levene's and Bartlett's test.
QA/QC	
Test Validity Criteria • Mean survival in the control must be ≥90% • Mean growth rate in the control must be ≥0.38mg/day/worm • Mean initial worm weight must be ≥0.25 and ≤1.0 mg/worm	• Mean survival in the control was 100% • Mean growth rate in the control was 0.95 mg/day /worm • Mean initial weight was 0.72 mg/worm
Ref Tox Test LC50 (95% CL) (mg/L Cd)	7.3 (6.9, 7.7)
Invalid Ref Tox Test?	No
Ref Tox Test Historic Mean and 2SD Range (mg/L Cd)	8.2; 2SD range: (4.2, 12.1)
Date of Ref Tox Test	2011 Oct 14
Organisms Batch and Condition of Ref Tox Test	Static 48-h water-only test. Same batch of organisms used

Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

Analysis ID:	12-9900-4717	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 13:38	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes
Batch ID:	13-0330-2731	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	14 Oct-11 15:35	**Protocol:**	PSEP (1995)	**Diluent:**	Natural Seawater (Van. Aquarium)
Ending Date:	03 Nov-11 12:00	**Species:**	Neanthes arenaceodentata	**Brine:**	Not Applicable
Duration:	19d 20h	**Source:**	Aquatic Toxicology Support	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					7.62%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
Control		PB1	27.5		1	0.5000	Non-Significant Effect
		PB2	27.5		1	0.5000	Non-Significant Effect
		PB3	27.5		1	0.5000	Non-Significant Effect
		M1E	25		1	0.3452	Non-Significant Effect
		M2E	27.5		1	0.5000	Non-Significant Effect
		M8E	27.5		1	0.5000	Non-Significant Effect
		M4E	27.5		1	0.5000	Non-Significant Effect
		C2E	27.5		1	0.5000	Non-Significant Effect
		M1SE	25		1	0.3452	Non-Significant Effect
		C4E	25		1	0.3452	Non-Significant Effect
		C1E	27.5		1	0.5000	Non-Significant Effect
		MINW	27.5		1	0.5000	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.02617288	0.002181073	12	0.8333	0.6164	Non-Significant Effect
Error	0.136099	0.002617288	52			
Total	0.1622718	0.004798361	64			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Mod Levene Equality of Variance	0.8333	2.678	0.6167	Equal Variances
Distribution	Shapiro-Wilk Normality	0.4662		<0.0001	Non-normal Distribution

2012 Jan 09 2012 Jan 18

Neanthes 20-d Survival and Growth Sediment Test — Maxxam Analytics

Analysis ID: 12-9900-4717 Endpoint: Survival Rate CETIS Version: CETISv1.7.0
Analyzed: 09 Jan-12 13:38 Analysis: Nonparametric-Two Sample Official Results: Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	1	1	1	1	1	0	0	0.0%	0.0%
PB1	5	1	1	1	1	1	0	0	0.0%	0.0%
PB2	5	1	1	1	1	1	0	0	0.0%	0.0%
PB3	5	1	1	1	1	1	0	0	0.0%	0.0%
M1E	5	0.96	0.926	0.994	0.8	1	0.04	0.08944	9.32%	4.0%
M2E	5	1	1	1	1	1	0	0	0.0%	0.0%
M8E	5	1	1	1	1	1	0	0	0.0%	0.0%
M4E	5	1	1	1	1	1	0	0	0.0%	0.0%
C2E	5	1	1	1	1	1	0	0	0.0%	0.0%
M1SE	5	0.96	0.926	0.994	0.8	1	0.04	0.08944	9.32%	4.0%
C4E	5	0.96	0.926	0.994	0.8	1	0.04	0.08944	9.32%	4.0%
C1E	5	1	1	1	1	1	0	0	0.0%	0.0%
MINW	5	1	1	1	1	1	0	0	0.0%	0.0%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
PB1	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
PB2	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
PB3	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
M1E	5	1.298	1.257	1.338	1.107	1.345	0.04763	0.1065	8.21%	3.54%
M2E	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
M8E	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
M4E	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
C2E	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
M1SE	5	1.298	1.257	1.338	1.107	1.345	0.04763	0.1065	8.21%	3.54%
C4E	5	1.298	1.257	1.338	1.107	1.345	0.04763	0.1065	8.21%	3.54%
C1E	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
MINW	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%

2012 Jan 09 2012 Jan 18
Analyst: M.Gy QA: LS

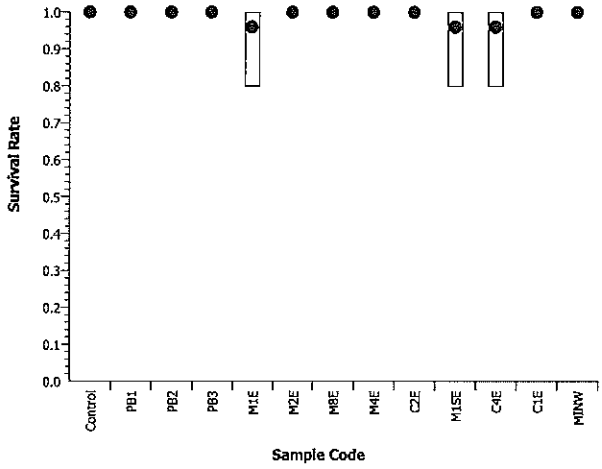
Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

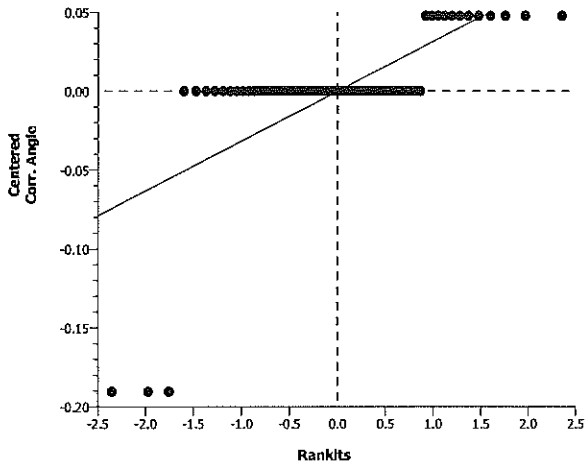
Analysis ID:	12-9900-4717	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 13:38	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	1	1	1	1	1
PB1	1	1	1	1	1
PB2	1	1	1	1	1
PB3	1	1	1	1	1
M1E	1	0.8	1	1	1
M2E	1	1	1	1	1
M8E	1	1	1	1	1
M4E	1	1	1	1	1
C2E	1	1	1	1	1
M1SE	1	1	1	1	0.8
C4E	1	0.8	1	1	1
C1E	1	1	1	1	1
MINW	1	1	1	1	1

Graphics





Analyst: M.Gray 2012Jan09 QA: LS 2012Jan18

Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

Analysis ID:	08-0692-5484	**Endpoint:**	Growth Rate-mg/day	**CETIS Version:**	CETISv1.7.0
Analyzed:	06 Jan-12 14:09	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	13-0330-2731	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	14 Oct-11 15:35	**Protocol:**	PSEP (1995)	**Diluent:**	Natural Seawater (Van. Aquarium)
Ending Date:	03 Nov-11 12:00	**Species:**	Neanthes arenaceodentata	**Brine:**	Not Applicable
Duration:	19d 20h	**Source:**	Aquatic Toxicology Support	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	C > T	Not Run					13.02%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
Control		PB1	0.2216	1.86	0.1433	0.4151	Non-Significant Effect
		PB2	0.2225	1.86	0.1269	0.4148	Non-Significant Effect
		PB3	1.034	1.86	0.1205	0.1657	Non-Significant Effect
		M1E	4.385	1.86	0.1951	0.0012	Significant Effect
		M2E	6.295	1.86	0.1356	0.0001	Significant Effect
		M8E	1.595	1.86	0.1299	0.0746	Non-Significant Effect
		M4E	1.414	1.86	0.1747	0.0976	Non-Significant Effect
		C2E	4.043	1.86	0.1172	0.0019	Significant Effect
		M1SE	10.6	1.86	0.119	<0.0001	Significant Effect
		C4E	4.182	1.86	0.1361	0.0015	Significant Effect
		C1E	3.872	1.86	0.2054	0.0024	Significant Effect
		MINW	4.959	1.86	0.1241	0.0006	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	2.756811	0.2297343	12	12.05	<0.0001	Significant Effect
Error	0.9912813	0.0190631	52			
Total	3.748093	0.2487974	64			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	8.887	26.22	0.7126	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9726		0.1574	Normal Distribution

Growth Rate-mg/day Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	0.9535	0.9126	0.9943	0.8428	1.124	0.04801	0.1073	11.26%	0.0%
PB1	5	0.9364	0.8851	0.9877	0.7093	1.039	0.06029	0.1348	14.4%	1.79%
PB2	5	0.9383	0.897	0.9795	0.7927	1.074	0.04848	0.1084	11.55%	1.59%
PB3	5	0.8865	0.8494	0.9235	0.7484	0.9887	0.04352	0.0973	10.98%	7.03%
M1E	5	0.4933	0.414	0.5727	0.3214	0.8183	0.0933	0.2086	42.29%	48.26%
M2E	5	0.4942	0.4475	0.541	0.4029	0.7077	0.05492	0.1228	24.85%	48.16%
M8E	5	0.842	0.7988	0.8852	0.6774	0.9622	0.05075	0.1135	13.48%	11.69%
M4E	5	0.8207	0.752	0.8893	0.6252	1.064	0.08074	0.1805	22.0%	13.93%
C2E	5	0.6986	0.6639	0.7334	0.5728	0.7989	0.04085	0.09135	13.08%	26.73%
M1SE	5	0.2747	0.2387	0.3107	0.1265	0.3675	0.04233	0.09466	34.45%	71.19%
C4E	5	0.6473	0.6003	0.6943	0.5276	0.8075	0.05526	0.1236	19.09%	32.11%
C1E	5	0.5257	0.4411	0.6103	0.3226	0.8424	0.0995	0.2225	42.32%	44.86%
MINW	5	0.6225	0.5831	0.6619	0.5079	0.732	0.04635	0.1037	16.65%	34.71%

2012Jan06 Analyst: M. Gry 2012Jan18 QA: LS

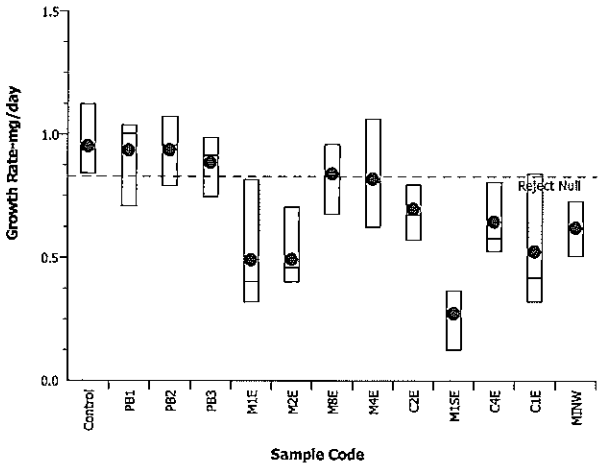
Neanthes 20-d Survival and Growth Sediment Test — Maxxam Analytics

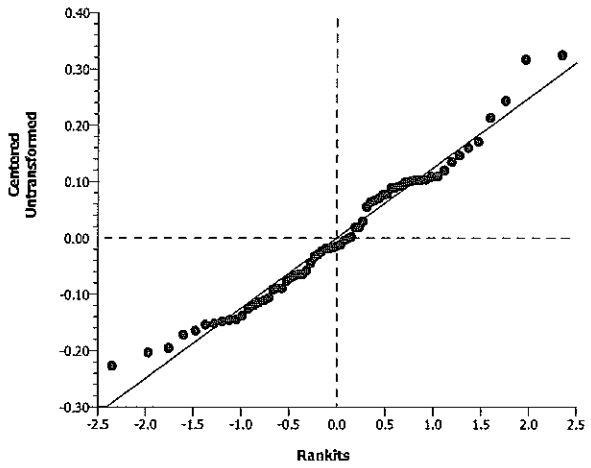
Analysis ID:	08-0692-5484	Endpoint:	Growth Rate-mg/day	CETIS Version:	CETISv1.7.0
Analyzed:	06 Jan-12 14:09	Analysis:	Parametric-Two Sample	Official Results:	Yes

Growth Rate-mg/day Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	1.124	0.8428	0.972	0.8894	0.9388
PB1	1.039	0.9178	0.7093	1.003	1.013
PB2	0.9575	0.9932	1.074	0.8743	0.7927
PB3	0.9887	0.9507	0.8285	0.916	0.7484
M1E	0.8183	0.3414	0.5818	0.3214	0.4038
M2E	0.4237	0.4029	0.4761	0.4608	0.7077
M8E	0.9622	0.9315	0.7977	0.8412	0.6774
M4E	0.6252	0.6759	0.8087	0.9294	1.064
C2E	0.6753	0.7989	0.5728	0.6694	0.7767
M1SE	0.258	0.1265	0.3675	0.3453	0.2764
C4E	0.8075	0.5799	0.5276	0.5708	0.7507
C1E	0.3716	0.3226	0.4197	0.8424	0.6722
MINW	0.618	0.732	0.7216	0.533	0.5079

Graphics





2012Jan06 2012Jan18
Analyst: H.Gray QA: LS

Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

Analysis ID:	08-7530-0433	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.7.0
Analyzed:	06 Jan-12 14:01	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	13-0330-2731	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	14 Oct-11 15:35	**Protocol:**	PSEP (1995)	**Diluent:**	Natural Seawater (Van. Aquarium)
Ending Date:	03 Nov-11 12:00	**Species:**	Neanthes arenaceodentata	**Brine:**	Not Applicable
Duration:	19d 20h	**Source:**	Aquatic Toxicology Support	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	C > T	Not Run					12.54%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
Control		PB1	0.2216	1.86	2.866	0.4151	Non-Significant Effect
		PB2	0.2225	1.86	2.538	0.4148	Non-Significant Effect
		PB3	1.034	1.86	2.41	0.1657	Non-Significant Effect
		M1E	4.385	1.86	3.902	0.0012	Significant Effect
		M2E	6.295	1.86	2.713	0.0001	Significant Effect
		M8E	1.595	1.86	2.598	0.0746	Non-Significant Effect
		M4E	1.414	1.86	3.494	0.0976	Non-Significant Effect
		C2E	4.043	1.86	2.344	0.0019	Significant Effect
		M1SE	10.6	1.86	2.38	<0.0001	Significant Effect
		C4E	4.182	1.86	2.723	0.0015	Significant Effect
		C1E	3.872	1.86	4.109	0.0024	Significant Effect
		MINW	4.959	1.86	2.482	0.0006	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	1102.724	91.8937	12	12.05	<0.0001	Significant Effect
Error	396.5125	7.62524	52			
Total	1499.237	99.51894	64			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	8.887	26.22	0.7126	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9726		0.1574	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	19.79	18.97	20.61	17.58	23.21	0.9601	2.147	10.85%	0.0%
PB1	5	19.45	18.42	20.47	14.91	21.49	1.206	2.696	13.86%	1.73%
PB2	5	19.49	18.66	20.31	16.57	22.19	0.9697	2.168	11.13%	1.53%
PB3	5	18.45	17.71	19.19	15.69	20.49	0.8703	1.946	10.55%	6.77%
M1E	5	10.59	9	12.17	7.148	17.09	1.866	4.173	39.41%	46.5%
M2E	5	10.6	9.67	11.54	8.778	14.87	1.098	2.456	23.16%	46.41%
M8E	5	17.56	16.7	18.42	14.27	19.96	1.015	2.27	12.93%	11.26%
M4E	5	17.13	15.76	18.51	13.22	22	1.615	3.611	21.08%	13.42%
C2E	5	14.69	14	15.39	12.18	16.7	0.8171	1.827	12.44%	25.76%
M1SE	5	6.215	5.495	6.935	3.25	8.07	0.8467	1.893	30.46%	68.6%
C4E	5	13.67	12.73	14.61	11.27	16.87	1.105	2.471	18.09%	30.94%
C1E	5	11.23	9.541	12.93	7.172	17.57	1.99	4.45	39.61%	43.23%
MINW	5	13.17	12.38	13.96	10.88	15.36	0.9271	2.073	15.74%	33.45%

Analyst: 2012Jan18 QA: 2012JAN18

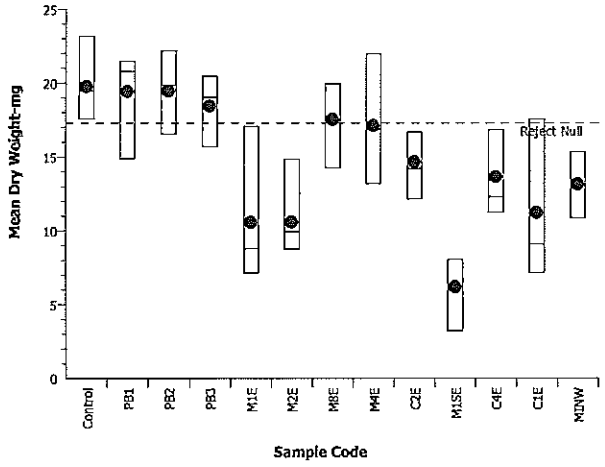
Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

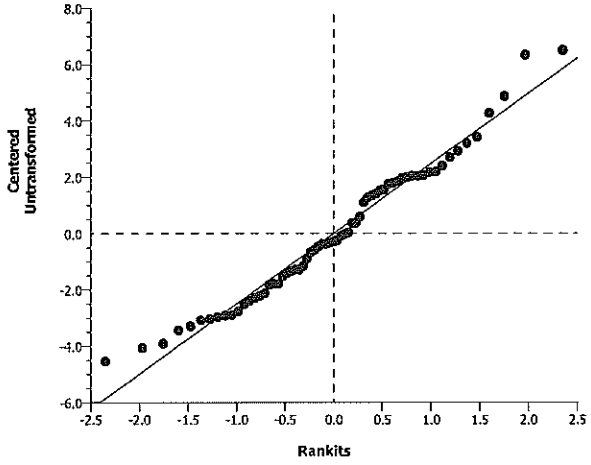
Analysis ID:	08-7530-0433	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.7.0
Analyzed:	06 Jan-12 14:01	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Mean Dry Weight-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	23.21	17.58	20.16	18.51	19.5
PB1	21.49	19.08	14.91	20.79	20.97
PB2	19.87	20.58	22.19	18.21	16.57
PB3	20.49	19.73	17.29	19.04	15.69
M1E	17.09	7.548	12.36	7.148	8.796
M2E	9.194	8.778	10.24	9.936	14.87
M8E	19.96	19.35	16.67	17.54	14.27
M4E	13.22	14.24	16.89	19.31	22
C2E	14.23	16.7	12.18	14.11	16.25
M1SE	5.88	3.25	8.07	7.626	6.248
C4E	16.87	12.32	11.27	12.14	15.73
C1E	8.152	7.172	9.114	17.57	14.16
MINW	13.08	15.36	15.15	11.38	10.88

Graphics





2012 Jan 06 2012JAN18
Analyst: M. Gay QA: LS

Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

Analysis ID:	02-7650-0068	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 13:38	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes
Batch ID:	13-0330-2731	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	14 Oct-11 15:35	**Protocol:**	PSEP (1995)	**Diluent:**	Natural Seawater (Van. Aquarium)
Ending Date:	03 Nov-11 12:00	**Species:**	Neanthes arenaceodentata	**Brine:**	Not Applicable
Duration:	19d 20h	**Source:**	Aquatic Toxicology Support	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					7.74%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
PB1		PB2	27.5		1	0.5000	Non-Significant Effect
		PB3	27.5		1	0.5000	Non-Significant Effect
		M1E	25		1	0.3452	Non-Significant Effect
		M2E	27.5		1	0.5000	Non-Significant Effect
		M8E	27.5		1	0.5000	Non-Significant Effect
		M4E	27.5		1	0.5000	Non-Significant Effect
		C2E	27.5		1	0.5000	Non-Significant Effect
		M1SE	25		1	0.3452	Non-Significant Effect
		C4E	25		1	0.3452	Non-Significant Effect
		C1E	27.5		1	0.5000	Non-Significant Effect
		MINW	27.5		1	0.5000	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.02551856	0.002319869	11	0.8182	0.6223	Non-Significant Effect
Error	0.136099	0.002835395	48			
Total	0.1616175	0.005155263	59			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Mod Levene Equality of Variance	0.8182	2.786	0.6227	Equal Variances
Distribution	Shapiro-Wilk Normality	0.4832		<0.0001	Non-normal Distribution

2012Jan09 2012Jan18
Analyst: M.Ly QA: LS

Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

Analysis ID: 02-7650-0068 **Endpoint:** Survival Rate **CETIS Version:** CETISv1.7.0
Analyzed: 09 Jan-12 13:38 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
PB1	5	1	1	1	1	1	0	0	0.0%	0.0%
PB2	5	1	1	1	1	1	0	0	0.0%	0.0%
PB3	5	1	1	1	1	1	0	0	0.0%	0.0%
M1E	5	0.96	0.926	0.994	0.8	1	0.04	0.08944	9.32%	4.0%
M2E	5	1	1	1	1	1	0	0	0.0%	0.0%
M8E	5	1	1	1	1	1	0	0	0.0%	0.0%
M4E	5	1	1	1	1	1	0	0	0.0%	0.0%
C2E	5	1	1	1	1	1	0	0	0.0%	0.0%
M1SE	5	0.96	0.926	0.994	0.8	1	0.04	0.08944	9.32%	4.0%
C4E	5	0.96	0.926	0.994	0.8	1	0.04	0.08944	9.32%	4.0%
C1E	5	1	1	1	1	1	0	0	0.0%	0.0%
MINW	5	1	1	1	1	1	0	0	0.0%	0.0%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
PB1	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
PB2	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
PB3	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
M1E	5	1.298	1.257	1.338	1.107	1.345	0.04763	0.1065	8.21%	3.54%
M2E	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
M8E	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
M4E	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
C2E	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
M1SE	5	1.298	1.257	1.338	1.107	1.345	0.04763	0.1065	8.21%	3.54%
C4E	5	1.298	1.257	1.338	1.107	1.345	0.04763	0.1065	8.21%	3.54%
C1E	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
MINW	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%

2012Jan09 2012Jan18
Analyst: QA: LS

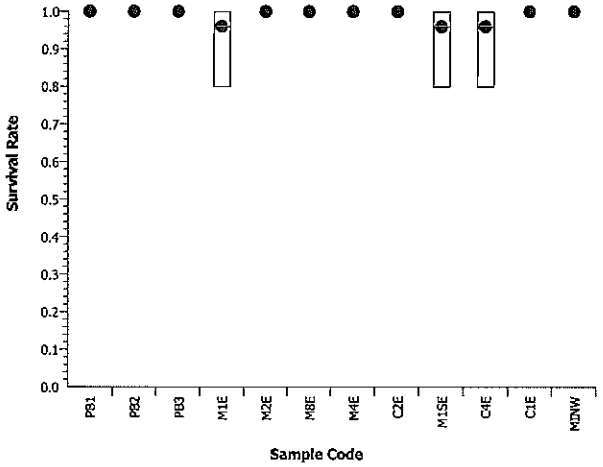
Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

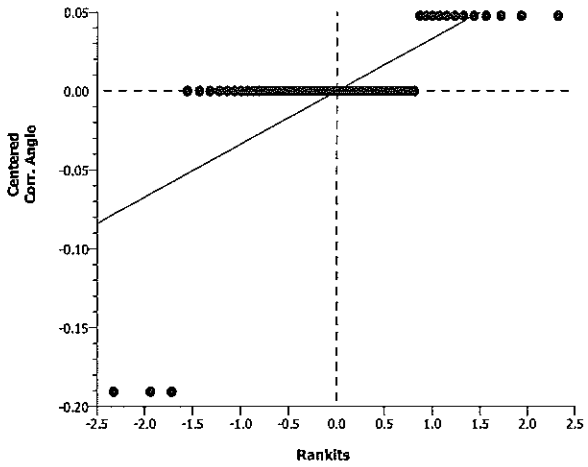
Analysis ID:	02-7650-0068	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 13:38	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
PB1	1	1	1	1	1
PB2	1	1	1	1	1
PB3	1	1	1	1	1
M1E	1	0.8	1	1	1
M2E	1	1	1	1	1
M8E	1	1	1	1	1
M4E	1	1	1	1	1
C2E	1	1	1	1	1
M1SE	1	1	1	1	0.8
C4E	1	0.8	1	1	1
C1E	1	1	1	1	1
MINW	1	1	1	1	1

Graphics





2012Jan09 2012Jan18

Analyst: [illegible] QA: LS

Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

Analysis ID:	04-6603-2468	**Endpoint:**	Growth Rate-mg/day	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 13:38	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	13-0330-2731	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	14 Oct-11 15:35	**Protocol:**	PSEP (1995)	**Diluent:**	Natural Seawater (Van. Aquarium)
Ending Date:	03 Nov-11 12:00	**Species:**	Neanthes arenaceodentata	**Brine:**	Not Applicable
Duration:	19d 20h	**Source:**	Aquatic Toxicology Support	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	C > T	Not Run					15.1%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
PB1		PB2	-0.02456	1.86	0.1439	0.5095	Non-Significant Effect
		PB3	0.6714	1.86	0.1383	0.2604	Non-Significant Effect
		M1E	3.988	1.86	0.2066	0.0020	Significant Effect
		M2E	5.421	1.86	0.1517	0.0003	Significant Effect
		M8E	1.198	1.86	0.1465	0.1327	Non-Significant Effect
		M4E	1.148	1.86	0.1874	0.1420	Non-Significant Effect
		C2E	3.265	1.86	0.1354	0.0057	Significant Effect
		M1SE	8.982	1.86	0.137	<0.0001	Significant Effect
		C4E	3.535	1.86	0.1521	0.0038	Significant Effect
		C1E	3.53	1.86	0.2163	0.0039	Significant Effect
		MINW	4.127	1.86	0.1414	0.0017	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	2.415908	0.219628	11	11.15	<0.0001	Significant Effect
Error	0.9451871	0.0196914	48			
Total	3.361095	0.2393194	59			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	8.463	24.72	0.6713	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9688		0.1274	Normal Distribution

Growth Rate-mg/day Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
PB1	5	0.9364	0.8851	0.9877	0.7093	1.039	0.06029	0.1348	14.4%	0.0%
PB2	5	0.9383	0.897	0.9795	0.7927	1.074	0.04848	0.1084	11.55%	-0.2%
PB3	5	0.8865	0.8494	0.9235	0.7484	0.9887	0.04352	0.0973	10.98%	5.33%
M1E	5	0.4933	0.414	0.5727	0.3214	0.8183	0.0933	0.2086	42.29%	47.31%
M2E	5	0.4942	0.4475	0.541	0.4029	0.7077	0.05492	0.1228	24.85%	47.22%
M8E	5	0.842	0.7988	0.8852	0.6774	0.9622	0.05075	0.1135	13.48%	10.08%
M4E	5	0.8207	0.752	0.8893	0.6252	1.064	0.08074	0.1805	22.0%	12.36%
C2E	5	0.6986	0.6639	0.7334	0.5728	0.7989	0.04085	0.09135	13.08%	25.39%
M1SE	5	0.2747	0.2387	0.3107	0.1265	0.3675	0.04233	0.09466	34.45%	70.66%
C4E	5	0.6473	0.6003	0.6943	0.5276	0.8075	0.05526	0.1236	19.09%	30.87%
C1E	5	0.5257	0.4411	0.6103	0.3226	0.8424	0.0995	0.2225	42.32%	43.86%
MINW	5	0.6225	0.5831	0.6619	0.5079	0.732	0.04635	0.1037	16.65%	33.52%

2012Jan09 2012Jan18
Analyst: QA: LS

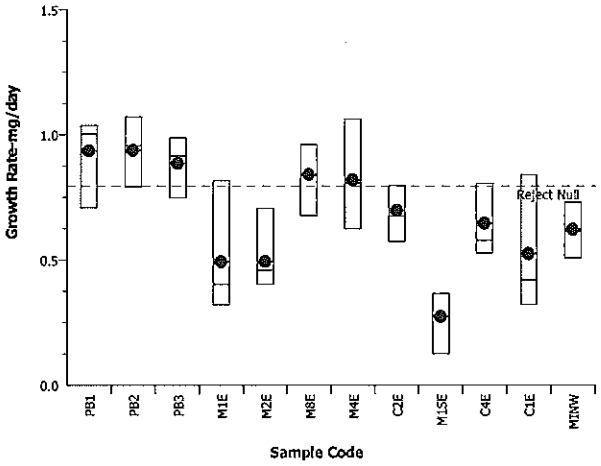
Neanthes 20-d Survival and Growth Sediment Test — Maxxam Analytics

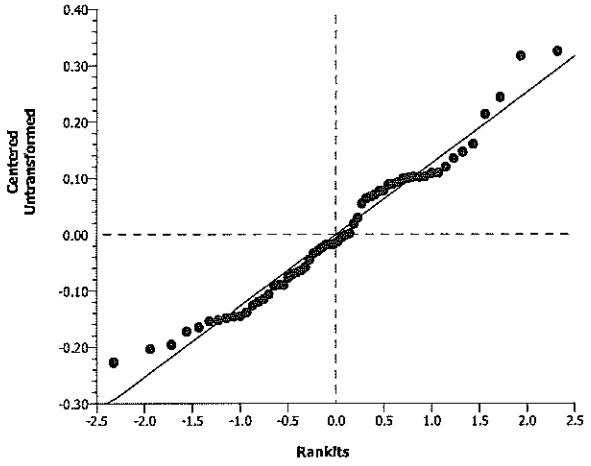
Analysis ID:	04-6603-2468	**Endpoint:**	Growth Rate-mg/day	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 13:38	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Growth Rate-mg/day Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
PB1	1.039	0.9178	0.7093	1.003	1.013
PB2	0.9575	0.9932	1.074	0.8743	0.7927
PB3	0.9887	0.9507	0.8285	0.916	0.7484
M1E	0.8183	0.3414	0.5818	0.3214	0.4038
M2E	0.4237	0.4029	0.4761	0.4608	0.7077
M8E	0.9622	0.9315	0.7977	0.8412	0.6774
M4E	0.6252	0.6759	0.8087	0.9294	1.064
C2E	0.6753	0.7989	0.5728	0.6694	0.7767
M1SE	0.258	0.1265	0.3675	0.3453	0.2764
C4E	0.8075	0.5799	0.5276	0.5708	0.7507
C1E	0.3716	0.3226	0.4197	0.8424	0.6722
MINW	0.618	0.732	0.7216	0.533	0.5079

Graphics





2012 Jan 09 2012JAN18
Analyst: QA: LS

Neanthes 20-d Survival and Growth Sediment Test — **Maxxam Analytics**

Analysis ID:	00-4328-6277	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 13:38	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	13-0330-2731	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	14 Oct-11 15:35	**Protocol:**	PSEP (1995)	**Diluent:**	Natural Seawater (Van. Aquarium)
Ending Date:	03 Nov-11 12:00	**Species:**	Neanthes arenaceodentata	**Brine:**	Not Applicable
Duration:	19d 20h	**Source:**	Aquatic Toxicology Support	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	C > T	Not Run					14.54%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
PB1		PB2	-0.02456	1.86	2.877	0.5095	Non-Significant Effect
		PB3	0.6714	1.86	2.765	0.2604	Non-Significant Effect
		M1E	3.988	1.86	4.131	0.0020	Significant Effect
		M2E	5.421	1.86	3.033	0.0003	Significant Effect
		M8E	1.198	1.86	2.931	0.1327	Non-Significant Effect
		M4E	1.148	1.86	3.748	0.1420	Non-Significant Effect
		C2E	3.265	1.86	2.709	0.0057	Significant Effect
		M1SE	8.982	1.86	2.74	<0.0001	Significant Effect
		C4E	3.535	1.86	3.042	0.0038	Significant Effect
		C1E	3.53	1.86	4.327	0.0039	Significant Effect
		MINW	4.127	1.86	2.828	0.0017	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	966.3632	87.8512	11	11.15	<0.0001	Significant Effect
Error	378.0748	7.876557	48			
Total	1344.438	95.72775	59			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	8.463	24.72	0.6713	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9688		0.1274	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
PB1	5	19.45	18.42	20.47	14.91	21.49	1.206	2.696	13.86%	0.0%
PB2	5	19.49	18.66	20.31	16.57	22.19	0.9697	2.168	11.13%	-0.2%
PB3	5	18.45	17.71	19.19	15.69	20.49	0.8703	1.946	10.55%	5.13%
M1E	5	10.59	9	12.17	7.148	17.09	1.866	4.173	39.41%	45.56%
M2E	5	10.6	9.67	11.54	8.778	14.87	1.098	2.456	23.16%	45.47%
M8E	5	17.56	16.7	18.42	14.27	19.96	1.015	2.27	12.93%	9.71%
M4E	5	17.13	15.76	18.51	13.22	22	1.615	3.611	21.08%	11.9%
C2E	5	14.69	14	15.39	12.18	16.7	0.8171	1.827	12.44%	24.45%
M1SE	5	6.215	5.495	6.935	3.25	8.07	0.8467	1.893	30.46%	68.04%
C4E	5	13.67	12.73	14.61	11.27	16.87	1.105	2.471	18.09%	29.73%
C1E	5	11.23	9.541	12.93	7.172	17.57	1.99	4.45	39.61%	42.23%
MINW	5	13.17	12.38	13.96	10.88	15.36	0.9271	2.073	15.74%	32.28%

2012Jan09 2012Jan18
Analyst: M.C. QA: LS

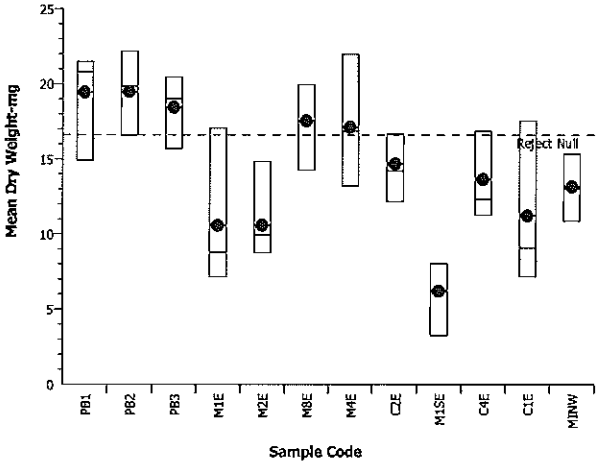
Neanthes 20-d Survival and Growth Sediment Test — Maxxam Analytics

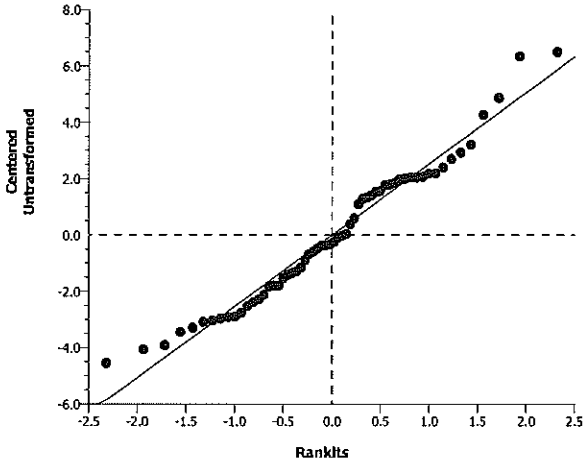
Analysis ID:	00-4328-6277	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 13:38	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Mean Dry Weight-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
PB1	21.49	19.08	14.91	20.79	20.97
PB2	19.87	20.58	22.19	18.21	16.57
PB3	20.49	19.73	17.29	19.04	15.69
M1E	17.09	7.548	12.36	7.148	8.796
M2E	9.194	8.778	10.24	9.936	14.87
M8E	19.96	19.35	16.67	17.54	14.27
M4E	13.22	14.24	16.89	19.31	22
C2E	14.23	16.7	12.18	14.11	16.25
M1SE	5.88	3.25	8.07	7.626	6.248
C4E	16.87	12.32	11.27	12.14	15.73
C1E	8.152	7.172	9.114	17.57	14.16
MINW	13.08	15.36	15.15	11.38	10.88

Graphics





2012 Jan 09 2012 Jan 18

Analyst: M.G. QA: LS

20-d *Neanthes arenaceodentata* Survival and Growth Test
Summary of Survival

Client Name and #: 1399 CRD
Job #: B192421

Start Date: 2011 Oct 14
End Date: 2011 Nov 03

Sample ID	Client ID	Sample #	Replicate	# Surviving	Survival (%)	Mean Survival (%)	SD
Control	-	-	A	5	100	100	0
			B	5	100		
			C	5	100		
			D	5	100		
			E	5	100		
C100	M1E	BQ8687-01	A	5	100	96	9
			B	4	80		
			C	5	100		
			D	5	100		
			E	5	100		
C101	M2E	BQ8686-01	A	5	100	100	0
			B	5	100		
			C	5	100		
			D	5	100		
			E	5	100		
C102	M8E	BQ8689-01	A	5	100	100	0
			B	5	100		
			C	5	100		
			D	5	100		
			E	5	100		
C103	M4E	BQ8688-01	A	5	100	100	0
			B	5	100		
			C	5	100		
			D	5	100		
			E	5	100		
C104	C2E	BQ8694-01	A	5	100	100	0
			B	5	100		
			C	5	100		
			D	5	100		
			E	5	100		
C105	PB1	BQ8690-01	A	5	100	100	0
			B	5	100		
			C	5	100		
			D	5	100		
			E	5	100		
C106	M1SE	BQ8685-01	A	5	100	96	9
			B	5	100		
			C	5	100		
			D	5	100		
			E	4	80		
C107	PB3	BQ8692-01	A	5	100	100	0
			B	5	100		
			C	5	100		
			D	5	100		
			E	5	100		

20-d *Neanthes arenaceodentata* Survival and Growth Test
Summary of Survival

Sample ID	Client ID	Sample #	Replicate	# Surviving	Survival (%)	Mean Survival (%)	SD
C108	C4E	BQ8695-01	A	5	100	96	9
			B	4	80		
			C	5	100		
			D	5	100		
			E	5	100		
C109	C1E	BQ8693-01	A	5	100	100	0
			B	5	100		
			C	5	100		
			D	5	100		
			E	5	100		
C110	PB2	BQ8691-01	A	5	100	100	0
			B	5	100		
			C	5	100		
			D	5	100		
			E	5	100		
C111	M1NW	BQ8684-01	A	5	100	100	0
			B	5	100		
			C	5	100		
			D	5	100		
			E	5	100		

proofed NS 2011 NOV 30

Maxxam Analytics **20-d *Neanthes arenaceodentata* Survival and Growth Test**

Mean Growth Rate

Client Name and #: CRD 1399 Start Date: 2011 Oct 14

Job #: B192421 End Date: 2011 Nov 03

Sample ID	Client ID	Sample #	Replicate	Initial Dry Wt (mg)	Final Ind. Dry Weight (mg)	Growth rate (mg/day)	Mean Growth Rate (mg/day)	SD (mg)
Control	-	-	A	0.72	23.21	1.12	0.95	0.11
			B	0.72	17.58	0.84		
			C	0.72	20.16	0.97		
			D	0.72	18.51	0.89		
			E	0.72	19.50	0.94		
C100	M1E	BQ8687-01	A	0.72	17.09	0.82	0.49	0.21
			B	0.72	7.55	0.34		
			C	0.72	12.36	0.58		
			D	0.72	7.15	0.32		
			E	0.72	8.80	0.40		
C101	M2E	BQ8686-01	A	0.72	9.19	0.42	0.49	0.12
			B	0.72	8.78	0.40		
			C	0.72	10.24	0.48		
			D	0.72	9.94	0.46		
			E	0.72	14.87	0.71		
C102	M8E	BQ8689-01	A	0.72	19.96	0.96	0.84	0.11
			B	0.72	19.35	0.93		
			C	0.72	16.67	0.80		
			D	0.72	17.54	0.84		
			E	0.72	14.27	0.68		
C103	M4E	BQ8688-01	A	0.72	13.22	0.63	0.82	0.18
			B	0.72	14.24	0.68		
			C	0.72	16.89	0.81		
			D	0.72	19.31	0.93		
			E	0.72	22.00	1.06		
C104	C2E	BQ8694-01	A	0.72	14.23	0.68	0.70	0.09
			B	0.72	16.70	0.80		
			C	0.72	12.18	0.57		
			D	0.72	14.11	0.67		
			E	0.72	16.25	0.78		
C105	PB1	BQ8690-01	A	0.72	21.49	1.04	0.94	0.13
			B	0.72	19.08	0.92		
			C	0.72	14.91	0.71		
			D	0.72	20.79	1.00		
			E	0.72	20.97	1.01		

Maxxam Analytics **20-d *Neanthes arenaceodentata* Survival and Growth Test**

Mean Growth Rate

Client Name and #: CRD 1399 Start Date: 2011 Oct 14

Job #: B192421 End Date: 2011 Nov 03

Sample ID	Client ID	Sample #	Replicate	Initial Dry Wt (mg)	Final Ind. Dry Weight (mg)	Growth rate (mg/day)	Mean Growth Rate (mg/day)	SD (mg)
C106	M1SE	BQ8685-01	A	0.72	5.88	0.26	0.27	0.09
			B	0.72	3.25	0.13		
			C	0.72	8.07	0.37		
			D	0.72	7.63	0.35		
			E	0.72	6.25	0.28		
C107	PB3	BQ8692-01	A	0.72	20.49	0.99	0.89	0.10
			B	0.72	19.73	0.95		
			C	0.72	17.29	0.83		
			D	0.72	19.04	0.92		
			E	0.72	15.69	0.75		
C108	C4E	BQ869S-01	A	0.72	16.87	0.81	0.65	0.12
			B	0.72	12.32	0.58		
			C	0.72	11.27	0.53		
			D	0.72	12.14	0.57		
			E	0.72	15.73	0.75		
C109	C1E	BQ8693-01	A	0.72	8.15	0.37	0.53	0.22
			B	0.72	7.17	0.32		
			C	0.72	9.11	0.42		
			D	0.72	17.57	0.84		
			E	0.72	14.16	0.67		
C110	PB2	BQ8691-01	A	0.72	19.87	0.96	0.94	0.11
			B	0.72	20.58	0.99		
			C	0.72	22.19	1.07		
			D	0.72	18.21	0.87		
			E	0.72	16.57	0.79		
C111	M1NW	BQ8684-01	A	0.72	13.08	0.62	0.62	0.10
			B	0.72	15.36	0.73		
			C	0.72	15.15	0.72		
			D	0.72	11.38	0.53		
			E	0.72	10.88	0.51		

Proofed
LStaroff
2012Jan25

Neanthes arenaceodentata 20-d Test
Dry Weights

Client # & Name: 1399 CRD

Project #: 2-11-1085

Job #: B192421

Organism Lot #: AT111012NA

Start Date and Time: 2011 Oct 14 @15:35

End Date: 2011 Nov 03

Weighing Dates: 2011 Nov 02; 2011 Nov 08

Stats File ID: NA-1399-0111

Analyst(s): E. Chen, L. Takahashi, M. Grey

Boat #	Sample ID	Replicate	# Worms	Boat Wt. (g)	Boat & Worms Wt. (g)	Wt. of Worms (mg)	Mean Wt./Worm (mg)	Mean Wt./Sample (mg)	SD
1	Control	A	5	1.09216	1.20819	116.03	23.21	19.79	2.15
2		B	5	1.07022	1.15810	87.88	17.58		
3		C	5	1.11329	1.21409	100.80	20.16		
4		D	5	1.08410	1.17664	92.54	18.51		
5		E	5	1.10229	1.19977	97.48	19.50		
6	C100	A	5	1.10009	1.18552	85.43	17.09	10.59	4.17
7		B	4	1.09189	1.12208	30.19	7.55		
8		C	5	1.09383	1.15561	61.78	12.36		
9		D	5	1.05310	1.08884	35.74	7.15		
10		E	5	1.06510	1.10908	43.98	8.80		
11	C101	A	5	1.09359	1.13956	45.97	9.19	10.60	2.46
12		B	5	1.09419	1.13808	43.89	8.78		
13		C	5	1.09783	1.14904	51.21	10.24		
14		D	5	1.07170	1.12138	49.68	9.94		
15		E	5	1.08420	1.15857	74.37	14.87		
16	C102	A	5	1.09269	1.19251	99.82	19.96	17.56	2.27
17		B	5	1.10315	1.19990	96.75	19.35		
18		C	5	1.08838	1.17175	83.37	16.67		
19		D	5	1.07442	1.16214	87.72	17.54		
20		E	5	1.08216	1.15350	71.34	14.27		
21	C103	A	5	1.10714	1.17326	66.12	13.22	17.13	3.61
22		B	5	1.07619	1.14738	71.19	14.24		
23		C	5	1.06887	1.15334	84.47	16.89		
24		D	5	1.07099	1.16753	96.54	19.31		
25		E	5	1.09983	1.20984	110.01	22.00		
26	C104	A	5	1.07947	1.15060	71.13	14.23	14.69	1.83
27		B	5	1.07811	1.16160	83.49	16.70		
28		C	5	1.12410	1.18498	60.88	12.18		
29		D	5	1.06920	1.13974	70.54	14.11		
30		E	5	1.08925	1.17052	81.27	16.25		
31	C105	A	5	1.10518	1.21265	107.47	21.49	19.45	2.70
32		B	5	1.09603	1.19141	95.38	19.08		
33		C	5	1.07757	1.15210	74.53	14.91		
34		D	5	1.08769	1.19163	103.94	20.79		
35		E	5	1.08109	1.18596	104.87	20.97		
Analyst			MG	EC	LT				

Neanthes arenaceodentata 20-d Test
Dry Weights

Client # & Name: 1399 CRD

Project # 2-11-1085

Job #: B192421

Organism Lot #: AT111012NA

Start Date and Time: 2011 Oct 14 @15:35

End Date: 2011 Nov 03

Weighing Dates: 2011 Nov 02; 2011 Nov 08

Stats File ID: NA-1399-0111

Analyst(s): E. Chen, L. Takahashi, M. Grey

Boat #	Sample ID	Replicate	# Worms	Boat Wt. (g)	Boat & Worms Wt. (g)	Wt. of Worms (mg)	Mean Wt./Worm (mg)	Mean Wt./Sample (mg)	SD
36	C106	A	5	1.08361	1.11301	29.40	5.88	6.21	1.89
37		B	5	1.04991	1.06616	16.25	3.25		
38		C	5	1.08970	1.13005	40.35	8.07		
39		D	5	1.12559	1.16372	38.13	7.63		
40		E	4	1.11945	1.14444	24.99	6.25		
41	C107	A	5	1.11093	1.21340	102.47	20.49	18.45	1.95
42		B	5	1.10387	1.20254	98.67	19.73		
43		C	5	1.10501	1.19146	86.45	17.29		
44		D	5	1.10729	1.20249	95.20	19.04		
45		E	5	1.06833	1.14677	78.44	15.69		
46	C108	A	5	1.10788	1.19223	84.35	16.87	13.67	2.47
47		B	4	1.09143	1.14070	49.27	12.32		
48		C	5	1.11199	1.16835	56.36	11.27		
49		D	5	1.09429	1.15497	60.68	12.14		
50		E	5	1.06279	1.14146	78.67	15.73		
51	C109	A	5	1.08569	1.12645	40.76	8.15	11.23	4.45
52		B	5	1.07343	1.10929	35.86	7.17		
53		C	5	1.08074	1.12631	45.57	9.11		
54		D	5	1.11915	1.20699	87.84	17.57		
55		E	5	1.09176	1.16258	70.82	14.16		
56	C110	A	5	1.09599	1.19534	99.35	19.87	19.49	2.17
57		B	5	1.09812	1.20104	102.92	20.58		
58		C	5	1.09862	1.20959	110.97	22.19		
59		D	5	1.09330	1.18433	91.03	18.21		
60		E	5	1.07860	1.16147	82.87	16.57		
61	C111	A	5	1.10443	1.16983	65.40	13.08	13.17	2.07
62		B	5	1.11233	1.18913	76.80	15.36		
63		C	5	1.07892	1.15468	75.76	15.15		
64		D	5	1.09755	1.15445	56.90	11.38		
65		E	5	1.08614	1.14053	54.39	10.88		
66	QA/QC	QA/QC		1.12734	1.12715	-0.19	-	-	-
67	QA/QC	QA/QC		1.07610	1.07595	-0.15	-	-	-
1		A	5	1.09223	1.20821	115.98	-	-	-
Analyst			MG	EC	LT				

Proofed
LStavnoff
2012Jan18

Maxxam Analytics

*Red Pans

Neanthes arenaceodentata 20-d Test
Dry Weights

Client # & Name: 1399 CRD
Project #: 2-11-1085
Job #: B192421
Organism Lot #: ATIII012NA

Start Date and Time: 2011 Oct 14 @ 15:35
End Date: 2011 Nov 03
Weighing Dates: NOV 02 2011 / NOV 08 2011
Stats File ID: NA-1399-0111

Analyst(s): ECken LTAKAHASHI M.Grey

Boat #	Sample ID	Replicate	# Worms	Boat Wt. (g)	Boat & Worms Wt. (g)	Wt. of Worms (mg)	Mean Wt./Worm (mg)	Mean Wt./Sample (mg)	SD
1	Control	A	5	1.09216	1.20819	NC	NC	NC	NC
2		B	5	1.07022	1.15810	NC	NC		
3		C	5	1.11329	1.21409	NC	NC		
4		D	5	1.08410	1.17664	NC	NC		
5		E	5	1.10229	1.19977	NC	NC		
6	C100	A	5	1.10009	1.18552	NC	NC	NC	NC
7		B	4	1.09189	1.12208	NC	NC		
8		C	5	1.09383	1.15561	NC	NC		
9		D	5	1.05310	1.08884	NC	NC		
10		E	5	1.06510	1.10908	NC	NC		
11	C101	A	5	1.09359	1.13956	NC	NC	NC	NC
12		B	5	1.09419	1.13808	NC	NC		
13		C	5	1.09783	1.14904	NC	NC		
14		D	5	1.07170	1.12138	NC	NC		
15		E	5	1.08420	1.15857	NC	NC		
16	C102	A	5	1.09269	1.19251	NC	NC	NC	NC
17		B	5	1.10315	1.19990	NC	NC		
18		C	5	1.08838	1.17175	NC	NC		
19		D	5	1.07442	1.16214	NC	NC		
20		E	5	1.08216	1.15350	NC	NC		
21	C103	A	5	1.10714	1.17326	NC	NC	NC	NC
22		B	5	1.07619	1.14738	NC	NC		
23		C	5	1.06887	1.15334	NC	NC		
24		D	5	1.07099	1.16753	NC	NC		
25		E	5	1.09983	1.20984	NC	NC		
26	C104	A	5	1.07947	1.15060	NC	NC	NC	NC
27		B	5	1.07811	1.16160	NC	NC		
28		C	5	1.12410	1.18498	NC	NC		
29		D	5	1.06920	1.13974	NC	NC		
30		E	5	1.08925	1.17052	NC	NC		
31	C105	A	5	1.10518	1.21265	NC	NC	NC	NC
32		B	5	1.09603	1.19141	NC	NC		
33		C	5	1.07757	1.15210	NC	NC		
34		D	5	1.08769	1.19163	NC	NC		
35		E	5	1.08109	1.18596	NC	NC		
Analyst			MF	EC	LT				

Maxxam Analytics

Neanthes arenaceodentata 20-d Test
Dry Weights

Client # & Name: 1399 CRD
Project #: 271-1085
Job #: B192421
Organism Lot #: ATI111012NA

Start Date and Time: 2011 Oct 14 @ 15:35
End Date: 2011 Nov 03
Weighing Dates: NOV 02-2011 2011 NOV 08
Stats File ID: NA-1399-0111

Analyst(s): ECnen, L. Takahashi, M. Gy

Boat #	Sample ID	Replicate	# Worms	Boat Wt. (g)	Boat & Worms Wt. (g)	Wt. of Worms (mg)	Mean Wt./Worm (mg)	Mean Wt./Sample (mg)	SD
36	C106	A	5	1.08361	1.11301	NC	NC	NC	NC
37		B	5	1.04991	1.06616	NC	NC		
38		C	5	1.08970	1.13005	NC	NC		
39		D	5	1.12559	1.16372	NC	NC		
40		E	4	1.11945	1.14444	NC	NC		
41	C107	A	5	1.11093	1.21340	NC	NC	NC	NC
42		B	5	1.10387	1.20254	NC	NC		
43		C	5	1.10501	1.19146	NC	NC		
44		D	5	1.10729	1.20249	NC	NC		
45		E	5	1.06833	1.14677	NC	NC		
46	C108	A	5	1.10788	1.19223	NC	NC	NC	NC
47		B	4	1.09143	1.14070	NC	NC		
48		C	5	1.11199	1.16835	NC	NC		
49		D	5	1.09429	1.15497	NC	NC		
50		E	5	1.06279	1.14146	NC	NC		
51	C109	A	5	1.08569	1.12645	NC	NC	NC	NC
52		B	6	1.11915 (A)	1.10929	NC	NC		
53		C	6	~~1.07346~~ (X)	1.12631	NC	NC		
54		D	5	1.11915	1.20699	NC	NC		
55		E	5	1.09176	1.16258	NC	NC		
56	C110	A	5	1.09599	1.19534	NC	NC	NC	NC
57		B	5	1.09812	1.20104	NC	NC		
58		C	5	1.09862	1.20959	NC	NC		
59		D	5	1.09330	1.18433	NC	NC		
60		E	5	1.07866	1.16147	NC	NC		
61	C111	A	5	1.10443	1.16983	NC	NC	NC	NC
62		B	5	1.11233	1.18913	NC	NC		
63		C	5	1.07892	~~1.15472~~ (B)	NC	NC		
64		D	5	1.09755	1.15445	NC	NC		
65		E	5	1.08614	1.14053	NC	NC		
~~66~~ 68	QA/QC	QA/QC	N/A	1.12734	1.12715	NC	-	-	-
67	QA/QC	QA/QC	N/A	1.07610	1.07595	NC	-	-	-
1		A		1.09223	1.20821		-	-	-
Analyst			N/A	EC	LT				

(X) 1.08074 (B) 1.15468
(A) 1.07343

Maxxam Analytics

***Neanthes arenaceodentata* Test**
Aeration Checks

Client # & Name: 1399 C(21)

Start Date & Time: 2011 Oct 14 @ 15:35

Initial when aeration is checked. If air is off record DO and note which replicate(s) in comments section.

Day	-1	0	1	2	3	4	5	6	7	8	9
Date	2011 Oct 13	2011 Oct 14	2011 Oct 15	2011 Oct 16	2011 Oct 17	2011 OCT 18	2011 Oct 19	2011 OCT 20	2011 OCT 21	2011 Oct 22	2011 Oct 23
Early AM		MG		DML	EC	CT	MG (A)	CT	CT		EC
Mid-day		MG		DML	EC	MG	n/a	CT	EC (B)		EC
Late PM	✓LT	MG		WB	EC	MG		CT	CT		EC

	10	11	12	13	14	15	16	17	18	19	Day 20
Date	2011 Oct 24	2011 Oct 25	2011 Oct 26	2011 OCT 27	2011 OCT 28	2011 OCT 29	2011 Oct 30	2011 Oct 31	2011 NOV 01	2011 NOV 02	2011 NOV 03
Early AM	LT	MG	EC	CT	CT	CT	DML	LT	CT	CT	MG
Mid-day	EC	EC	EC	CT	EC	CT	DML	LT	CT	CT	
Late PM	MG	CT	EC	CT	CT	CT	DML	LT	CT	CT	

Comments:

aeration done @ 16:45 on October 13 2011 LT 13 Oct 2011

(A) 2011 Oct 19 C101, rep E not aerating properly. DO = 2.8 mg/L @ 21.0°C ≈ 37% sat. Sediment has become anoxic and Neanthes are emerged. MG 2011 Oct 19

(B) C101 Rep E see one neathes swimming @ mid-top of water column → DO = 7.8 T = 19.2°C fixed lines to be near sed (~2cm above) EC 2011 oct 21

M.G 2011 Oct 15

Maxxam Analytics

Neanthes arenaceodentata 20 Day Survival and Growth Test
Feeding Record

Client # & Name: 1399 CRD

Start Date & Time: 2011 Oct 14 @ 15:35

# of replicates: 80

Total Wt. Tetramarine™ (g): 4.00

Volume of seawater (ml): 100.0

Day	Date	Analyst	Conc'n of Feed (mg/mL)	1 mL Feed (√)
0	2011 Oct 14	MG	40	✓
2	2011 Oct 16	MR	40	✓
4	2011 Oct 17	MG	40	✓
6	2011 Oct 20	CT	40	✓
8	2011 Oct 22	[illegible]	40	✓
10	2011 Oct 24	EC	40	✓
12	2011 Oct 26	EC	40	✓
14	2011 Oct 28	EC	40	✓
16	2011 Oct 30	DML	40	✓
18	2011 NOV 01	CT	40	✓

Add one vial of ground Tetramarine™ to the volume of seawater indiated above. Place slurry on stirplate and let spin for at least 5 minutes. Feed each replicate 1 mL of slurry.

Comments: 2011 Oct 14 - Nutrafin flakes (ground) are being used instead of Tetramarine - MG

M. Gy 2012 Jan 09

Maxxam Analytics *Neanthes arenaceodentata* **Seawater Measurements**

Client # & Name: 13399 CRD **Test Initiation Date:** 2011 Oct 14

Seawater Arrival Date: 2011 Sept 20 **Type of Seawater:** Vancouver Aquarium

Date	Day	Temperature (°C)	D.O. (mg/L)	pH	Salinity (‰)	30% Water Renewal	Analyst
n/a	n/a	n/a	n/a	n/a	n/a		n/a
2011 Oct 13	Day -1	19.0	8.1	7.8	29		MG
2011 oct 14	Day 0	20.6	7.7	7.7	28		EC/CT
2011 oct 17	Day 3	21.0	~~8.2~~ ⊛ 7.7	7.9	27	yes	EC
2011 OCT 20	Day 6	19.9	7.9	7.7	28	yes	CT
2011 oct 23	Day 9	20.2	7.8	7.9	27	yes	EC
2011 oct 26	Day 12	20.0	7.9	8.0	28	yes	EC
2011 OCT 29	Day 15	18.4	7.8	8.0	29	yes	CT
2011 NOV 01	Day 18	18.5	8.0	8.0	30	yes	CT

Note: Seawater should be filtered, U.V. sterilized and aerated ≥ 24 hours prior to use.

Comments:

⊛ WE EC 2011 Oct 17

M.G 2012 Jan 09

Maxxam Analytics

20 day *Neanthes arenaceodentata* Survival and Growth Test Data

Client # & Name: 1399 CRD

Client Project #: N/a

Maxxam Job #: B192421

Organism Lot #: AT111012NA

Analyst(s): M.Gu, L.TAKAHASHI, C.Tra, J.Lai, ClAsso; M.Gu for D.Greschner, E.Chen

Start Date and Time: 2011 Oct 14 @ 15:35

End Date: 2011 Nov 03

Wt. at Start of Test (g): 0.72

Statistics File: NA-1399-0111

Sample ID: Control

Date	2011 OCT 14	2011 Oct 17	2011 OCT 20	2011 Oct 23	2011 Oct 26	2011 Oct 29	2011 NOV 01	2011 Nov 03
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.9	21.3	20.2	20.2	20.4	20.0	19.9	19.8
D.O. (mg/L)	7.6	7.3	7.5	7.6	7.9	7.2	7.7	7.5
pH	7.7	7.7	7.7	7.7	7.9	7.9	7.9	7.8
Salinity (‰)	28	28	28	28	28	28	29	29
Analyst	CT	EC	CT	EC	EC	CT	CT	LT

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	5	5	5	5	√Initial	√ Final
Analyst	MG	MG	EC	LT	LT	0.097	6.2

Sample ID: C100

Sample #: B28687-01

Date	2011 OCT 14	2011 Oct 17	2011 OCT 20	2011 Oct 23	2011 Oct 26	2011 OCT 29	2011 NOV 01	2011 Nov 03
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.5	21.2	20.2	20.4	20.3	19.9	19.3	19.8
D.O. (mg/L)	7.5	7.3	7.5	7.5	7.9	7.3	7.9	7.5
pH	7.8	8.0	8.1	8.1	8.4	8.3	8.3	8.2
Salinity (‰)	28	28	28	28	28	28	29	29
Analyst	CT	EC	CT	EC	EC	CT	CT	LT

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	4①	5	5	5	√Initial	√ Final
Analyst	LT	MG	MG	EC	MG	2.8	11

Additional Comments: all replicates have an orangy mold on the surface of the sediment - 2011Nov03 LT. ① one dead found MG 2011 Nov 03 MG.

FORM: 1604F08v1
2005/08/01

N:/Biology/Bioassay/Forms/Neanthes/Neanthes Test Data Sheet.xls

Maxxam Analytics

20 Day *Neanthes arenaceodentata* Survival and Growth Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Start Date and Time: 2011 Oct 14 @ 15:35

Sample ID: C101

Maxxam #: B28686-01

Date	2011 OCT 14	2011 Oct 17	2011 OCT 20	2011 Oct 23	2011 Oct 26	2011 OCT 29	2011 NOV 01	2011 Nov 03
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.9	21.3	20.3	20.3	20.4	20.1	19.4	20.0
D.O. (mg/L)	7.5	7.3	7.5	7.5	7.7	7.2	7.8	8.6
pH	7.8	8.0	8.1	8.1	8.3	8.3	8.3	8.2
Salinity (‰)	28	29	29	29	28	28	29	29
Analyst	CT	EC	CT	EC	EC	CT	CT	MG

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	5	5	5	5	√ Initial	√ Final
Analyst	LT	LT	EC	MG	EC	2.3	14

Sample ID: C102

Maxxam #: B28689-01

Date	2011 OCT 14	2011 Oct 17	2011 OCT 20	2011 Oct 23	2011 Oct 26	2011 OCT 29	2011 NOV 01	2011 Nov 03
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.7	21.2	20.2	20.4	20.4	20.1	19.2	19.6
D.O. (mg/L)	7.5	7.2	7.4	7.2	7.8	7.3	7.9	7.1
pH	7.7	7.9	7.9	7.9	8.1	8.1	8.1	8.0
Salinity (‰)	28	28	29	28	28	28	29	29
Analyst	CT	EC	CT	EC	EC	CT	CT	MG

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	5	5	5	5	√ Initial	√ Final
Analyst	MG	EC	MG	MG	LT	2.1	9.4

Additional Comments:

C102 Rep C, Neanthes present on sediment surface 2011 NOV 02 CT

Maxxam Analytics

20 Day *Neanthes arenaceodentata* Survival and Growth Test
Conditions and Survival Data

Client # & Name: 1399 CRD **Start Date and Time:** 2011 Oct 14 @ 15:35

Sample ID: C103 **Maxxam #:** B08688-01

Date	2011 Oct 14	2011 Oct 17	2011 Oct 20	2011 Oct 23	2011 Oct 26	2011 Oct 29	2011 Nov 01	2011 Nov 03
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.7	21.3	20.2	20.3	20.3	20.1	19.9	19.7
D.O. (mg/L)	7.6	7.4	7.6	7.6	8.1	7.3	7.5	7.5
pH	7.9	7.9	8.0	8.1	8.2	8.2	8.2	8.2
Salinity (‰)	28	29	29	29	28	28	29	29
Analyst	CT	EC	CT	EC	EC	CT	CT	MG

Replicate	A	B	C	D	E	✓ Total Ammonia (N) mg/L	
# Surviving	⊗ 5	5	5	5	5	Initial	✓ Final
Analyst	DML	LT	EC	LT	DML	1.6	8.8

Sample ID: C104 **Maxxam #:** B08694-01

Date	2011 Oct 14	2011 Oct 17	2011 Oct 20	2011 Oct 23	2011 Oct 26	2011 Oct 29	2011 Nov 01	2011 Nov 03
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.5	21.1	20.3	20.1	20.2	19.7	20.1	19.5
D.O. (mg/L)	7.5	6.9	7.6	7.5	7.8	7.2	7.6	7.9
pH	7.8	7.8	7.9	⊙ ~~7.5~~ 7.9	8.2	8.3	8.3	8.3
Salinity (‰)	28	28	29	29	28	28	29	29
Analyst	CT	EC	CT	EC	EC	CT	CT	EC

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	5	5	5	5	✓ Initial	✓ Final
Analyst	MG	DML	DML	LT	LT	2.5	10

Additional Comments: 2011 Oct 15 - white mold growing on surface of sample C104 MG

⊙ WE EC 2011 Oct 23

⊗ one neanthes split in two pieces during take down nov2 20u DML

Maxxam Analytics

20 Day *Neanthes arenaceodentata* Survival and Growth Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Start Date and Time: 2011 Oct 14 @ 15:35

Sample ID: C105

Maxxam #: B08690-01

Date	2011 OCT 14	2011 Oct 17	2011 OCT 20	2011 Oct 25	2011 Oct 26	2011 OCT 29	2011 NOV 01	2011 NOV 03
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.6	21.1	20.2	20.1	20.2	20.1	19.4	19.8
D.O. (mg/L)	7.7	7.2	7.5	7.5	8.0	6.9	7.7	7.4
pH	7.9	7.8	7.9	7.8	7.9	7.8	8.2	7.9
Salinity (‰)	28	28	28	29	28	28	29	29
Analyst	CT	EC	CT	EC	EC	CT	CT	/EC

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	5	5 (A)	5	5	✓ Initial	Final
Analyst	MG	CT	LT	DHL	MG	0.90	6.7

Sample ID: C106

Maxxam #: B08685-01

Date	2011 OCT 14	2011 Oct 17	2011 OCT 20	2011 OCT 23	2011 Oct 26	2011 OCT 29	2011 NOV 01	2011 NOV 03
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.6	21.0	20.2	20.2	20.2	19.9	19.4	19.7
D.O. (mg/L)	7.6	7.0	7.5	7.4	8.0	7.3	7.6	7.4
pH	8.0	8.0	8.0	8.1	8.3	8.3	8.3	8.3
Salinity (‰)	28	29	29	29	29	29	29	29
Analyst	CT	EC	CT	EC	EC	CT	CT	/EC

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	5	5	5	4 (B)	✓ Initial	Final
Analyst	LT	MG	MG DHL	DHL	CT	8.5	17

Nov 03-2011 Nov 03

Additional Comments: (A) one neanthes has broken i.e. 2. LT 2011 Nov 03

(B) Recovered 1 dead 2011 NOV 03 CT

2012 Jan 13 HLeg

Maxxam Analytics

20 Day *Neanthes arenaceodentata* Survival and Growth Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Start Date and Time: 2011 Oct 14 @ 15:35

Sample ID: C107

Maxxam #: B28692-01

Date	2011 OCT 14	2011 oct 17	2011 OCT 20	2011 oct 23	2011 oct 26	2011 oct 29	2011 NOV 01	2011 NOV 03
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.6	21.1	20.2	20.2	20.3	19.8	19.4	19.6
D.O. (mg/L)	7.6	7.3	7.7	7.6	8.0	7.3	7.8	7.6
pH	7.9	7.9	7.9	7.8	8.0	8.0	8.1	8.0
Salinity (‰)	28	29	29	29	29	28	29	29
Analyst	CT	EC	CT	EC	EC	CT	CT	EC

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	5	5 (A)	5	5	✓ Initial	Final
Analyst	LT	MG	LT	CT	MG	0.81	7.2

Sample ID: C108

Maxxam #: B28695-01

Date	2011 OCT 14	2011 oct 17	2011 OCT 20	2011 oct 23	2011 oct 26	2011 OCT 29	2011 NOV 01	2011 NOV 03
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.7	21.1	20.1	20.2	20.2	20.0	19.6	19.8
D.O. (mg/L)	7.6	7.1	7.7	7.3	7.9	7.1	7.6	7.5
pH	7.9	8.0	8.0	7.9	8.1	8.1	8.2	8.2
Salinity (‰)	28	29	29	29	29	29	29	29
Analyst	CT	EC	CT	EC	EC	CT	CT	EC

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	4	5	~~4~~ 5 (recount MG 2011 Nov 03)	5	✓ Initial	Final
Analyst	MG	LT	CT	MG	DML	3.4	11

Additional Comments:

2011 NOV 02, 2 Neanthes present in water column & sediment surface CT

(A) LT 2011 Nov 03 one neanthes is broken in half

M. Gay 2011 Nov 15

FORM: 1604F08v1
2005/08/01

N:/Biology/Bioassay/Forms/Neanthes/Neanthes Test Data Sheet.xls

Maxxam Analytics

20 Day *Neanthes arenaceodentata* Survival and Growth Test
Conditions and Survival Data

Client # & Name: 1399 CRD Start Date and Time: 2011 Oct 14@15:35

Sample ID: C109 Maxxam #: B28693-01

Date	2011 OCT 14	2011 Oct 17	2011 Oct 20	2011 Oct 23	2011 Oct 26	2011 OCT 29	2011 NOV 01	2011 NOV 03
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.7	21.1	20.1	20.4	20.3	20.0	19.6	19.7
D.O. (mg/L)	7.6	7.1	7.6	7.3	8.0	7.3	7.7	7.5
pH	7.9	8.0	8.0	8.0	8.1	8.2	8.3	8.2
Salinity (‰)	28	28	29	29	29	29	30	30
Analyst	CT	EC	CT	EC	EC	CT	CT	EC

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	5	5	5	5	✓ Initial	Final
Analyst	MB	LT	MB	CT	DML	5.5	16

Observed 2011 Nov 03

Sample ID: C110 Maxxam #: B28691-01

Date	2011 OCT 14	2011 Oct 17	2011 OCT 20	2011 Oct 23	2011 Oct 26	2011 OCT 29	2011 NOV 01	2011 NOV 03
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	20.8	21.1	20.2	20.3	20.3	20.1	19.7	19.7
D.O. (mg/L)	7.6	7.1	7.6	7.5	8.1	7.3	7.8	7.6
pH	7.9	7.9	8.0	7.9	8.0	8.0	8.1	8.1
Salinity (‰)	28	28	29	29	28	28	29	29
Analyst	CT	EC	CT	EC	EC	CT	CT	EC

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving	5	5	5	5	5	✓ Initial	Final
Analyst	MB	MB	LT	DML	CT	1.2	8.0

Additional Comments: 2011 Oct 15 - white mold growing on surface of sample C109 MB

2011 Nov 15 MB

Maxxam Analytics

20 Day *Neanthes arenaceodentata* Survival and Growth Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Start Date and Time: 2011 Oct 14 @ 15:35

Sample ID: C111

Maxxam #: B28684-01

Date	2011 OCT 14	2011 OCT 17	2011 OCT 20	2011 OCT 23	2011 Oct 26	2011 OCT 29	2011 NOV 01	2011 NOV 03
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)	21.0	21.3	20.1	20.5	20.4	20.2	19.8	19.9
D.O. (mg/L)	7.5	7.2	7.5	7.1	7.9	7.3	7.8	7.6
pH	7.7	8.0	8.1	7.9	8.1	8.2	8.2	8.2
Salinity (‰)	28	29	29	29	29	29	29	29
Analyst	CT	EC	CT	EC	EC	CT	CT	EC

Replicate	A	B	C	D	E (NOV 01 / NOV 03)	Total Ammonia (N) mg/L	
# Surviving	5	5	5	5	5	Initial ✓	Final
Analyst	LT	DML	CT	DML	MG	2.4	12

Sample ID: _____

Maxxam #: _____

Date								
	Day 0	Day 3	Day 6	Day 9	Day 12	Day 15	Day 18	Day 20
Temp. (ºC)								
D.O. (mg/L)								
pH								
Salinity (‰)								
Analyst								

M. Gray 2011 Oct 14

Replicate	A	B	C	D	E	Total Ammonia (N) mg/L	
# Surviving						Initial	Final
Analyst							

Additional Comments: _____

M. Gray 2012 Jan 04

Maxxam Analytics ***Neanthes arenaceodentata*** **Initial Dry Weights**

Client # & Name: 1399 CRD

Start Date and Time: 2011 Oct 14 @ 15:35

Organism Lot: AT111012NA

End Date: 2011 Nov 03

Organism Age: 2-3 weeks post emergence

Stats File ID: NA-1399-0111

Weighing Dates: 2011 Oct 13; 2011 Oct 17

Average weight (Day 0): **0.72**

Analyst(s): L. Takahashi, D. Lai

Boat #	# Worms	Boat Weight (g)	Worms + Boat weight (g)	Total Worm weight (g)	Individual worm weight (mg)
N-A	5	1.09678	1.10033	0.00355	0.71
N-B	5	1.10396	1.10786	0.00390	0.78
N-C	5	1.10237	1.10565	0.00328	0.66
Analyst		LT	DL		

Comments:

Proofed. LStaroff
2012Jan25

Maxxam Analytics ***Neanthes arenaceodentata*** **Initial Dry Weights**

Client # & Name: 1399 CRD

Start Date and Time: 2011Oct14 @15:35

Organism Lot: ATI1012NA

End Date: 2011Nov03

Organism Age: 2-3 weeks post emergence

Stats File ID: NA-1399-0111

Weighing Dates: 2011 Oct 13 ; 2011 Oct 17

Average weight (Day 0): **0.00**

Analyst(s): LTAKAHASHI

Boat #	# Worms	Boat Weight (g)	Worms + Boat weight (g)	Total Worm weight (g)	Individual worm weight (mg)
N-A	5	1.09678	1.10035	0.00000	0.00
N-B	5	1.10396	WE DML 2011Oct20 ~~1.10860~~ 1.10786	0.00000	0.00
N-C	5	1.10237	1.10565	0.00000	0.00
Analyst	LT	LT	DML		

WELT2011Oct13

Comments:

MCy 2011 Nov 08

AT111012

Aquatic Toxicology Support
1849 Charleston Beach Road West
Bremerton, Washington 98312
(360) 813-1202

Order Summary

Species: *Neanthes arenaceodentata**	Emerge Date: 9/23 - 9/26/11
Number Ordered: 650	Number Shipped: 650+10%
Date Shipped: 10/11/11	Salinity (ppt): 30

*Smith 1964. CSU Long Beach strain. Feed upon arrival.

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

Maxxam

Organism: Neanthes arenaceodentata
Organism Lot #: AT111012NA
Supplier: Aquatic Toxicology Support
Customer #: 1399 CRD

Arrival Date & Time: 2011 Oct 12 @ 11:00
Age upon Arrival: 2-3 weeks post emergence
 # Ordered: ~680
Study/Project # : 2-11-1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
Various	1	0	31	19.8	6.9	6.8	Tey (A)	MG

Container ID: 13 Oct 2011 A - D

Daily Conditions During Holding/Acclimation (A) sprinkle of powdered Tetrafin / pan

Date	Observations: # Dead	Observations: # Inactive	Water Quality: Salinity (‰) OR Conductivity (µS/cm)	Water Quality: Temperature (°C)	Water Quality: pH	Water Quality: DO (mg/L)	Water Quality: Feeding	Analyst
13Oct2011 Pan A	n/a	none	~~7.~~46.2	20.0	7.5	7.4	✓	LT
13Oct2011 Pan B	n/a	none	46.9	20.0	7.7	7.6	✓	LT
13Oct2011 Pan C	n/a	none	46.3	19.9	7.6	7.2	✓	LT
13Oct2011 Pan D	n/a	none	47.4	19.9	7.5	7.2	✓	LT

NS 2011 Nov 30

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
Holding Seawater WQ: Temp = 18.0°C; DO(mg/L) = 8.2; pH = 7.6; sal(ppt) = 27	MG	2011 Oct 12
Placed organisms in culture pans. Set aeration. Fed small amount of	MG	2011 Oct 12
food to each pan. Cultures appear healthy + active. Topped up each	MG	2011 Oct 12
pan with ~300mL holding seawater.	MG	2011 Oct 12

NS 2011 Nov 30

Revision: 01
Revision Date: March 25, 2010
Document Control Number: 80-F-089-01

Form approved by: Janet Pickard
Effective date: Apr 01, 2010

Maxxam Analytics **Randomization Chart for Sediment Tests**

Client Name and #: 1399 CRD
Project #: 2-11-1085
Maxxam Job #: BA2421

Test Type: 20-d polychaete test
Test Species: Nanthes arenaceodentata
Test Start Date: 2011 Oct 14

Instructions: please follow the position map below when placing vessels on the test bench.

Back Wall

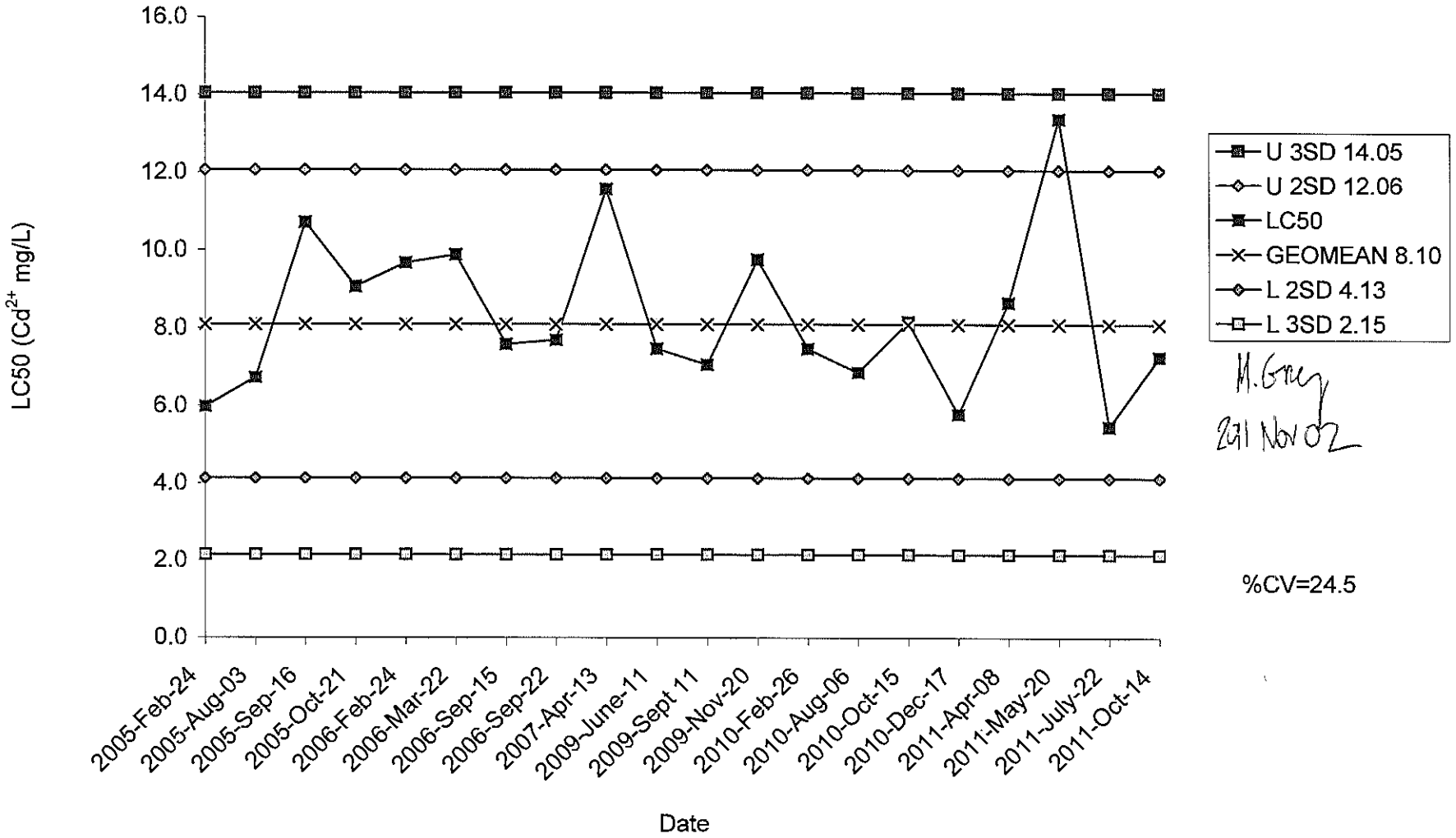
5	10	↑			
4	9				
3	8	13			
2	7	12			
1	6	11	→	→	→

Left — Front of Counter — Right

Position #	Treatment	Replicate	Colour	Position #	Treatment	Replicate	Colour
49	Control	A	Red	62	C107	A	Purple
42	Control	B	Red	71	C107	B	Purple
38	Control	C	Red	21	C107	C	Purple
10	Control	D	Red	12	C107	D	Purple
6	Control	E	Red	52	C107	E	Purple
22	Control	Measure	Red	39	C107	Measure	Purple
46	C100	A	Dk Orange	35	C108	A	Pink
74	C100	B	Dk Orange	37	C108	B	Pink
58	C100	C	Dk Orange	47	C108	C	Pink
51	C100	D	Dk Orange	63	C108	D	Pink
61	C100	E	Dk Orange	24	C108	E	Pink
17	C100	Measure	Dk Orange	69	C108	Measure	Pink
3	C101	A	Lt Orange	66	C109	A	White
32	C101	B	Lt Orange	60	C109	B	White
57	C101	C	Lt Orange	78	C109	C	White
1	C101	D	Lt Orange	4	C109	D	White
43	C101	E	Lt Orange	7	C109	E	White
16	C101	Measure	Lt Orange	14	C109	Measure	White
31	C102	A	Yellow	73	C110	A	yellow w red star
56	C102	B	Yellow	28	C110	B	yellow w red star
11	C102	C	Yellow	20	C110	C	yellow w red star
25	C102	D	Yellow	5	C110	D	yellow w red star
75	C102	E	Yellow	8	C110	E	yellow w red star
34	C102	Measure	Yellow	13	C110	Measure	yellow w red star
77	C103	A	Fl Green	33	C111	A	red w silver star
66	C103	B	Fl Green	29	C111	B	red w silver star
41	C103	C	Fl Green	67	C111	C	red w silver star
27	C103	D	Fl Green	76	C111	D	red w silver star
70	C103	E	Fl Green	53	C111	E	red w silver star
9	C103	Measure	Fl Green	2	C111	Measure	red w silver star
44	C104	A	Green				
30	C104	B	Green				
19	C104	C	Green				
45	C104	D	Green				
26	C104	E	Green				
48	C104	Measure	Green				
15	C105	A	Blue				
23	C105	B	Blue				
59	C105	C	Blue				
36	C105	D	Blue				
18	C105	E	Blue				
64	C105	Measure	Blue				
50	C106	A	Dark Blue				
55	C106	B	Dark Blue				
72	C106	C	Dark Blue				
65	C106	D	Dark Blue				
40	C106	E	Dark Blue				
54	C106	Measure	Dark Blue				

Maxxam

Neanthes arenaceodentata
96-hr Reference Toxicant Control Chart for Cadmium Chloride



M. Gray
29 Nov 12

%CV=24.5

Maxxam

Success Through Science

Maxxam Job #: B199287
Report Date: 2011/10/21

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085 NEANTHES DAY O

Sampler Initials: CT

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BV5242		BV5255		BV5256		BV5257	BV5258		BV5259		BV5260	
Sampling Date		2011/10/14		2011/10/14		2011/10/14		2011/10/14	2011/10/14		2011/10/14		2011/10/14	
COC#		G047283		G047280		G047280		G047280	G047280		G047280		G047280	
	Units	**C111 OVERLY NEANTHES**	**RDL**	**CONTROL OVERLY NEANTHES**	**RDL**	**C100 OVERLY NEANTHES**	**RDL**	**C101 OVERLY NEANTHES**	**C102 OVERLY NEANTHES**	**RDL**	**C103 OVERLY NEANTHES**	**RDL**	**C104 OVERLY NEANTHES**	**RDL**
Nutrients														
Ammonia (N)	mg/L	2.4	0.05	0.097	0.005	2.8	0.05	2.3	2.1	0.03	1.6	0.01	2.5	0.03

Maxxam ID		BV5261		BV5262		BV5263		BV5264	BV5265		BV5266	
Sampling Date		2011/10/14		2011/10/14		2011/10/14		2011/10/14	2011/10/14		2011/10/14	
COC#		G047280		G047280		G047280		G047280	G047280		G047280	
	Units	**C105 OVERLY NEANTHES**	**RDL**	**C106 OVERLY NEANTHES**	**RDL**	**C107 OVERLY NEANTHES**	**RDL**	**C108 OVERLY NEANTHES**	**C109 OVERLY NEANTHES**	**RDL**	**C110 OVERLY NEANTHES**	**RDL**
Nutrients												
Ammonia (N)	mg/L	0.90	0.005	3.5	0.05	0.81	0.005	3.4	5.5	0.05	1.2	0.01

RDL = Reportable Detection Limit

Maxxam Job #: B1A7042
Report Date: 2011/11/10

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085 NEATHES DAY 20

Your P.O. #: 2-11-1085

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		CA6156		CA6157		CA6158		CA6159		CA6160		CA6161		CA6162	
Sampling Date		2011/11/03		2011/11/03		2011/11/03		2011/11/03		2011/11/03		2011/11/03		2011/11/03	
COC#		G047728		G047728		G047728		G047728		G047728		G047728		G047728	
	Units	**CONTROL OVERLY NEATHES**	**RDL**	**C100 OVERLY NEATHES**	**RDL**	**C101 OVERLY NEATHES**	**RDL**	**C102 OVERLY NEATHES**	**RDL**	**C103 OVERLY NEATHES**	**RDL**	**C104 OVERLY NEATHES**	**RDL**	**C105 OVERLY NEATHES**	**RDL**
Nutrients															
Ammonia (N)	mg/L	6.2	0.05	11	0.1	14	0.3	9.4	0.1	8.8	0.05	10	0.1	6.7	0.05

Maxxam ID		CA6163		CA6164		CA6165		CA6166		CA6167		CA6168	
Sampling Date		2011/11/03		2011/11/03		2011/11/03		2011/11/03		2011/11/03		2011/11/03	
COC#		G047728		G047728		G047728		G047728		G047728		G047729	
	Units	**C106 OVERLY NEATHES**	**RDL**	**C107 OVERLY NEATHES**	**RDL**	**C108 OVERLY NEATHES**	**RDL**	**C109 OVERLY NEATHES**	**RDL**	**C110 OVERLY NEATHES**	**RDL**	**C111 OVERLY NEATHES**	**RDL**
Nutrients													
Ammonia (N)	mg/L	17	0.3	7.2	0.05	11	0.1	16	0.3	8.0	0.05	12	0.1

RDL = Reportable Detection Limit

28 DAY *LEPTOCHEIRUS PLUMULOSUS* SURVIVAL, GROWTH AND REPRODUCTION TEST

Test Summary

Statistics

Raw Data

Supporting Test Data

Acclimation and Holding Conditions

Overlying Water Chemistry

Reference Toxicant Control Chart

28-d *Leptocheirus* Survival, Growth and Reproduction Test Summary

Client Name/Location	Capital Regional District/ Victoria, BC
Testing Lab/Location	Maxxam Analytics / Burnaby, BC
Sample Information	
Sample Names	M1E, M2E, M8E, M4E, C2E, PB1, M1SE, PB3, C4E, C1E, PB2, M1NW
Type of Sample	Field collected sediments
Method of Collection	See Chain of Custody form
Sample Collector	See Chain of Custody form
Sample Volume	99 L for M1E, M2E, M8E; 44L for PB1; 22L for M4E, M1SE, PB2, C2E, PB3, C4E, C1E, M1NW.
Sample Containers	4-L white food grade plastic buckets
Sample Collection Date	2011 Sep 14; 2011 Sep 15; 2011 Sep 16; 2011 Sep 19; 2011 Sep 20; 2011 Sep 21; 2011 Sep 22
Sample Temperature upon Arrival	Not recorded at sample receipt.
Date & Time of Sample Receipt	2011 Sep 28 @ 14:50
Storage Conditions	From receipt to test initiation, the samples were stored in a temperature controlled cold room at 4 ± 2°C.
Sediment and Pore Water Characterisation	See Sediment Sample Descriptions sheet and analytical chemistry reports.
Sample Preparation	
Homogenisation	Samples were individually mixed until homogenised at ambient laboratory temperature. Additionally, the sediments were sieved through 1mm to remove large debris and indigenous macro-organisms (see Sediment Sample Descriptions sheet).
Date of Homogenisation	2011 Oct 06
Sediment – Physical Analyses	TOC, moisture content and grain size were measured in each sediment sample prior to toxicity test initiation. The results of the analyses are not included in this report.
Sediment Porewater – Chemical Analyses	Samples of homogenised sediment were centrifuged for 30 minutes, at 5000 rpm, to produce porewater. The porewater was then analysed for dissolved organic carbon, ammonia, sulphides, and hardness. The results are available in the Sample Information section of this report. Porewater was also extracted on Day 0 and 28 from replicates included for this purpose. Extracted porewater was then submitted for ammonia analysis. The results are available in the "28-d *Leptocheirus plumulosus*" section of the report.

Test Organisms	
Species	*Leptocheirus plumulosus*
Source	Chesapeake Cultures Hayes, VA
Method of Collection	Laboratory reared
Size at Start of Test	Juveniles captured between 0.25-0.6mm sieves
Date of Organism Arrival	2011 Oct 05
Holding and Acclimation Conditions	See Acclimation and Holding Conditions sheets
% Mortality During Holding	0.0
Initial weight at test initiation	60 amphipods were selected at random, at the beginning of the test, for initial dry weight measurements. The mean initial dry weight was 0.14 mg/amphipod.
Laboratory Control Sediment and Test Water	
Laboratory Control Sediment Source	Natural fine-grained sediment from the York River, Gloucester, VA; Collected by Chesapeake Cultures (Hayes, VA).
Laboratory Control Sediment Storage	Stored in a cold room that was at 4 ± 2°C
Laboratory Control Sediment Preparation Procedure	Sediment was frozen for 3-4 days, then sieved (0.25 mm) with control/dilution seawater before it was used for testing culturing.
Overlying Water	Seawater collected at the Vancouver Aquarium, from Burrard Inlet, 40-45' deep inlet, gravity sand filter with sand mesh size 22, filtered through 5µm filter and passed through UV Sterilizer.
Type and Quantity of Chemicals Added to Water	None
Pre-treatment of Overlying Water	The seawater was U.V sterilised, filtered through a 1 µm filter, salinity adjusted to 20±3‰ with deionised water, warmed to 25 ± 2°C, and continuously aerated prior to use.
Reference Sediments	PB1, PB2 and PB3

Test Conditions & Facilities	
Test Method	USEPA 2011. Methods for Assessing the Chronic Toxicity of Marine and Estuarine Sediment-associated Contaminants with the Amphipod *Leptocheirus plumulosus*. First ed. Office of Research and Development Western Ecology Division, Newport, Oregon (EPA 600/R-01/020).
Test Type / Duration	28-d whole sediment toxicity test. Static-renewal
Test Temperature	25°C ± 2°C. See the Test Conditions and Survival Data sheets
Light levels and Photoperiod	16:8 light dark cycle; 500-1000 lux
Aeration	Continuous and minimal in each test vessel; checked 3 times daily. Compressed oil-free air delivered through microbore airline tubing.
Test Start Date	2011 Oct 07
Test Completion Date	2011 Nov 04
Test Vessels	1 L glass jars; covered.
Volume of Sediment	175 mL (~2cm depth)
Volume of Test Water	825 mL
Analysts	M. Grey, D. Greschner, D. Lai, E. Chen, C. Tra, L. Takahashi, M. Brassil, P. Howes, J. Laroulandie, J. Pickard, D. Lee, A. Rakhmangulova
Water Renewal	≈ 50% water renewal on M, W, F; after water quality measurements, and before feeding.
# Organisms / Vessel	20; randomly assigned to each test vessel
Number of Replicates	5 (plus 2 measurement replicates) for each sediment sample
Feeding Regime	1 mL of 20 mg/mL Tetramin® Slurry on M,W,F on Days 0-13; 1 mL of 40 mg/mL Tetramin® Slurry on M,W,F on Days 14-28

Observations & Measurements	
Dissolved Oxygen (DO), Temperature, pH and Salinity	At test start and end, and every M, W, F, in overlying water in the measurement jars, shortly before water renewal. See Test Conditions and Survival Data sheets.
Sediment Appearance During Test	See Aeration Checks, Test Conditions and Survival Data sheets
Test Observations	Organism behaviour during the test, visible mortalities and/or abnormal behaviour was recorded on Test Conditions and Survival Data sheets.
Survival	All live amphipods recovered from each test vessel were counted. See Summary of Survival Data sheet
Overlying Water – Chemical Analyses	Samples of the overlying water were analysed for Ammonia on Day 0 (start) and Day 28 (end) of the test. See chemical analysis reports.
Anything Unusual about the Test, Deviation from Test Method, other Problems	It was suspected that on of the control replicates (B) was mis-seeded at test initiation. A decision was made to use the measurement replicate in its stead for the quantification of survival, dry weight and reproduction.
Results	
Endpoints	Percentage Survival and Mean Growth and Mean Reproduction. See Summary of Survival, Dry Weight and Reproduction sheets.
Endpoint Results	**Survival** There was a statistically significant reduction in mean survival between the test sediments PB2, PB3, C2E, M1SE, C1E, and the laboratory control. **Individual Dry Weight** There were no statistically significant decreases in mean dry weight between any of the test sediments and the laboratory control. **Reproduction** There was a statistically significant reduction in mean reproduction between the test sediments M1E, M8E, C4E, M1NW, and the laboratory control. No comparison testing was performed with PB1 against the test sediments due to its poor performance in this test.
Name and citation of program and methods used for calculating statistical endpoint	CETIS v1.7.0.3 – Parametric and Nonparametric Methods; Equal Variance t Two-Sample Test, Wilcoxon Rank Sum Two Sample test, and Unequal Variance t Two Sample test. Data was tested for normality using Shapiro-Wilk's test and homogeneity of variance using Bartlett's test.

QA/QC	
Test Validity Criteria • Mean survival in the control must be ≥80% • Percent survival in any control replicate must be ≥60% • Measurable reproduction in all control replicates	• Mean survival in the control was 87% • Lowest percent survival in any one control replicate was 70% • There were young produced in all control replicates.
Ref Tox Test LC50 (95% CL) (mg/L Cd)	0.46 (0.34, 0.62)
Invalid Ref Tox Test?	No
Ref Tox Test Historic LC50 with 95% CL (mg/L Cd)	2010 Sep 09: 0.74 (0.54, 1.03) 2009 Jun 12: 0.37 (0.25, 0.53) 2006 Aug 03: 0.50 (0.21, 1.56)
Date of Ref Tox Test	2011 Oct 07
Organisms Batch and Condition of Ref Tox Test	Static 96-h water-only test. Same batch of organisms used

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **Maxxam Analytics**

Analysis ID:	18-2674-9837	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.7.0
Analyzed:	25 Jan-12 15:42	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes
Batch ID:	14-6427-5188	**Test Type:**	Leptocheirus (28-d)	**Analyst:**	
Start Date:	07 Oct-11 19:00	**Protocol:**	EPA/600/R-01/020 (2001)	**Diluent:**	Natural Seawater (Van. Aquarium)
Ending Date:	04 Nov-11 12:00	**Species:**	Leptocheirus plumulosus	**Brine:**	Not Applicable
Duration:	27d 17h	**Source:**	Chesapeake Cultures, VA	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	C > T	Not Run					N/A

Kolmogorov-Smirnov Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
Control		PB1	0.6			0.1786	Non-Significant Effect
		PB2	0.6			0.1786	Non-Significant Effect
		PB3	0.6			0.1429	Non-Significant Effect
		M1E	1			0.0040	Significant Effect
		M2E	0.6			0.1786	Non-Significant Effect
		M8E	0.8			0.0397	Significant Effect
		M4E	0.6			0.1786	Non-Significant Effect
		C2E	0.6			0.1786	Non-Significant Effect
		M1SE	0.4			0.4365	Non-Significant Effect
		C4E	0.8			0.0397	Significant Effect
		C1E	0.2			0.5000	Non-Significant Effect
		MINW	1			0.0040	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	69.10385	5.758655	12	3.076	0.0025	Significant Effect
Error	95.49233	1.872399	51			
Total	164.5962	7.631053	63			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	96.59	26.22	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8234		<0.0001	Non-normal Distribution

Reproduction Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	3.089	1.928	4.251	0.1875	7.579	1.366	3.054	98.84%	0.0%
PB1	5	0.478	0.3293	0.6266	0	1.05	0.1748	0.3908	81.75%	84.53%
PB2	5	0.625	0.2132	1.037	0	2.5	0.4841	1.083	173.2%	79.77%
PB3	4	0.425	0.1686	0.6814	0	1.429	0.3371	0.6741	158.6%	86.24%
M1E	5	0.06387	0.04197	0.08577	0	0.1579	0.02575	0.05759	90.16%	97.93%
M2E	5	0.2538	0.1437	0.364	0	0.7059	0.1295	0.2896	114.1%	91.78%
M8E	5	0.07661	0.03045	0.1228	0	0.2778	0.05427	0.1213	158.4%	97.52%
M4E	5	0.5131	0.3232	0.7029	0	1.2	0.2232	0.499	97.27%	83.39%
C2E	5	1.001	0.7426	1.259	0.5	2.154	0.3035	0.6787	67.82%	67.61%
M1SE	5	2.047	1.263	2.832	0	5.313	0.9222	2.062	100.7%	33.74%
C4E	5	0.3659	0.1031	0.6287	0	1.6	0.309	0.6909	188.8%	88.16%
C1E	5	2.985	1.954	4.015	0	6.8	1.212	2.709	90.77%	3.38%
MINW	5	0.06187	0.04655	0.07719	0	0.1111	0.01801	0.04028	65.1%	98.0%

2012Jan25 Analyst: 2012Jan25 QA: LS

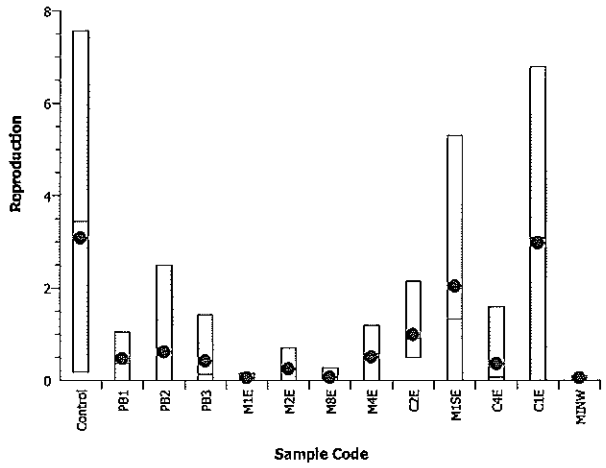
Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **Maxxam Analytics**

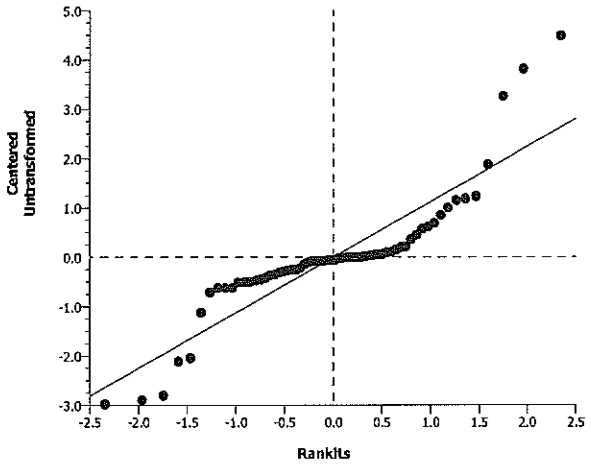
Analysis ID:	18-2674-9837	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.7.0
Analyzed:	25 Jan-12 15:42	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

Reproduction Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	0.1875	3.944	0.2857	7.579	3.45
PB1	0.375	0.3333	1.05	0.6316	0
PB2	0	0	2.5	0	0.625
PB3	1.429	0.07143	0.2	0	
M1E	0.05882	0.05263	0.05	0	0.1579
M2E	0.3	0	0	0.7059	0.2632
M8E	0.2778	0.1053	0	0	0
M4E	0.5789	0.7308	1.2	0.05556	0
C2E	0.9333	0.5	0.9167	2.154	0.5
M1SE	1.333	2.667	0.9231	0	5.313
C4E	0	1.6	0.07692	0.05263	0.1
C1E	0	6.8	3.091	0.8667	4.167
MINW	0.1111	0	0.0625	0.07692	0.05882

Graphics





2012Jan25 Analyst: 2012Jan25 QA: LS

CETIS Analytical Report

Report Date:	24 Jan-12 15:00 (p 1 of 2)
Test Code:	17-1888-2707/LP-1399-0111

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **Maxxam Analytics**

Analysis ID:	13-7337-7112	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.7.0
Analyzed:	24 Jan-12 15:00	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	14-6427-5188	**Test Type:**	Leptocheirus (28-d)	**Analyst:**	
Start Date:	07 Oct-11 19:00	**Protocol:**	EPA/600/R-01/020 (2001)	**Diluent:**	Natural Seawater (Van. Aquarium)
Ending Date:	04 Nov-11 12:00	**Species:**	Leptocheirus plumulosus	**Brine:**	Not Applicable
Duration:	27d 17h	**Source:**	Chesapeake Cultures, VA	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	C > T	Not Run					73.97%

Unequal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
Control		PB1	1.776	2.132	0.8461	0.0752	Non-Significant Effect
		PB2	1.803	2.132	0.8443	0.0729	Non-Significant Effect
		PB3	1.545	2.015	0.8326	0.0915	Non-Significant Effect
		M1E	1.536	2.132	0.831	0.0997	Non-Significant Effect
		M2E	0.9042	1.943	0.8489	0.2004	Non-Significant Effect
		M8E	1.785	2.132	0.8483	0.0744	Non-Significant Effect
		M4E	1.203	2.132	0.8585	0.1476	Non-Significant Effect
		C2E	0.2545	2.132	0.8567	0.4058	Non-Significant Effect
		M1SE	-0.9009	1.943	0.8554	0.7988	Non-Significant Effect
		C4E	1.711	2.132	0.8411	0.0811	Non-Significant Effect
		C1E	-0.8472	1.895	0.9028	0.7876	Non-Significant Effect
		MINW	1.552	2.132	0.8569	0.0978	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value	Grubbs Single Outlier	2.909	3.224	0.1706	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	10.11264	0.8427201	12	5.502	<0.0001	Significant Effect
Error	7.81212	0.1531788	51			
Total	17.92476	0.9958989	63			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	31.9	26.22	0.0014	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.9576		0.0274	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	1.158	0.8291	1.488	0.2363	2.183	0.3872	0.8658	74.74%	0.0%
PB1	5	0.4534	0.3793	0.5276	0.267	0.7068	0.08719	0.195	43.0%	60.86%
PB2	5	0.4444	0.3736	0.5151	0.3243	0.774	0.08317	0.186	41.85%	61.64%
PB3	4	0.5198	0.41	0.6296	0.3269	0.9471	0.1443	0.2887	55.53%	55.12%
M1E	5	0.5596	0.5212	0.598	0.4221	0.6485	0.04515	0.101	18.04%	51.69%
M2E	5	0.7634	0.5913	0.9355	0.3424	1.496	0.2024	0.4525	59.27%	34.1%
M8E	5	0.448	0.37	0.526	0.23	0.6878	0.09171	0.2051	45.77%	61.32%
M4E	5	0.6738	0.5796	0.768	0.4413	1.058	0.1108	0.2477	36.76%	41.83%
C2E	5	1.056	0.9645	1.148	0.805	1.388	0.1077	0.2408	22.8%	8.83%
M1SE	5	1.555	1.377	1.733	1.079	2.2	0.2094	0.4683	30.12%	-34.23%
C4E	5	0.4834	0.4189	0.5479	0.3265	0.767	0.07581	0.1695	35.07%	58.27%
C1E	5	1.562	1.326	1.798	0.8336	2.417	0.2778	0.6212	39.76%	-34.85%
MINW	5	0.5346	0.4428	0.6264	0.2931	0.8062	0.1079	0.2412	45.12%	53.85%

2012 Jan 24 2012Jan25

Analyst: H. Ling QA: LS

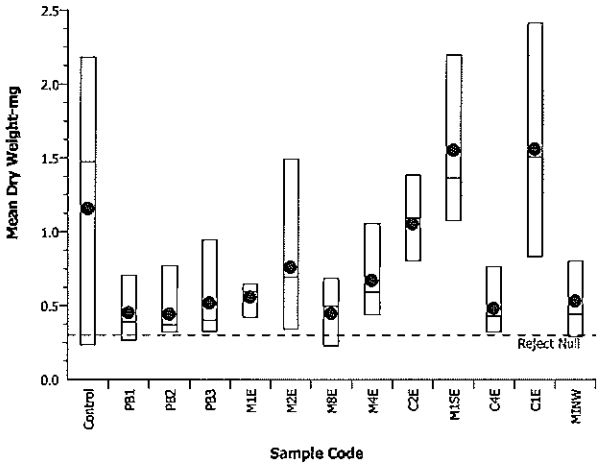
Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **Maxxam Analytics**

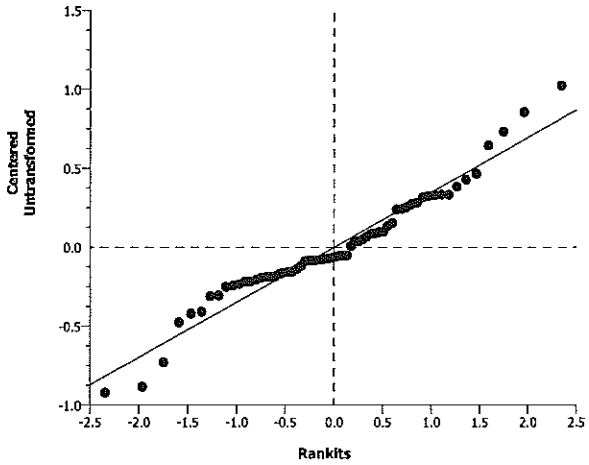
Analysis ID:	13-7337-7112	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.7.0
Analyzed:	24 Jan-12 15:00	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Mean Dry Weight-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	0.2363	2.183	0.2743	1.624	1.475
PB1	0.3925	0.2933	0.6075	0.7068	0.267
PB2	0.3714	0.3583	0.774	0.3243	0.3938
PB3	0.9471	0.4393	0.366	0.3269	
M1E	0.5971	0.4221	0.6485	0.4861	0.6442
M2E	0.829	0.3424	0.4529	1.496	0.6968
M8E	0.6878	0.5826	0.498	0.23	0.2417
M4E	0.7695	0.5946	1.058	0.5056	0.4413
C2E	0.8387	1.094	1.154	1.388	0.805
M1SE	1.079	2.2	1.366	1.25	1.88
C4E	0.3265	0.767	0.3985	0.4926	0.4325
C1E	0.8336	2.417	1.509	1.154	1.897
MINW	0.35	0.7772	0.2931	0.8062	0.4465

Graphics





Analyst: 24/Jan/12 QA: 25/Jan/12

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **Maxxam Analytics**

Analysis ID:	21-2079-6678	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	16 Jan-12 11:01	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	14-6427-5188	**Test Type:**	Leptocheirus (28-d)	**Analyst:**	
Start Date:	07 Oct-11 19:00	**Protocol:**	EPA/600/R-01/020 (2001)	**Diluent:**	Natural Seawater (Van. Aquarium)
Ending Date:	04 Nov-11 12:00	**Species:**	Leptocheirus plumulosus	**Brine:**	Not Applicable
Duration:	27d 17h	**Source:**	Chesapeake Cultures, VA	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					18.64%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
Control		PB1	1.004	1.86	0.3915	0.1723	Non-Significant Effect
		PB2	3.628	1.86	0.2173	0.0034	Significant Effect
		PB3	3.296	1.86	0.3333	0.0055	Significant Effect
		M1E	-0.8733	1.86	0.1789	0.7960	Non-Significant Effect
		M2E	-0.3377	1.86	0.1894	0.6278	Non-Significant Effect
		M8E	0.8983	1.86	0.3888	0.1976	Non-Significant Effect
		M4E	-0.2696	1.86	0.2013	0.6029	Non-Significant Effect
		C2E	1.998	1.86	0.1936	0.0404	Significant Effect
		M1SE	2.435	1.86	0.3058	0.0204	Significant Effect
		C4E	-0.3436	1.86	0.2406	0.6300	Non-Significant Effect
		C1E	3.013	1.86	0.223	0.0084	Significant Effect
		MINW	1.531	1.86	0.2305	0.0821	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	2.768258	0.2306882	12	3.456	0.0009	Significant Effect
Error	3.470999	0.06674998	52			
Total	6.239257	0.2974381	64			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	18.06	26.22	0.1138	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9685		0.0962	Normal Distribution

2012Jan16 Analyst: MCy/ 2012Jan18 QA: LS

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test **Maxxam Analytics**

Analysis ID: 21-2079-6678 Endpoint: Survival Rate CETIS Version: CETISv1.7.0
Analyzed: 16 Jan-12 11:01 Analysis: Parametric-Two Sample Official Results: Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	0.87	0.8242	0.9158	0.7	1	0.05385	0.1204	13.84%	0.0%
PB1	5	0.68	0.5451	0.8149	0.15	1	0.1586	0.3546	52.15%	21.84%
PB2	5	0.52	0.452	0.588	0.3	0.7	0.08	0.1789	34.4%	40.23%
PB3	5	0.39	0.2796	0.5004	0	0.7	0.1298	0.2903	74.43%	55.17%
M1E	5	0.93	0.9083	0.9517	0.85	1	0.0255	0.05701	6.13%	-6.9%
M2E	5	0.9	0.8731	0.9269	0.85	1	0.03162	0.07071	7.86%	-3.45%
M8E	5	0.69	0.5539	0.8261	0.3	1	0.16	0.3578	51.85%	20.69%
M4E	5	0.8933	0.8573	0.9294	0.75	1	0.04236	0.09472	10.6%	-2.68%
C2E	5	0.72	0.6762	0.7638	0.6	0.9	0.05148	0.1151	15.99%	17.24%
M1SE	5	0.55	0.4416	0.6584	0.1	0.8	0.1275	0.285	51.83%	36.78%
C4E	5	0.89	0.8339	0.9461	0.65	1	0.06595	0.1475	16.57%	-2.3%
C1E	5	0.58	0.5093	0.6507	0.3	0.75	0.08307	0.1857	32.02%	33.33%
MINW	5	0.73	0.6606	0.7994	0.45	0.9	0.08155	0.1823	24.98%	16.09%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
Control	5	1.23	1.16	1.301	0.9912	1.459	0.0831	0.1858	15.1%	0.0%
PB1	5	1.019	0.8543	1.183	0.3977	1.459	0.1934	0.4325	42.45%	17.18%
PB2	5	0.8064	0.7366	0.8763	0.5796	0.9912	0.08214	0.1837	22.78%	34.45%
PB3	5	0.6395	0.5045	0.7746	0.112	0.9912	0.1588	0.3551	55.52%	48.02%
M1E	5	1.314	1.273	1.356	1.173	1.459	0.04847	0.1084	8.25%	-6.83%
M2E	5	1.265	1.215	1.315	1.173	1.459	0.05888	0.1316	10.41%	-2.8%
M8E	5	1.042	0.8793	1.206	0.5796	1.459	0.1918	0.429	41.15%	15.27%
M4E	5	1.259	1.2	1.318	1.047	1.459	0.06934	0.155	12.31%	-2.37%
C2E	5	1.022	0.9689	1.076	0.8861	1.249	0.06273	0.1403	13.72%	16.91%
M1SE	5	0.8298	0.7091	0.9505	0.3218	1.107	0.1419	0.3174	38.24%	32.55%
C4E	5	1.275	1.19	1.359	0.9377	1.459	0.09915	0.2217	17.39%	-3.61%
C1E	5	0.869	0.7955	0.9425	0.5796	1.047	0.08645	0.1933	22.25%	29.37%
MINW	5	1.04	0.9622	1.119	0.7353	1.249	0.09198	0.2057	19.77%	15.43%

2012 Jan 16 Analyst: MG 20120118 QA: LS

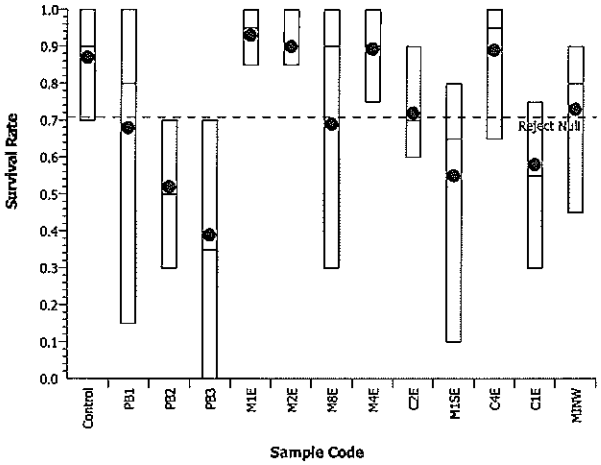
Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **Maxxam Analytics**

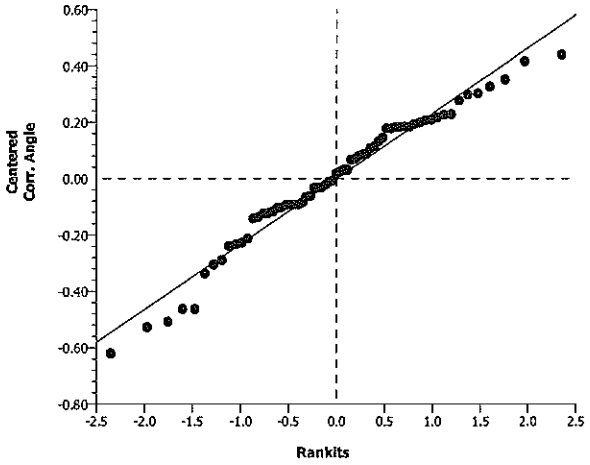
Analysis ID:	21-2079-6678	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	16 Jan-12 11:01	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	0.8	0.9	0.7	0.95	1
PB1	0.8	0.15	1	0.95	0.5
PB2	0.7	0.3	0.5	0.7	0.4
PB3	0.35	0.7	0.25	0	0.65
M1E	0.85	0.95	1	0.9	0.95
M2E	1	0.85	0.85	0.85	0.95
M8E	0.9	0.95	1	0.3	0.3
M4E	0.95	0.8667	1	0.9	0.75
C2E	0.75	0.7	0.6	0.65	0.9
M1SE	0.75	0.45	0.65	0.1	0.8
C4E	0.85	1	0.65	0.95	1
C1E	0.55	0.75	0.55	0.75	0.3
MINW	0.45	0.9	0.8	0.65	0.85

Graphics





Analyst: 2012 Jan 16 QA: 2012 Jan 18

Client # & Name: #1399 CRD Job#: B192421

Start Date: 2011 Oct 07 End Date: 2011 Nov 04

Sample ID	Client ID	Sample #	Replicate	# Surviving	Survival (%)	Mean Survival (%)	SD
Control	-	-	A	16	80	87	12
			B*	18	90		
			C	14	70		
			D	19	95		
			E	20	100		
C100	M1E	BQ8687-01	A	17	85	93	6
			B	19	95		
			C	20	100		
			D	18	90		
			E	19	95		
C101	M2E	BQ8686-01	A	20	100	90	7
			B	17	85		
			C	17	85		
			D	17	85		
			E	19	95		
C102	M8E	BQ8689-01	A	18	90	69	36
			B	19	95		
			C	20	100		
			D	6	30		
			E	6	30		
C103	M4E	BQ8688-01	A	19	95	89	9
			B	26	87		
			C	20	100		
			D	18	90		
			E	15	75		
C104	C2E	BQ8694-01	A	15	75	72	12
			B	14	70		
			C	12	60		
			D	13	65		
			E	18	90		
C105	PB1	BQ8690-01	A	16	80	68	35
			B	3	15		
			C	20	100		
			D	19	95		
			E	10	50		
C106	M1SE	BQ8685-01	A	15	75	55	29
			B	9	45		
			C	13	65		
			D	2	10		
			E	16	80		
C107	PB3	BQ8692-01	A	7	35	39	29
			B	14	70		
			C	5	25		
			D	0	0		
			E	13	65		

Sample ID	Client ID	Sample #	Replicate	# Surviving	Survival (%)	Mean Survival (%)	SD
C108	C4E	BQ8695-01	A	17	85	89	15
			B	20	100		
			C	13	65		
			D	19	95		
			E	20	100		
C109	C1E	BQ8693-01	A	11	55	58	19
			B	15	75		
			C	11	55		
			D	15	75		
			E	6	30		
C110	PB2	BQ8691-01	A	14	70	52	18
			B	6	30		
			C	10	50		
			D	14	70		
			E	8	40		
C111	M1NW	BQ8684-01	A	9	45	73	18
			B	18	90		
			C	16	80		
			D	13	65		
			E	17	85		

*Measurement replicate was subtituted for Replicate B.

Proofed
LStauffer
2012Jan25

Leptocheirus plumulosus Reproduction Summary

Client # & Name: #1399 CRD

Job#: B192421

Start Date: 2011 Oct 07

End Date: 2011 Nov 04

Sample ID	Client ID	Replicate	# Surviving	# Offspring	#Offspring/ Amphipod	Mean #Offspring/ Amphipod	SD
Control	-	A	16	3	0.19	3.09	3.05
		B*	18	71	3.94		
		C	14	4	0.29		
		D	19	144	7.58		
		E	20	69	3.45		
C100	M1E	A	17	1	0.06	0.06	0.06
		B	19	1	0.05		
		C	20	1	0.05		
		D	18	0	0.00		
		E	19	3	0.16		
C101	M2E	A	20	6	0.30	0.25	0.29
		B	17	0	0.00		
		C	17	0	0.00		
		D	17	12	0.71		
		E	19	5	0.26		
C102	M8E	A	18	5	0.28	0.08	0.12
		B	19	2	0.11		
		C	20	0	0.00		
		D	6	0	0.00		
		E	6	0	0.00		
C103	M4E	A	19	11	0.58	0.51	0.50
		B	26	19	0.73		
		C	20	24	1.20		
		D	18	1	0.06		
		E	15	0	0.00		
C104	C2E	A	15	14	0.93	1.00	0.68
		B	14	7	0.50		
		C	12	11	0.92		
		D	13	28	2.15		
		E	18	9	0.50		
C105	PB1	A	16	6	0.38	0.48	0.39
		B	3	1	0.33		
		C	20	21	1.05		
		D	19	12	0.63		
		E	10	0	0.00		
C106	M1SE	A	15	20	1.33	2.05	2.06
		B	9	24	2.67		
		C	13	12	0.92		
		D	2	0	0.00		
		E	16	85	5.31		
C107	PB3	A	7	10	1.43	0.43	0.67
		B	14	1	0.07		
		C	5	1	0.20		
		D	0	0	0.00		
		E	13	0	0.00		

Sample ID	Client ID	Replicate	# Surviving	# Offspring	#Offspring/ Amphipod	Mean #Offspring/ Amphipod	SD
C108	C4E	A	17	0	0.00	0.37	0.69
		B	20	32	1.60		
		C	13	1	0.08		
		D	19	1	0.05		
		E	20	2	0.10		
C109	C1E	A	11	0	0.00	2.98	2.71
		B	15	102	6.80		
		C	11	34	3.09		
		D	15	13	0.87		
		E	6	25	4.17		
C110	PB2	A	14	0	0.00	0.63	1.08
		B	6	0	0.00		
		C	10	25	2.50		
		D	14	0	0.00		
		E	8	5	0.63		
C111	M1NW	A	9	1	0.11	0.06	0.04
		B	18	0	0.00		
		C	16	1	0.06		
		D	13	1	0.08		
		E	17	1	0.06		

*Measurement replicate was subtituted for Replicate B.

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LStaWolff
2012Jan25

Leptocheirus plumulosus 28-d Test
Dry Weights

Client # & Name: 1399 CRD

Project # 2-11-1085

Job #: B192421

Organism Lot #: CC111005LP

Start Date and Time: 2011 Oct 07 @ 19:00

End Date: 2011 Nov 04

Weighing Dates: 2011 Nov 02, 2011 Nov 09

Stats File ID: LP-1399-0111

Analyst(s): E. Chen, L. Takahashi, A. Rakhmangulova

Boat #	Sample ID	Replicate	# Amphipods	Boat Wt. (g)	Boat & Wt. (g)	Total Wt. (mg)	Mean Wt. per Amphipod (mg)	Mean Wt per Sample (mg)	SD
1	Control	A	16	1.06505	1.06883	3.78	0.24	1.16	0.87
2		B	18	1.09178	1.13107	39.29	2.18		
3		C	14	1.08080	1.08464	3.84	0.27		
4		D	19	1.06337	1.09423	30.86	1.62		
5		E	20	1.09187	1.12136	29.49	1.47		
6	C100	A	17	1.09458	1.10473	10.15	0.60	0.56	0.10
7		B	19	1.09154	1.09956	8.02	0.42		
8		C	20	1.12127	1.13424	12.97	0.65		
9		D	18	1.10551	1.11426	8.75	0.49		
10		E	19	1.10323	1.11547	12.24	0.64		
11	C101	A	20	1.08495	1.10153	16.58	0.83	0.76	0.45
12		B	17	1.09269	1.09851	5.82	0.34		
13		C	17	1.11337	1.12107	7.70	0.45		
14		D	17	1.11955	1.14498	25.43	1.50		
15		E	19	1.10916	1.12240	13.24	0.70		
16	C102	A	18	1.06146	1.07384	12.38	0.69	0.45	0.21
17		B	19	1.10759	1.11866	11.07	0.58		
18		C	20	1.11129	1.12125	9.96	0.50		
19		D	6	1.09528	1.09666	1.38	0.23		
20		E	6	1.09746	1.09891	1.45	0.24		
21	C103	A	19	1.09130	1.10592	14.62	0.77	0.67	0.25
22		B	26	1.07438	1.08984	15.46	0.59		
23		C	20	1.13144	1.15260	21.16	1.06		
24		D	18	1.08809	1.09719	9.10	0.51		
25		E	15	1.10109	1.10771	6.62	0.44		
26	C104	A	15	1.08294	1.09552	12.58	0.84	1.06	0.24
27		B	14	1.11925	1.13457	15.32	1.09		
28		C	12	1.09061	1.10446	13.85	1.15		
29		D	13	1.09245	1.11050	18.05	1.39		
30		E	18	1.06474	1.07923	14.49	0.80		
31	C105	A	16	1.10940	1.11568	6.28	0.39	0.45	0.19
32		B	3	1.07196	1.07284	0.88	0.29		
33		C	20	1.08124	1.09339	12.15	0.61		
34		D	19	1.07981	1.09324	13.43	0.71		
35		E	10	1.09830	1.10097	2.67	0.27		
Analyst			AR	EC	LC				

Leptocheirus plumulosus 28-d Test
Dry Weights

Client # & Name: 1399 CRD

Project # 2-11-1085

Job #: B192421

Organism Lot #: CC111005LP

Start Date and Time: 2011 Oct 07 @ 19:00

End Date: 2011 Nov 04

Weighing Dates: 2011 Nov 02, 2011 Nov 09

Stats File ID: LP-1399-0111

Analyst(s): E. Chen, L. Takahashi, A. Rakhmangulova

Boat #	Sample ID	Replicate	# Amphipods	Boat Wt. (g)	Boat & Wt. (g)	Total Wt. (mg)	Mean Wt. per Amphipod (mg)	Mean Wt per Sample (mg)	SD
36	C106	A	15	1.10303	1.11921	16.18	1.08	1.55	0.47
37		B	9	1.08163	1.10143	19.80	2.20		
38		C	13	1.09618	1.11394	17.76	1.37		
39		D	2	1.06208	1.06458	2.50	1.25		
40		E	16	1.08399	1.11407	30.08	1.88		
41	C107	A	7	1.09145	1.09808	6.63	0.95	0.52	0.29
42		B	14	1.07807	1.08422	6.15	0.44		
43		C	5	1.10673	1.10856	1.83	0.37		
44		D	0	1.07410	1.07412	0.00	0.00		
45		E	13	1.10111	1.10536	4.25	0.33		
46	C108	A	17	1.08305	1.08860	5.55	0.33	0.48	0.17
47		B	20	1.08860	1.10394	15.34	0.77		
48		C	13	1.07405	1.07923	5.18	0.40		
49		D	19	1.09859	1.10795	9.36	0.49		
50		E	20	1.09700	1.10565	8.65	0.43		
51	C109	A	11	1.05656	1.06573	9.17	0.83	1.56	0.62
52		B	15	1.08795	1.12421	36.26	2.42		
53		C	11	1.06383	1.08043	16.60	1.51		
54		D	15	1.08818	1.10549	17.31	1.15		
55		E	6	1.10533	1.11671	11.38	1.90		
56	C110	A	14	1.08478	1.08998	5.20	0.37	0.44	0.19
57		B	6	1.09629	1.09844	2.15	0.36		
58		C	10	1.07969	1.08743	7.74	0.77		
59		D	14	1.07850	1.08304	4.54	0.32		
60		E	8	1.08204	1.08519	3.15	0.39		
61	C111	A	9	1.09068	1.09383	3.15	0.35	0.53	0.24
62		B	18	1.08834	1.10233	13.99	0.78		
63		C	16	1.09445	1.09914	4.69	0.29		
64		D	13	1.10070	1.11118	10.48	0.81		
65		E	17	1.11254	1.12013	7.59	0.45		
66	QA/QC	QA/QC	0	1.06190	1.06199	0.09	-	-	-
67	QA/QC	QA/QC				NC	-	-	-
1		A	16	1.06505	1.06882	3.77	-	-	-
Analyst			AR	EC	LT				

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2012Jan25

Maxxam Analytics

*Green Pans

Leptocheirus plumulosus 28-d Test
Dry Weights

Client # & Name: 1399 CRD

Project #: 2-11-1085

Job #: B1Q2421

Organism Lot #: CC.111005LP

Start Date and Time: 2011 Oct 07 @ 1900

End Date: 2011 NOV 04

Weighing Dates: NOV 02-2011 / 09 NOV 2011

Stats File ID: LP-1399-411

Analyst(s): EChen GTAKAHASHI A Rakhmangulova

@ amphipods 2011 Nov 07 AR

Boat #	Sample ID	Replicate	# Worms (A)	Boat Wt. (g)	Boat & Worms Wt. (g) (A)	Wt. of Worms (mg) (A)	Mean Wt./Worm (mg) (A)	Mean Wt./Sample (mg)	SD
1	Control	A	16	1.06505	1.06883	NC	NC	NC	NC
2	2011 NOV 24 NC	A B ©	18	1.09178	1.13107	NC	NC		
3		C	14	1.08080	1.08464	NC	NC		
4		D	19	1.06337	1.09423	NC	NC		
5		E	20	1.09187	1.12136	NC	NC		
6	C100	A	17	1.09458	1.10473	NC	NC	NC	NC
7		B	19	1.09154	1.09956	NC	NC		
8		C	20	1.12127	1.13424	NC	NC		
9		D	18	1.10551	1.11426	NC	NC		
10		E	19	1.10323	1.11547	NC	NC		
11	C101	A	20	1.08495	1.10153	NC	NC	NC	NC
12		B	17	1.09269	1.09851	NC	NC		
13		C	17	1.11337	1.12107	NC	NC		
14		D	17	1.11955	1.14498	NC	NC		
15		E	19	1.10916	1.12240	NC	NC		
16	C102	A	18	1.06146	1.07884	NC	NC	NC	NC
17		B	19	1.10759	1.11866	NC	NC		
18		C	20	1.11129	1.12125	NC	NC		
19		D	6	1.09528	1.09666	NC	NC		
20		E	6	1.09746	1.09891	NC	NC		
21	C103	A	19	1.09130	1.10392	NC	NC	NC	NC
22		B	26	1.07438	1.08984	NC	NC		
23		C	20	1.13144	1.15260	NC	NC		
24		D	18	1.08809	1.09719	NC	NC		
25		E	15	1.10109	1.10771	NC	NC		
26	C104	A	15	1.08294	1.09552	NC	NC	NC	NC
27		B	14	1.11925	1.13457	NC	NC		
28		C	12	1.09061	1.10446	NC	NC		
29		D	13	1.09245	1.11050	NC	NC		
30		E	18	1.06474	1.07923	NC	NC		
31	C105	A	16	1.10940	1.11568	NC	NC	NC	NC
32		B	3	1.07196	1.07284	NC	NC		
33		C	20	1.08124	1.09339	NC	NC		
34		D	19	1.07981	1.09324	NC	NC		
35		E	10	1.09830	1.10097	NC	NC		
Analyst			AR	EC	LY				

© Replicate B compromised dry test, used measure instead AR 2011 NOV 07

Maxxam Analytics

Leptocheirus plumulosus 28-d Test
Dry Weights

Client # & Name: 1399 CED

Project # 2-11-1085

Job #: B192421

Organism Lot #: CC111005LP

Start Date and Time: 2011 oct 07 @1900

End Date: 2011 NOV 04

Weighing Dates: NOV 02 2011 / 2011 NOV 09

Stats File ID: LP-1399-0111

Analyst(s): Echon A. Raklimangulova, M. Gay for L. Takahashi

(A) amphipods MGay 2011 NOV 07

Boat #	Sample ID	Replicate	# Worms	Boat Wt. (g)	Boat & Worms Wt. (g)	Wt. of Worms (mg)	Mean Wt./Worm (mg)	Mean Wt./Sample (mg)	SD
36	C106	A	15	1.10303	1.11921	NC	NC	NC	NC
37		B	9	1.08163	1.10143	NC	NC		
38		C	13	1.09618	1.11394	NC	NC		
39		D	2	1.06208	1.06458	NC	NC		
40		E	16	1.08399	1.11407	NC	NC		
41	C107	A	7	1.09145	1.09808	NC	NC	NC	NC
42		B	14	1.07807	1.08422	NC	NC		
43		C	5	1.10673	1.10856	NC	NC		
44		D	0	1.07410	1.07412	NC	NC		
45		E	13	1.10111	1.10536	NC	NC		
46	C108	A	17	1.08305	1.08860	NC	NC	NC	NC
47		B	20	1.08860	1.10394	NC	NC		
48		C	13	1.07405	1.07923	NC	NC		
49		D	19	1.09859	1.10795	NC	NC		
50		E	20	1.09700	1.10565	NC	NC		
51	C109	A	11	1.05656	1.06573	NC	NC	NC	NC
52		B	15	1.08795	~~1.12418~~ (A) (B)	NC	NC		
53		C	11	1.06383	1.08043	NC	NC		
54		D	15	1.08818	1.10549	NC	NC		
55		E	6	1.10533	1.11671	NC	NC		
56	C110	A	14	1.08478	1.08998	NC	NC	NC	NC
57		B	6	1.09629	1.09844	NC	NC		
58		C	10	1.07969	1.08743	NC	NC		
59		D	14	1.07850	1.08304	NC	NC		
60		E	8	1.08204	1.08519	NC	NC		
61	C111	A	9	1.09068	1.09383	NC	NC	NC	NC
62		B	18	1.08834	1.10233	NC	NC		
63		C	16	1.09445	1.09914	NC	NC		
64		D	13	1.10070	1.11118	NC	NC		
65		E	17	1.11254	~~1.0~~ (C)	NC	NC		
66	QA/QC	QA/QC	0	1.06190	1.06199	NC	-	-	-
(A)67	~~(A)QA/QC~~	~~(A)QA/QC~~	9	1.09148	1.10151	NC	-	-	-
1		A	16	1.06505	1.06882		-	-	-
Analyst			AR	EC	LT				

(A) Control B (9 adults) instead of QA/QC. 2011 Nov 4 AR

(A) ~~(B)~~ 1.12421 LT 2011 NOV 09

(C) 1.12013 LT 2011 NOV 09

Maxxam Analytics

Leptocheirus Survival, Growth and Reproduction Test
Test Conditions and Survival Data

Client # & Name: B99 CRD
Start Date and Time: 2011 Oct 07 @ 19:00
Project #: 2-11-1085
End Date: 2011 Nov 04
Organism Lot #: CC111005LP
Size at Start of Test: 0.25 - 0.6 mm
Statistics File: LP-B99-0111
Sample Date: Various
Analyst(s): M. Grey, P. Howes, C. Tra (M. Grey for) and L. Takahashi, D. Lai, A. Rakhmangulova, M. Grey for D. Groschner + J. Wong, J. Pickard, E. Chen, N. Brassard / J. Ravaalandal /
Feeding Regime: 20 mg/rep for day 1-13. 40 mg/rep for day 14-28
Salinity should be 20 ± 3‰ Temperature should be 25 ± 2°C

Sample ID: Control **Sample#:** N/A

Date	2011 Oct 07	2011 Oct 10	2011 Oct 12	2011 Oct 14	2011 Oct 17	2011 Oct 19	2011 Oct 21	2011 Oct 24	2011 Oct 26	2011 Oct 28	2011 Oct 31	2011 Nov 02	2011 Nov 04
	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri
	Day 0	Day 3	Day 5	Day 7	Day 10	Day 12	Day 14	Day 17	Day 19	Day 21	Day 24	Day 26	Day 28
Temp. (ºC)	23.4	24.7	24.3	24.7	25.0	25.7	24.4	25.1	24.5	24.8	25.2	24.5	25.0
D.O. (mg/L)	7.4	7.1	(A) ~~7.6~~ 7.2	7.1	7.0	7.0	7.3	7.2	7.4	7.1	7.3	7.2	7.5
pH	7.9	7.9	7.4	7.3	~~7.5~~ 7.3 (*)	~~7.0~~ 7.4	7.6	7.7	7.7	7.7	7.7	7.8	7.6
Salinity (‰)	~~20.3~~ 20.2	20	20	20	20	20	20	20	21	21	21	22	21
Analyst	EC	EC	CT	CT	EC	MG	EC	EC	EC	EC	EC	CT	MG

(A) WE 2011 OCT 12 CT
(*) WE EC 2011 Oct 17
(B) Used measure beaker in place of Rep B CTL which was likely mis-seeded. Measure adult count is 18 WB 2011 Nov 04
71 LT 2011 NOV 16 # offspring

Replicate	A	B	C	D	E
# Surviving	16	9 (B)	14	19	20
# Offspring	3 MG	9 LT	4 MG	144 CT	69 EC
Analyst	MG	WB	EC MG	WB	CT

Chemistry Samples Taken

Ammonia				Sulphides			
Overlying water		Porewater		Overlying water		Porewater	
✓ Day 0	Day 28	✓ Day 0	Day 28	Day 0	Day 28	Day 0	Day 28
1.4	4.9	4.9	n/a				

Maxxam Analytics

Leptocheirus **Survival, Growth and Reproduction Test**
Test Conditions and Survival Data

Sample ID: C100 **Sample #** BQ8687 **Sample Date:** 2011 Sept 21

Date	2011 Oct07	2011 Oct10	2011 OCT 12	2011 OCT 14	2011 Oct 17	2011 Oct19	2011 Oct21	2011 Oct24	2011 Oct26	2011 Oct28	2011 Oct31	2011 NOV 02	2011 Nov04
	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri
	Day 0	Day 3	Day 5	Day 7	Day 10	Day 12	Day 14	Day 17	Day 19	Day 21	Day 24	Day 26	Day 28
Temp. (ºC)	23.0	24.6	24.9	24.7	25.1	25.7	24.7	25.1	24.9	25.1	25.2	24.3	~~25.0~~ 24.9
D.O. (mg/L)	7.5	7.2	~~7.2~~ 7.6 (A)	7.6	7.5	7.1	7.3	7.4	7.4	7.0	7.1	7.6	~~7.5~~ 5.4 (B) 2011 Nov04 WE CT
pH	8.0	8.2	8.0	8.1	8.1	7.8	8.0	8.0	8.0	7.9	7.9	7.9	7.4 (C)
Salinity (‰)	~~30.5~~ 21.2 WE EC 2011 Oct07	22	21	21	21	20	20	20	21	20	21	22	21
Analyst	EC	EC	CT	CT	EC	MG	EC	EC	EC	EC	EC	CT	MG

(A) WE 2011 OCT 12 CT
(B) C100 Rep C, DO = 7.2 mg/L
C100 Measure weakly aerating
(C) C100 rep C, pH = 7.8. Measure aerating weakly

Replicate	A	B	C	D	E
# Surviving	17	19	20	18	~~20~~ 19 (WE MG 2011 Nov04)
# Offspring	1 EC	1 CT	1 LT	Ø LT	3 LT
Analyst	EC	AR	CT	WB	MG

Chemistry Samples Taken

Ammonia				Sulphides			
Overlying water		Porewater		Overlying water		Porewater	
Day 0 ✓	Day 28	Day 0 ✓	Day 28	Day 0 MG	Day 28	Day 0	Day 28
2.7	6.9	9.5	6.8				

Maxxam Analytics

Leptocheirus Survival, Growth and Reproduction Test
Test Conditions and Survival Data

Sample ID: C101 Sample # BQ8686 Sample Date: 2011 Sept 21

Date	2011 Oct 07	2011 Oct 10	2011 OCT 12	2011 OCT 14	2011 Oct 17	2011 OCT 19	2011 Oct 21	2011 Oct 24	2011 Oct 26	2011 Oct 28	2011 Oct 31	2011 NOV 02	2011 NOV
	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri
	Day 0	Day 3	Day 5	Day 7	Day 10	Day 12	Day 14	Day 17	Day 19	Day 21	Day 24	Day 26	Day 28
Temp. (ºC)	23.2	24.5	24.4	25	25.4	25.5	24.6	25.1	25.0	25.1	25.3	25.0	24.6
D.O. (mg/L)	7.4	7.3	7.7	7.3	7.4	7.3	7.4	7.4	7.3	7.2	7.4	7.3	7.8
pH	7.9	8.3	8.0	8.1	8.2	8.1	8.2	8.2	8.1	8.1	8.1	8.2	8.1
Salinity (‰)	24 WEEC 39.7 2011 Oct 07	22	21	21	21	20	20	21	21	20	21	22	21
Analyst	EC	EC	CT	CT	EC	MG	EC	EC	EC	EC	EC	CT	MG

Replicate	A	B	C	D	E
# Surviving	~~17~~ 20	19	17	17	19
# Offspring	6 CT	0 CT	0 CT	12 CT	5 CT
Analyst	EC CB	PH	CT	MG	MG

Chemistry Samples Taken

Ammonia				Sulphides			
Overlying water		Porewater		Overlying water		Porewater	
Day 0	Day 28	Day 0	Day 28	Day 0	Day 28	Day 0	Day 28
1.5	5.9	11	6.7				

Maxxam Analytics

Leptocheirus Survival, Growth and Reproduction Test
Test Conditions and Survival Data

Sample ID: C102 Sample # BQ 8689 Sample Date: 2011 Sept 22

Date	2011 Oct 07	2011 Oct 10	2011 OCT 12	2011 OCT 14	2011 Oct 17 (E)	2011 Oct 19	2011 Oct 21	2011 Oct 24	2011 Oct 26	2011 Oct 28	2011 Oct 31	2011 NOV 02	2011 NOV 04
	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri
	Day 0	Day 3	Day 5	Day 7	Day 10	Day 12	Day 14	Day 17	Day 19	Day 21	Day 24	Day 26	Day 28
Temp. (ºC)	23.8	24.8	24.2	24.5	25.8	25.0	24.7	25.3	24.6	25.0	25.0	24.2	24.9
D.O. (mg/L)	7.5	7.3	7.8	7.6	~~8.0~~ 7.5 (D)	7.4	7.4	7.5	7.5	7.4	7.4	7.9	7.5
pH	7.9	8.2	7.9	7.8	8.0	7.9	8.0	8.0	8.0	8.0	8.0	8.1	8.0
Salinity (‰)	21.2	22	21	21	21	21	21	21	21	20	22	22	22
Analyst	EC	EC	CT	CT	EC	MG	EC	EC	EC	EC	EC	CT	MG

(E) WE EC 2011 Oct 17
(D) WE EC 2011 Oct 17

Replicate	A	B	C	D	E
# Surviving	18	19	20	6 (B)	6 (A)
# Offspring	5 CT	2 CT	Q LT	Q LT	Q LT
Analyst	MB	MB	MG	EC	MB

(A) Dead Lepto observed (~6) MB 2011 Nov 04
(B) 2 dead Lepto observed EC 2011 NOV 04

Chemistry Samples Taken

Ammonia				Sulphides			
Overlying water		Porewater		Overlying water		Porewater	
Day 0	Day 28	Day 0	Day 28	Day 0	Day 28	Day 0	Day 28
1.3	6.1	9.1	4.9				

Leptocheirus Survival, Growth and Reproduction Test
Test Conditions and Survival Data

Sample ID: C103 Sample # BQ8688 Sample Date: 2011 Sept 14

Date	2011 Oct 07	2011 Oct 10	2011 OCT 12	2011 OCT 14	2011 Oct 17	2011 Oct 19	2011 Oct 21	2011 Oct 24	2011 Oct 26	2011 Oct 28	2011 Oct 31	2011 NOV 02	2011 Nov 04
	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri
	Day 0	Day 3	Day 5	Day 7	Day 10	Day 12	Day 14	Day 17	Day 19	Day 21	Day 24	Day 26	Day 28
Temp. (ºC)	24.0	24.7	24.7	25.1	25.9	25.5	24.8	25.0	24.4	25.0	25.1	24.6	24.8
D.O. (mg/L)	7.3	7.3	7.7	7.5	7.3	7.3	7.3	7.4	7.4	7.4	7.4	7.7	7.3
pH	7.9	8.2	7.9	7.9	8.1	8.0	8.3	8.2	8.2	8.2	8.2	8.3	8.2
Salinity (‰)	21.6	23	22	22	21	21	21	21	21	21	22	23	23
Analyst	EC	EC	CT	CT	MG	MG	EC	EC	EC	EC	EC	CT	MG/

Replicate	A	B	C	D	E
# Surviving	19	26	20	18	15
# Offspring	11 TW	19 TW	24 TW	1 TW	0 CT
Analyst	MB	MG	MG	AR	PH

Chemistry Samples Taken

Ammonia				Sulphides			
Overlying water		Porewater		Overlying water		Porewater	
Day 0	Day 28	Day 0	Day 28	Day 0	Day 28	Day 0	Day 28
1.5	5.7	9.0	6.0				

Maxxam Analytics

Leptocheirus Survival, Growth and Reproduction Test
Test Conditions and Survival Data

Sample ID: C104 Sample # BQ8694 Sample Date: 2011 Sept 19

Date	2011 Oct 07	2011 Oct 10	2011 OCT 12	2011 OCT 14	2011 Oct 17	2011 Oct 19	2011 Oct 21	2011 Oct 24	2011 Oct 26	2011 Oct 28	2011 Oct 31	2011 NOV 02	2011 Nov 04	
	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri	
	Day 0	Day 3	Day 5	Day 7	Day 10	Day 12	Day 14	Day 17	Day 19	Day 21	Day 24	Day 26	Day 28	
Temp. (ºC)	23.2	24.2	23.5	24.8	25.2	25.1	24.1	24.3	24.8	24.9	24.9	24.7	24.8	Nov 4 2011
D.O. (mg/L)	7.4	7.4	7.5	7.4	7.3	7.4	7.5	7.6	7.6	7.2	7.4	7.4	7.4	
pH	7.8	8.0	7.8	7.8	8.2	8.2	8.3	8.3	8.2	8.2	8.2	8.2	8.1	
Salinity (‰)	21.4	22	21	21	21	20	20	20	21	20	21	22	21	
Analyst	EC	EC	CT	CT	EC	NG	EC	EC	EC	EC	EC	CT	NG	

Replicate	A	B	C	D	E
# Surviving	15	14	12 (A)	13	18
# Offspring	14	7 TW	11 TW	28 TW	9 TW
Analyst	QP	AR	CT	JZ	EC

(A) Recovered 2 dead 2011 NOV 04 CT

Chemistry Samples Taken

Ammonia				Sulphides			
Overlying water		Porewater		Overlying water		Porewater	
Day 0	Day 28	Day 0	Day 28	Day 0	Day 28	Day 0	Day 28
1.8	7.2	13	6.0				

Leptocheirus Survival, Growth and Reproduction Test
Test Conditions and Survival Data

Sample ID: C105 Sample # B0 8690 Sample Date: 2011 Sept 20

Date	2011 Oct 07	2011 Oct 10	2011 OCT 12	2011 OCT 14	2011 Oct 17	2011 Oct 19	2011 Oct 21	2011 Oct 24	2011 Oct 26	2011 Oct 28	2011 Oct 31	2011 NOV 02	2011 Nov 04
	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri
	Day 0	Day 3	Day 5	Day 7	Day 10	Day 12	Day 14	Day 17	Day 19	Day 21	Day 24	Day 26	Day 28
Temp. (ºC)	23.1	~~24.4~~ ~~24.2~~ ⊛	24.0	24.8	25.1	25.3	~~24.3~~ ~~24.6~~ ⊛	24.8	24.8	24.8	24.8	24.7	24.9
D.O. (mg/L)	7.6	~~7.4~~ 7.3 ⊛	7.8	7.5	7.5	7.4	~~7.5~~ ~~7.3~~ ⊛	7.5	7.5	7.4	7.5	7.5	7.4
pH	7.9	8.1	7.8	7.7	7.9	7.9	8.0	8.0	8.0	8.0	8.0	8.1	8.0
Salinity (‰)	21.3	22	22	21	21	21	20	20	21	20	21	22	21
Analyst	EC	EC	CT	CT	EC	MG	EC	EC	EC	EC	EC	CT	MG

⊛ ⊛ wrong space. EC 2011 Oct 10
& WE EC 2011 Oct 21

Replicate	A	B	C	D	E
# Surviving	16	3	20	© 19 Ⓑ	10 Ⓐ
# Offspring	6 TW	1 TW	21 TW	12 TW	0 TW
Analyst	JP		JP	CT	MB

Ⓐ Two dead adults found MB 2011 Nov 04
Ⓑ 1 dead adult found TW Dec 15 2011
© verified by MG 2011 Dec 15

Chemistry Samples Taken

Ammonia				Sulphides			
Overlying water		Porewater		Overlying water		Porewater	
Day 0	Day 28	Day 0	Day 28	Day 0	Day 28	Day 0	Day 28
0.62	5.8	2.6	4.1				

Maxxam Analytics

Leptocheirus Survival, Growth and Reproduction Test
Test Conditions and Survival Data

Sample ID: C106 **Sample #** BQ8685 **Sample Date:** 2011 Sept 16

Date	2011 Oct 07	2011 Oct 10	2011 OCT 12	2011 OCT 14	2011 Oct 17	2011 Oct 19	2011 Oct 21	2011 Oct 24	2011 Oct 26	2011 Oct 28	2011 Oct 31	2011 NOV 02	2011 NOV 04
	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri
	Day 0	Day 3	Day 5	Day 7	Day 10	Day 12	Day 14	Day 17	Day 19	Day 21	Day 24	Day 26	Day 28
Temp. (ºC)	23.2	24.5	24.0	24.7	25.2	25.4	24.6	25.0	24.9	24.9	25.1	24.8	24.9
D.O. (mg/L)	7.4	6.8	7.6	7.6	7.3	7.1	7.3	7.4	7.3	7.2	7.3	7.8	7.3
pH	7.9	8.2	7.9	7.8	8.0	8.0	8.1	8.2	8.2	8.2	8.2	8.2	~~8.2~~ 8.1
Salinity (‰)	~~21~~ 22	22	22	21	21	21	20	21	21	20	21	22	22
Analyst	EC	EC	CT	CT	EC	MG	EC	EC	EC	EC	EC	CT	MG

Replicate	A	B	C	D	E
# Surviving	15	9	13	2	⑧16Ⓐ
# Offspring	20 TW	24 TW	12 TW	8 TW	85 TW
Analyst	QP	CR	MG	CT	JL

Ⓐ 2 dead adult removed Dec 13/2011 TW
⑧ verified by MG 2011 Dec 13, 2011

Chemistry Samples Taken

Ammonia				Sulphides			
Overlying water		Porewater		Overlying water		Porewater	
Day 0	Day 28	Day 0	Day 28	Day 0	Day 28	Day 0	Day 28
4.2	10	30	9.9				

Leptocheirus Survival, Growth and Reproduction Test
Test Conditions and Survival Data

Sample ID: C107 **Sample #** BQ8692 **Sample Date:** 2011 Sept 20

Date	2011 oct07	2011 oct10	2011 OCT 12	2011 oct 14	2011 oct17	2011 OCt19	2011 oct21	2011 oct24	2011 Oct26	2011 oct28	2011 oct31	2011 NOV02	2011 Nov04
	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri
	Day 0	Day 3	Day 5	Day 7	Day 10	Day 12	Day 14	Day 17	Day 19	Day 21	Day 24	Day 26	Day 28
Temp. (ºC)	24.2	24.7	24.3	24.5	25.7	25.6	24.9	25.0	25.1	25.0	25.3	24.6	25.2
D.O. (mg/L)	7.5	7.3	7.7	7.5	7.5	7.4	7.4	7.5	7.5	7.4	7.5	7.7	7.3
pH	7.9	8.1	7.8	7.8	7.9	7.9	8.0	8.0	8.0	8.0	8.0	8.1	8.0
Salinity (‰)	~~31~~ ~~21.5~~ WE EC Oct 19 2011	22	22	21	~~20~~ 21 (#)	21	21	21	21	21	21	22	22
Analyst	EC	EC	CT	CT	EC	MC	EC	EC	EC	EC	EC	CT	MC

(#) WE EC 2011 Oct 17

Replicate	A	B	C	D	E
# Surviving	7	14	5	0 (@)	13
# Offspring	10 tw	1 tw	1 tw	0 tw	0 tw
Analyst	MB	MB	JL	JL	MB

(@) 14 body dead recovered JL 2011 Nov 04

Chemistry Samples Taken

Ammonia				Sulphides			
Overlying water		Porewater		Overlying water		Porewater	
Day 0	Day 28	Day 0	Day 28	Day 0	Day 28	Day 0	Day 28
0.47	5.8	2.2	4.5				

Leptocheirus Survival, Growth and Reproduction Test
Test Conditions and Survival Data

Sample ID: C108 Sample # B28695 Sample Date: 2011 Sept 16

Date	2011 oct07	2011 oct10	2011 OCT 12	2011 OCT 14	2011 oct17	2011 Oct19	2011 oct21	2011 oct24	2011 oct26	2011 oct28	2011 oct31	2011 NOV 02	2011 NOV 04
	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri
	Day 0	Day 3	Day 5	Day 7	Day 10	Day 12	Day 14	Day 17	Day 19	Day 21	Day 24	Day 26	Day 28
Temp. (ºC)	23.6	24.3	24.3	24.6	25.2	25.4	24.4	24.3	24.9	24.9	24.5	24.5	24.9
D.O. (mg/L)	7.4	7.4	7.8	7.6	7.4	7.3	7.4	7.5	7.3	7.1	7.4	7.4	7.2
pH	7.9	8.2	7.8	7.9	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.2	8.1
Salinity (‰)	21.4	22	21	21	21	21	20	20	21	20	21	22	21
Analyst	EC	EC	CT	CT	EC	MG	EC	EC	EC	EC	EC	CT	MG

Replicate	A	B	C	D	E
# Surviving	Ⓐ1 7Ⓑ	20	13	19	20
# Offspring	~~0~~ tw	32 tw	1 tw	1 tw	2 tw
Analyst	JP	MG	MG	EC	MG

Ⓐ2 dead adult, removed Dec 14/2011 tw
Ⓑ verified MG 2011 Dec 14

Chemistry Samples Taken

Ammonia				Sulphides			
Overlying water		Porewater		Overlying water		Porewater	
Day 0	Day 28	Day 0	Day 28	Day 0	Day 28	Day 0	Day 28
2.7	5.7	16	7.1				

Maxxam Analytics

Leptocheirus Survival, Growth and Reproduction Test
Test Conditions and Survival Data

Sample ID: C109 **Sample #** BQ 8693 **Sample Date:** 2011 Sept 19

Date	2011 oct 07	2011 oct 10	2011 OCT 12	2011 OCT 14	2011 oct 17	2011 Oct 19	2011 oct 21	2011 oct 24	2011 oct 26	2011 oct 28	2011 oct 31	2011 NOV 02	2011 Nov 04
	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri
	Day 0	Day 3	Day 5	Day 7	Day 10	Day 12	Day 14	Day 17	Day 19	Day 21	Day 24	Day 26	Day 28
Temp. (ºC)	23.3	24.5	24.3	24.6	25.2	25.0	24.5	25.1	25.1	25.0	25.0	24.6	24.9
D.O. (mg/L)	7.5	6.9	7.2	7.4	7.2	7.5	7.3	7.3	7.2	7.3	7.4	7.4	7.3
pH	7.9	8.2	7.8	7.8	8.0	8.0	8.2	8.2	8.2	8.2	8.2	8.2	8.1
Salinity (‰)	21.4	22	21	21	21	21	20	21	21	20	21	22	21
Analyst	EC	EC	CT	CT	EC	MG	EC	EC	EC	EC	EC	CT	MG

Replicate	A	B	C	D	E
# Surviving	11	15 (B)	11	15	6
# Offspring	0 TW (A)	90 TW +12 (B)	34 TW	13 TW	25 TW
Analyst	MB	MB	MB	MB	EC

(A) Recovered 12 dead adults, Dec 12/2011
(B) not adults - larger juveniles MG 2011 Dec 12

Chemistry Samples Taken

Ammonia				Sulphides			
Overlying water		Porewater		Overlying water		Porewater	
Day 0	Day 28	Day 0	Day 28	Day 0	Day 28	Day 0	Day 28
4.7	7.8	33	12				

Leptocheirus Survival, Growth and Reproduction Test
Test Conditions and Survival Data

Sample ID: C110 Sample # BQ8691 Sample Date: 2011 Sept 20

WE 2011 OCT 14 CT

Date	2011 oct07	2011 oct10	2011 OCT12	2011 OCT ~~13~~ 14	2011 oct17	2011 Oct19	2011 oct21	2011 oct24	2011 Oct26	2011 Oct28	2011 oct31	2011 NOV02	2011 NOV04
	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri
	Day 0	Day 3	Day 5	Day 7	Day 10	Day 12	Day 14	Day 17	Day 19	Day 21	Day 24	Day 26	Day 28
Temp. (ºC)	23.1	24.4	24.1	24.9	25.5	25.5	24.5	25.0	25.0	25.1	25.0	24.3	24.8
D.O. (mg/L)	7.5	7.3	7.6	7.4	7.2	7.2	7.3	7.4	7.0	7.1	7.3	7.8	7.2
pH	7.8	8.0	7.8	7.7	7.6	7.7	8.0	8.0	7.9	7.9	7.9	8.0	7.9
Salinity (‰)	21.0	22	21	21	21	21	20	20	21	20	21	22	21
Analyst	EC	EC	CT	CT	EC	MG	EC	EC	EC	EC	EC	CT	MG

Replicate	A	B	C	D	E
# Surviving	14	6	10	14	8
# Offspring	0 TW	0 TW	25 TW	0 TW	5 TW
Analyst	AR	AR	MG	MG	EC

Chemistry Samples Taken

Ammonia				Sulphides			
Overlying water		Porewater		Overlying water		Porewater	
Day 0	Day 28	Day 0	Day 28	Day 0	Day 28	Day 0	Day 28
0.86	5.6	4.5	5.8				

Maxxam Analytics

Leptocheirus Survival, Growth and Reproduction Test
Test Conditions and Survival Data

Sample ID: C111 Sample # BQ8684 Sample Date: 2011 Sept 15

Date	2011 Oct07	2011 Oct10	2011 OCT 12	2011 OCT 14 (WE 2011 OCT 14 CT)	2011 Oct17	2011 Oct18 PM (Nov 2011 Nov04)	2011 OCT21	2011 Oct24	2011 Oct26	2011 Oct28	2011 Oct31	2011 NOV 02	2011 Nov04
	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri	Mon	Wed	Fri
	Day 0	Day 3	Day 5	Day 7	Day 10	Day 12	Day 14	Day 17	Day 19	Day 21	Day 24	Day 26	Day 28
Temp. (ºC)	23.6 (WE 2011 Oct 19 CT)	24.3	24.2	24.7	25.3	25.3	24.4	24.7	24.9	24.7	24.8	24.3	24.6
D.O. (mg/L)	7.5	7.4	7.6	7.5	7.6	7.4	7.4	7.6	7.4	7.4	7.4	7.8	7.2
pH	7.9	8.2	7.9	7.9	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.2	8.1
Salinity (‰)	21.3	22	21	21	20	20	20	21	21	20	21	22	21
Analyst	EC	EC	CT	CT	EC	MG	EC	EC	EC	EC	EC	CT	MG

Replicate	A	B	C	D	E
# Surviving	9	8 (b)	16	13	17 (A)
# Offspring	1 TW	0 TW	1 TW	1 TW	1 TW
Analyst	MB	MG	gp	AR	CT

(A) Recovered 2 dead adults CT
(b) Record 1 dead adult. Dec 10 2011 TW
(c) verified by MG 2011 Dec 10

Chemistry Samples Taken

Ammonia				Sulphides			
Overlying water		Porewater		Overlying water		Porewater	
Day 0 ✓	Day 28 ✓	Day 0 ✓	Day 28 ✓	Day 0	Day 28	Day 0	Day 28
1.4	5.9	10	5.3				

Maxxam Analytics ***Leptocheirus plumulosus*** **28 Day Survival and Reproduction Test**
Aeration Checks

Client # & Name: 1399 CRI Start Date & Time: 2011 Oct 07 @ 19.00

Initial when aeration is checked. If air is off record DO and note which replicate(s) in comments section.

	Day -1	0	1	2	3	4	5	6	7	8
Date	2011 Oct 06	2011 Oct 07	2011 Oct 08	2011 Oct 09	2011 Oct 10	2011 Oct 11	2011 Oct 12	2011 Oct 13	2011 Oct 14	2011 Oct 15
Early AM		MG	[illegible]	[illegible]	EC	CT	CT	CT	CT	[illegible]
Mid-day		MG	[illegible]	[illegible]	EC	CT	CT	CT	CT	[illegible]
Late PM	MG	MG	[illegible]	[illegible]	EC	CT	CT	CT	CT	[illegible]

	Day 9	10	11	12	13	14	15	16	17	18
Date	2011 Oct 16	2011 Oct 17	2011 Oct 18	2011 Oct 19	2011 Oct 20	2011 Oct 21	2011 Oct 22	2011 Oct 23	2011 Oct 24	2011 Oct 25
Early AM	DML	EC	CT	MG	MG	CT	[illegible]	EC	LT	MG
Mid-day	DML	EC	MG	MG	MG	EC	[illegible]	EC	EC	EC
Late PM	DML	EC	MG	MG	CT	CT	[illegible]	EC	MG	CT (A)

	Day 19	20	21	22	23	24	25	26	27	28
Date	2011 Oct 26	2011 Oct 27	2011 Oct 28	2011 Oct 29	2011 Oct 30	2011 Oct 31	2011 Nov 01	2011 Nov 02	2011 Nov 03	2011 Nov 04
Early AM	CT	CT	EC	[illegible]	DML	EC	CT	CT	CT	MG
Mid-day	EC	CT	EC	CT	DML	EC	CT	CT	CT	
Late PM	EC	CT	CT	CT	DML	EC	CT	CT	CT	

Comments:

Sch aeration @ 20:00 MG 2011 Oct 06

(A) C100 Measure not aerating. DO = 7.1 mg/L, temp = 25°C CT 2011 OCT 25

2011 Oct 20 Rep B, CT1L not aerating. DO = 5.1 mg/L, temp = 25.1. reset line. MG 2011 ~~Oct~~ 20.

MG 2011 Oct Nov 15

28-d *Leptocheirus* Test Observations

Date: 2011 Oct 07 Sample ID's: Various

Client # & Name: 1399 CRL Project No. 2-11-1085

2011 Oct 07 – organisms feeded into test.

2011 Oct 09 (10 WE ED 2011 Oct 10) – organisms made burrows in seds, some jars have white film on top of sed (eg C106 Rep B, C109, C104)

2011 Oct 17 – white film on samples seds for C109, C106, C104 EC 2011 Oct 17

– all organisms burrowed in seds.

2011 Oct 23 – white film on sample seds for C109 + C106, much less on C104 EC

2011 Oct 25 – C105 Rep D shows quite large striped shrimp walking on sed surface (2 organisms)

– C109 Rep B and C104 Rep D shows some dead lepto on sed surface

– C109 shows opaque white growth on sed surface EC Oct 25 2011

2011 NOV 02 - 1 adult & 7 juveniles lost during water change

- potentially from: ~~C102 measure, C103 measure, control P~~

Control Rep A, B, E, Measure

C100

C101 Rep E

C102 Rep D, Measure

C103 Measure

C104 Rep B

C106 Rep C, D, E

C107 Rep C, D, measure

C109 Rep A, E

C110 Rep B, C

C111 Rep A, B

- positions #1-20, 24

2011 11/15 M.Cy

Maxxam Analytics

Leptocheirus plumulosus Survival, Growth and Reproduction Test
Overlying Water Measurements

Client # & Name: 1399 CRD

Test Initiation Date: 2011 Oct 07

Job#: B192421

Type of Seawater: Ocean Aqua / Type II ~20ppt

Date	Seawater Arrival date	Temperature (°C)	D.O. (mg/L)	pH	Salinity (‰)	50% Water Renewal	Analyst
2011 Oct 07	2011 ~~Oct 01~~ Sept 30	23.3	7.7	7.5	21	n/a	MG
2011 Oct 10	2011 Sept 30	23.4	7.6	8.1	23	~~Yes~~ DEEC 2011 Oct 10	EC
2011 OCT 12	2011 Oct 05	25.1	~~7.8~~	~~7.7~~	20	yes	CT
2011 Oct 14	2011 Oct 05	23.5	7.8	~~7.7~~	20	yes	CT
2011 Oct 17	2011 Oct 05	23.2	8.0	8.0	21	yes	EC
2011 Oct 19	2011 Oct 05	24.5	7.7	7.9	20	yes	MG
2011 Oct 21	2011 Oct 05	24.0	7.7	8.0	20	yes	EC
2011 Oct 24	2011 Oct 05	23.3	7.8	7.9	20	yes	EC
2011 Oct 26	2011 Oct 05	22.9	7.9	7.9	19	yes	EC
2011 Oct 28	2011 Oct 25	23.4	7.9	7.9	22	yes.	EC
2011 Oct 31	2011 Oct 25	23.8	7.7	7.9	22	yes	EC
2011 NOV 02	2011 OCT 25	22.5	8.3	8.0	21	yes	CT

CANTEST Ltd. **Leptocheirus 28 Day Survival, Growth and Reproduction Test**
Feeding Record

Client # & Name: 1399 (CRI) Start Date & Time: 2011 Oct 07 @ 19:00

Grind Tetrafin and sieve through a 0.25 mm screen and set aside.

# of replicates: 80 Tetrafin day 0-13 (g): 2.0

volume of seawater (ml): 100 Tetrafin day 14-28 (g): 4.0

Day	Date	Analyst	Conc'n of Feed (mg/mL)	1 mL Feed (√)
0	Oct 07 2011	EC	20	✓
3	Oct 10 2011	EC	20	✓
5	OCT 12 2011	CT	20	✓
7	OCT 14 2011	CT	20	✓
10	Oct 17 2011	EC	20	✓
12	Oct 19 2011	JP	20	✓
14	Oct 21 2011	EC	40	✓
17	Oct 24 2011	EC	40	✓
19	Oct 26 2011	EC	40	✓
21	Oct 28 2011	EC	40	✓
24	2011 Oct WG NOV 02 ~~NOV 02 2011~~ 2011 OCT 31	EC/CT	40	✓
26	~~Oct 31 2011~~ 2011 NOV 02	CT	40	✓

Add ground tetramin (vial should indicate "day 1-13" or "day 14-28") to the volume of seawater indiated above. Place slurry on stirplate and let spin for at least 5 minutes.

Maxxam **Marine Sediment Porewater Measurements**

Client # & Name: CRD Date Measured: 2011 Oct 07

Porewater Collection Method: centrifugation in 50 mL tubes (4 / sample).

Sample ID	Salinity (‰)	Temperature (°C)	pH	Ammonia (mg/L)	Sulphide (mg/L)	Analyst
Control	20	20.9	7.4	~ 4.9		CB
C100 ~~21~~ 24		21.1	7.4	~ 9.5		CB
C101	25	21.1	7.4	~ 11		CB
C102	28	21.0	7.4	~ 9.1		CB
C103	26	21.0	7.4	~ 9.0	n/a	CB
C104	26	21.1	7.4	~ 13		CB
C105	27	21.1	7.2	~ 2.6		CB
C106	27	21.1	7.1	~ 30		CB
C107	26	22.5	7.1	~ 2.2		JL
C108	27	22.5	7.4	~ 16		JL
C109	26	22.5	7.3	~ 33		JL
C110	27	22.4	7.3	~ 4.5		JL
C111	26	21.0	7.3	~ 10		CB

Oct 07 / 11 / 10

Comments Day 0 porewater MG 2011 Oct 07

MG 2012 Jan 30

Maxxam **Marine Sediment Porewater Measurements**

Client # & Name: 1399 CRD Date Measured: 2011 NOV 04

Porewater Collection Method: Centrifugation in 50 mL sample tubes.

Sample ID	Salinity (‰)	Temperature (°C)	pH	Ammonia (mg/L)	Sulphide (mg/L)	Analyst
C100	20	15.5	7.3	6.8	n/a	CT
C101	20	15.2	7.4	6.7	n/a	CT
C102	21	14.7	7.4	4.9	n/a	CT
C103	22	17.0	7.3	@6.4 6.0	n/a	EC
C104	20	16.9	7.8	4 6.4	n/a	EC
C105	20	17.3	7.5	9.9 4.1	n/a	EC
C106	21	17.2	7.6	4.5 9.9	n/a	EC
C107	21	17.1	7.5	7 4.5	n/a	EC
C108	20	16.9	7.8	12 7.1	n/a	EC
C109	20	16.2	7.6	5.8 12	n/a	CT
C110	20	15.4	7.6	6 5.8	n/a	CT
C111	20	~~15.9~~ 15.2 @2011 Nov 04 CT	7.5	5.3	n/a	CT

MG 2012 Jan 30

Comments

@Nov04 2011 Nov04 Day 28 porewater extraction MG 2011 Nov04

MG 2012 Jan 30

Maxxam Analytics ***Leptocheirus plumulosus*** **Initial Dry Weights**

Client # & Name: 1399 CRD

Start Date and Time: 2011 Oct 07 @ 19:00

Organism Lot: CC111005LP

End Date: 2011 Nov 04

Organism Age: size 0.25-0.6mm

Stats File ID: n/a

Weighing Dates: 2011 Oct 07, 2011 Oct 12

Average weight (Day 0): **0.14**

Analyst(s): L. Takahashi

Boat #	# Amphipods	Boat Weight (g)	Amphipods + Boat weight (g)	Total weight (g)	Individual weight (mg)
L-A	20	1.09623	1.09881	0.00258	0.13
L-B	19	1.09938	1.10232	0.00294	0.15
L-C	20	1.09745	1.10021	0.00276	0.14
Analyst		LT	LT		

Comments: NA

28-d *Leptocheirus* Test Observations

Date: 2011 Oct 07 Sample ID's: various

Client # & Name: 1399 CRD Project No. 2-111085

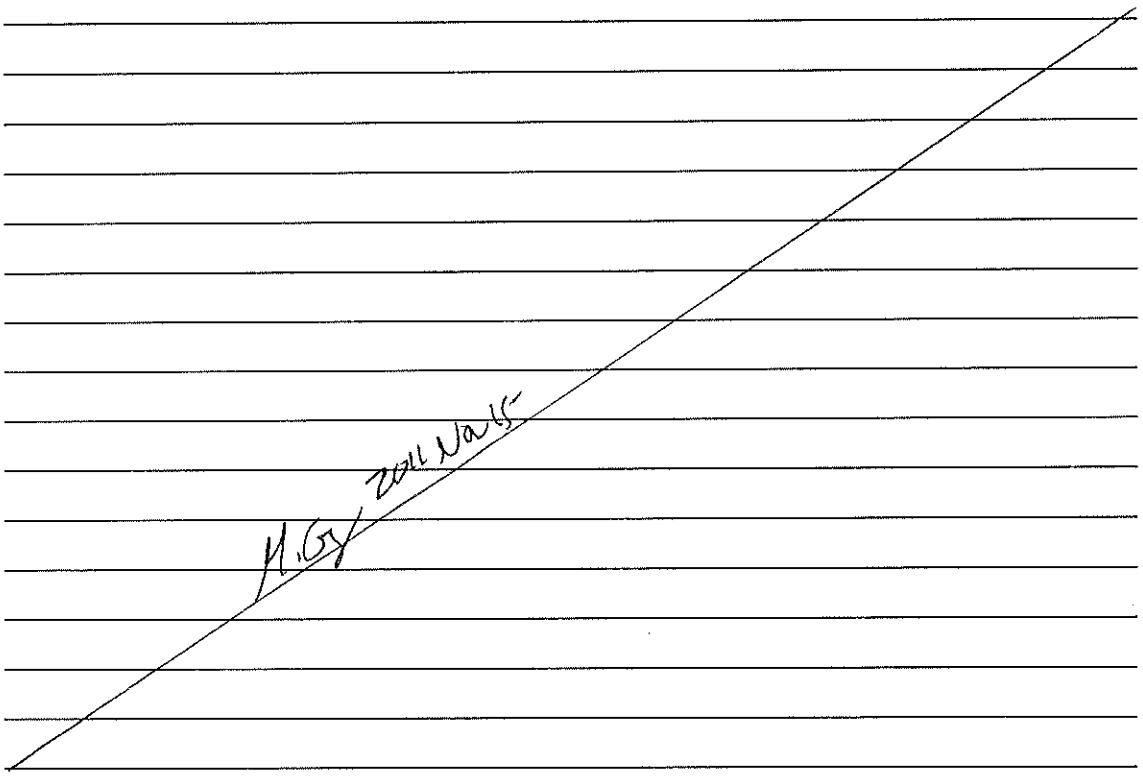
2011 Oct 07 - Initial weights for Leptocheirus.

Pan weights w/out lepto: L1 - 1.09623
L2 - 1.09938
L3 - 1.09745

placed in 60°C oven @ 19:35 w 20 orgs/pan. Oct07, 2011 MG

2011 Oct 12 Pan weights + LEPTo L1 = 1.09881 20 individuals
L2 = 1.10232 ~~20~~ 19 individuals WE LT 2011 Oct 12
L3 = 1.10021 20 individuals
12 Oct 2011 LT

actual weights of LEPTo L1 = 0.00258
L2 = 0.00294
L3 = 0.00276
12 Oct 2011 LT



CC111005LP

Chesapeake Cultures

P.O. Box 507 Hayes, VA 23072 (804) 693-4046 (804)694-4704 fax
www.c-cultures.com
e-mail growfish@c-cultures.com

DISEASE-FREE DECLARATION

All species supplied by Chesapeake Cultures, Inc. are guaranteed to be disease-free, and have been in continuous indoor culture for approximately twelve to fifteen years. All animals brought into our facility are quarantined, and are inspected for disease before use. They are shipped in ultrafiltered freshwater or synthetic seawater, reconstituted from Forty Fathoms Crystal Sea Marinemix, bioassay formula.

These organisms are routinely supplied to consultants throughout the U.S., and must meet strict quality criteria for environmental testing.

signed _____ date 10/4/11

Elizabeth W. Wilkins
Aquaculturist

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

MaxXam

Organism: Leptocheirus plumulosus
Organism Lot #: CC111005 LP
Supplier: Chesapeake Cultures
Customer #: 1399

Arrival Date & Time: 2011oct05 11:00
Age upon Arrival: Sized 0.25 – 0.6 mm
Ordered: 2160
Study/Project # : 211 1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
n/a	0	0	22.0	20.4	7.0	21.5 (A)	Yes	MG

WE ~~LT 30 SEPT~~ LT WE 2011 Oct 05 LT

Container ID: A

Daily Conditions During Holding/Acclimation

Date	Observations # Dead	Observations # Inactive	Water Quality Salinity (‰) OR Conductivity (µS/cm)	Water Quality Temperature (°C)	Water Quality pH	Water Quality DO (mg/L)	Feeding	Analyst
2011oct06	0	0	WE 2011 Oct 29 20.9	20.7	7.8	7.0	AM sprinkle	NS

N Charge 2011 NOV 30

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
(A) supersaturated.	LT	2011oct05
(B) sea water T-23.5°c / DO=7.5 / Sal=20. / pH=7.8	LT	2011oct05
500mL of culture water added to the organism culture.	LT	2011oct05
- all lepto submerged in sediment, airlines on, fed by sprinkled ktromin	NS	2011 oct 06
@ 735. H2O A @ 1600.	NS	2011 oct 06

NS 2011 NOV 30

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

MaxXam

Organism: Leptocheirus plumulosus
Organism Lot #: CC111005 LP
Supplier: Chesapeake Cultures
Customer #: 1399

Arrival Date & Time: 11:00 2011 Oct 05
Age upon Arrival: Sized 0.25 - 0.6 mm
Ordered: 2160
Study/Project # : 211085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
n/a	0	0	22	20.1	6.9	21.7 (A)	Yes	MG

Container ID: B

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
2011 Oct 06	0	0	20.2	21.5	7.8	7.2	Am Spirulina	NS

NS 2011 NOV 30

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
(A) Supersaturated	LT	2011Oct05
See seawater quality on 1st page.	LT	2011Oct05
500mL culture water added to organism culture - same as container A. H2O A @1600.	LT	2011Oct05
	NS	2011 Oct 06

NS 2011 NOV 30

Revision: 01
Revision Date: March 25, 2010
Document Control Number: 80-F-089-01

Form approved by: Janet Pickard
Effective date: Apr 01, 2010

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

Maxxam

Organism: Leptocheirus plumulosus
Organism Lot #: CC 111005 LP
Supplier: Chesapeake Cultures
Customer #: 1399

Arrival Date & Time: 2011 Oct 05 11:00
Age upon Arrival: Sized 0.25 - 0.6mm
Ordered: 2160
Study/Project # : 211 1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
n/a	0	0	22	20.0	6.9	23.3 (A)	Yes	LT

Container ID: C

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
2011oct06	0	0	20.0	21.4	7.8	7.0	AM Spirulina	NS

NS 2011 NOV 30

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
(A) supersaturated	LT	2011oct05
see sea waters quality on first page	LT	2011oct05
500mL culture water added to organism culture	LT	2011oct05
- same as container A. H2O @ 1600	NS	2011 oct06

NS 2011 NOV 30

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

MaxXam

Organism: Leptocheirus plumulosus
Organism Lot #: CC111005 LP
Supplier: Chesapeake Cultures
Customer #: 1399

Arrival Date & Time: 2011Oct05 11:00
Age upon Arrival: Sized 0.25 - 0.6mm
Ordered: 2160
Study/Project # : 211 1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
n/a	0	0	22	20.5	7.0	22.4 (A)	yes	MG

Container ID: D

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
2011oct06	0	0	20	21.2	7.8	7.0	AM sprinkle	NS

NS 2011 NOV 30

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
(A) Supersaturated	LT	2011Oct05
See sea water quality on first page	LT	2011Oct05
500mL culture water added to organism water	LT	2011Oct05
- same as container A. H2O Δ @1600	NS	2011 oct06

NS 2011 NOV 30

Revision: 01
Revision Date: March 25, 2010
Document Control Number: 80-F-089-01

Form approved by: Janet Pickard
Effective date: Apr 01, 2010

Maxxam Analytics **Randomization Chart for Sediment Tests**

Client Name and #: 1399 CRD
Project #: 2-11-1085
Maxxam Job #: B192421

Test Type: 28 d Lephcheirus Test
Test Species: Lephcheirus plumulosus
Test Start Date: 2011 Oct 07

Instructions: please follow the position map below when placing vessels on the test bench.

Back Wall

5	10	↑			
4	9				
3	8	13			
2	7	12			
1	6	11	→	→	→

Left Front of Counter Right

Position #	Treatment	Replicate	Colour	Position #	Treatment	Replicate	Colour
19	Control	A	Red	34	C107	A	Purple
3	Control	B	Red	27	C107	B	Purple
46	Control	C	Red	16	C107	C	Purple
58	Control	D	Red	9	C107	D	Purple
12	Control	E	Red	44	C107	E	Purple
18	Control	Measure	Red	2	C107	Measure	Purple
42	C100	A	Dk Orange	47	C108	A	Pink
76	C100	B	Dk Orange	23	C108	B	Pink
22	C100	C	Dk Orange	63	C108	C	Pink
73	C100	D	Dk Orange	75	C108	D	Pink
37	C100	E	Dk Orange	53	C108	E	Pink
31	C100	Measure	Dk Orange	64	C108	Measure	Pink
66	C101	A	Lt Orange	10	C109	A	White
57	C101	B	Lt Orange	25	C109	B	White
65	C101	C	Lt Orange	49	C109	C	White
68	C101	D	Lt Orange	59	C109	D	White
8	C101	E	Lt Orange	11	C109	E	White
36	C101	Measure	Lt Orange	40	C109	Measure	White
48	C102	A	Yellow	77	C110	A	yellow w red star
50	C102	B	Yellow	1	C110	B	yellow w red star
72	C102	C	Yellow	7	C110	C	yellow w red star
6	C102	D	Yellow	28	C110	D	yellow w red star
78	C102	E	Yellow	54	C110	E	yellow w red star
5	C102	Measure	Yellow	51	C110	Measure	yellow w red star
74	C103	A	Fl Green	24	C111	A	red w silver star
35	C103	B	Fl Green	17	C111	B	red w silver star
52	C103	C	Fl Green	38	C111	C	red w silver star
30	C103	D	Fl Green	55	C111	D	red w silver star
61	C103	E	Fl Green	43	C111	E	red w silver star
4	C103	Measure	Fl Green	69	C111	Measure	red w silver star
45	C104	A	Green				
14	C104	B	Green				
41	C104	C	Green				
29	C104	D	Green				
70	C104	E	Green				
62	C104	Measure	Green				
60	C105	A	Blue				
26	C105	B	Blue				
56	C105	C	Blue				
21	C105	D	Blue				
32	C105	E	Blue				
71	C105	Measure	Blue				
67	C106	A	Dark Blue				
33	C106	B	Dark Blue				
13	C106	C	Dark Blue				
15	C106	D	Dark Blue				
20	C106	E	Dark Blue				
39	C106	Measure	Dark Blue				

Maxxam Job #: B196921
Report Date: 2011/10/18

Porewater Day 0

Maxxam Analytics (TOX Internal)
Client Project #: CRD SEDIMENTS
Site Location: ECOTOX
Your P.O. #: 2-11-1085
Sampler Initials: MB

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BU0456		BU0457	BU0458	BU0459	BU0460	BU0461		BU0462		BU0463	
Sampling Date		2011/10/07 14:15		2011/10/07 14:15	2011/10/07 14:15	2011/10/07 14:15	2011/10/07 14:15	2011/10/07 14:15		2011/10/07 14:15		2011/10/07 14:15	
COC#		G047261		G047261	G047261	G047261	G047261	G047261		G047261		G047261	
	Units	**LEPTO DAY 0 CTL**	**RDL**	**LEPTO DAY 0 C100**	**LEPTO DAY 0 C101**	**LEPTO DAY 0 C102**	**LEPTO DAY 0 C103**	**LEPTO DAY 0 C104**	**RDL**	**LEPTO DAY 0 C105**	**RDL**	**LEPTO DAY 0 C106**	**RDL**
Nutrients													
Ammonia (N)	mg/L	4.9	0.05	9.5	11	9.1	9.0	13	0.1	2.6	0.05	30	0.5

Maxxam ID		BU0464		BU0465		BU0466		BU0467		BU0468	
Sampling Date		2011/10/07 14:15		2011/10/07 14:15		2011/10/07 14:15		2011/10/07 14:15		2011/10/07 14:15	
COC#		G047261		G047261		G047261		G047261		G047262	
	Units	**LEPTO DAY 0 C107**	**RDL**	**LEPTO DAY 0 C108**	**RDL**	**LEPTO DAY 0 C109**	**RDL**	**LEPTO DAY 0 C110**	**RDL**	**LEPTO DAY 0 C111**	**RDL**
Nutrients											
Ammonia (N)	mg/L	2.2	0.05	16	0.1	33	0.5	4.5	0.05	10	0.1

RDL = Reportable Detection Limit

Maxxam Job #: B1A8104
Report Date: 2011/11/15

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085

Leptocheirus Day 28 Porewater

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		CB3504	CB3505	CB3506	CB3507	CB3508	CB3509	CB3510	
Sampling Date		2011/11/04	2011/11/04	2011/11/04	2011/11/04	2011/11/04	2011/11/04	2011/11/04	
COC#		G047740	G047740	G047740	G047740	G047740	G047740	G047740	
	Units	**C100 POREWATER**	**C101 POREWATER**	**C102 POREWATER**	**C103 POREWATER**	**C104 POREWATER**	**C105 POREWATER**	**C106 POREWATER**	**RDL**
Nutrients									
Ammonia (N)	mg/L	6.8	6.7	4.9	6.0	6.4	4.1	9.9	0.05

Maxxam ID		CB3511	CB3512		CB3513		CB3514	CB3515	
Sampling Date		2011/11/04	2011/11/04		2011/11/04		2011/11/04	2011/11/04	
COC#		G047740	G047740		G047740		G047740	G047740	
	Units	**C107 POREWATER**	**C108 POREWATER**	**RDL**	**C109 POREWATER**	**RDL**	**C110 POREWATER**	**C111 POREWATER**	**RDL**
Nutrients									
Ammonia (N)	mg/L	4.5	7.1	0.05	12	0.1	5.8	5.3	0.05

RDL = Reportable Detection Limit

Maxxam

Success Through Science®

Maxxam Job #: B196513
Report Date: 2011/10/14

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085 CRD SEDIMENTS LEPTO

Your P.O. #: 2-11-1085

Day 0

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BT6491		BT6492		BT6493	BT6494	BT6495	BT6496		BT6497		BT6498	
Sampling Date		2011/10/07 11:15		2011/10/07 11:15		2011/10/07 11:15	2011/10/07 11:15	2011/10/07 11:15	2011/10/07 11:15		2011/10/07 11:15		2011/10/07 11:15	
COC#		G047257		G047257		G047257	G047257	G047257	G047257		G047257		G047257	
	Units	**CONTROL OVERLY LEPTO**	**RDL**	**C100 OVERLY LEPTO**	**RDL**	**C101 OVERLY LEPTO**	**C102 OVERLY LEPTO**	**C103 OVERLY LEPTO**	**C104 OVERLY LEPTO**	**RDL**	**C105 OVERLY LEPTO**	**RDL**	**C106 OVERLY LEPTO**	**RDL**
Nutrients														
Ammonia (N)	mg/L	1.4	0.01	2.7	0.03	1.5	1.3	1.5	1.8	0.01	0.62	0.005	4.2	0.05

Maxxam ID		BT6499		BT6500		BT6501		BT6502		BT6503	
Sampling Date		2011/10/07 11:15		2011/10/07 11:15		2011/10/07 11:15		2011/10/07 11:15		2011/10/07 11:15	
COC#		G047257		G047257		G047257		G047257		G047257	
	Units	**C107 OVERLY LEPTO**	**RDL**	**C108 OVERLY LEPTO**	**RDL**	**C109 OVERLY LEPTO**	**RDL**	**C110 OVERLY LEPTO**	**RDL**	**C111 OVERLY LEPTO**	**RDL**
Nutrients											
Ammonia (N)	mg/L	0.47	0.005	2.7	0.03	4.7	0.05	0.86	0.005	1.4	0.01

RDL = Reportable Detection Limit

Maxxam

Success Through Science

Maxxam Job #: B1A8094
Report Date: 2011/11/15

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085

Your P.O. #: 2-11-1085

Day 28 leptocheirus

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		CB3479	CB3480	CB3481	CB3482	CB3483	CB3484	
Sampling Date		2011/11/04	2011/11/04	2011/11/04	2011/11/04	2011/11/04	2011/11/04	
COC#		G047731	G047731	G047731	G047731	G047731	G047731	
	Units	**CTRL OVERLY LEPTO**	**C100 OVERLY LEPTO**	**C101 OVERLY LEPTO**	**C102 OVERLY LEPTO**	**C103 OVERLY LEPTO**	**C104 OVERLY LEPTO**	**RDL**
Nutrients								
Ammonia (N)	mg/L	4.9	6.9	5.9	6.1	5.7	7.2	0.05

Maxxam ID		CB3485		CB3486		CB3487	CB3488	CB3489	CB3490	CB3491	
Sampling Date		2011/11/04		2011/11/04		2011/11/04	2011/11/04	2011/11/04	2011/11/04	2011/11/04	
COC#		G047731		G047731		G047731	G047731	G047731	G047731	G047734	
	Units	**C105 OVERLY LEPTO**	**RDL**	**C106 OVERLY LEPTO**	**RDL**	**C107 OVERLY LEPTO**	**C108 OVERLY LEPTO**	**C109 OVERLY LEPTO**	**C110 OVERLY LEPTO**	**C111 OVERLY LEPTO**	**RDL**
Nutrients											
Ammonia (N)	mg/L	5.8	0.05	10	0.1	5.8	5.7	7.8	5.6	5.9	0.05

RDL = Reportable Detection Limit

48 HOUR *MYTILUS GALLOPROVINCIALIS* LARVAL DEVELOPMENT TEST

Bivalve Larval Development Test with Marine Sediments

Data Summary

Client Name/Location	Capital Regional District/ Victoria, BC
Testing Lab/Location	Maxxam Analytics / Burnaby, BC
Sample Information	
Sample Names	M1E, M2E, M8E, M4E, C2E, PB1, M1SE, PB3, C4E, C1E, PB2, M1NW
Type of Sample	Field collected sediments
Method of Collection	See Chain of Custody form
Sample Collector	See Chain of Custody form
Sample Volume	99 L for M1E, M2E, M8E; 44L for PB1; 22L for M4E, M1SE, PB2, C2E, PB3, C4E, C1E, M1NW.
Sample Containers	4-L white food grade plastic buckets
Sample Collection Date	2011 Sep 14; 2011 Sep 15; 2011 Sep 16; 2011 Sep 19; 2011 Sep 20; 2011 Sep 21; 2011 Sep 22
Sample Temperature upon Arrival	Not recorded at sample receipt.
Date & Time of Sample Receipt	2011 Sep 28 @ 14:50
Storage Conditions	From receipt to test initiation, the samples were stored in a temperature controlled cold room at 4 $\pm$ 2°C
Sediment and Pore Water Characterisation	See Sediment Sample Descriptions sheet and analytical chemistry reports
Sample Preparation	
Homogenisation	Samples were individually mixed until homogenised at ambient laboratory temperature; if necessary, large debris and indigenous macro-organisms were removed during homogenisation (see Sediment Sample Descriptions sheet)
Date and Time of Elutriate Prepared	2011 Oct 24 @ 16:35
Sediment – Physical Analyses	TOC, moisture content and grain size were measured in each sediment sample prior to toxicity test initiation. The results of the analyses are not included in this report.
Sediment Porewater – Chemical Analyses	Samples of homogenised sediment were centrifuged for 30 minutes, at 5000 rpm, to produce porewater. The porewater was then analysed for dissolved organic carbon, ammonia, sulphides, and hardness. The results are available in the Sample Information section of this report.

Test Organism	
Species	*Mytilus galloprovincialis*
Source	Marine Research & Educational Products - see Organism History & Collection Site Characteristics sheet
Age	Gravid adults spawned to produce gametes for testing
Collection Method and Location	Field collected from Mission Bay, California
Date of Organism Arrival	2011 Oct 25
Holding and Acclimation Conditions	See Acclimation and Holding Conditions sheets
Laboratory Control Sediment and Test Water	
Laboratory Control Sediment Source	Mackenzie Beach, Tofino, BC; Collected by Seacology (North Vancouver, BC).
Laboratory Control Sediment Storage	Stored in a cold room that was at 4 ± 2°C
Laboratory Control Sediment Preparation Procedure	Sediment was sieved (0.5 mm) before use with control/dilution seawater
Overlying Water	Seawater collected at the Department of Fisheries (DFO), West Vancouver on 2011.
Type and Quantity of Chemicals Added to Water	None.
Pre-treatment of Overlying Water	The seawater was filtered (0.45µm), U.V sterilized, warmed to the test temperature, and aerated for ≥24 hours prior to use.
Reference Site Sediment	PB1, PB2 and PB3

Test Conditions & Facilities	
Test Method	PSEP (Puget Sound Estuary Program). 1995. Recommended Guidelines for Conducting Laboratory Bioassays on Puget Sound Sediments – Bivalve Larvae Sediment Bioassay.
Test Type / Duration	Static sediment elutriate toxicity test. When 95% of the larvae reach Prossidioconch I stage, between 48 and 60 hours, the test is terminated.
Test Temperature	16 ± 1°C. See the Test Measurements sheets.
Light levels and photoperiod	Overhead full spectrum (fluorescent or equivalent); ambient laboratory light levels, 14:10 light-dark cycle.
Aeration	No aeration supplied. Dissolved oxygen content did not fall below 60% saturation in any measurement replicate.
Test Start Date and Time	2011 Oct 25 @ 18:32
Test Completion Date and Time	2011 Oct 27 @18:32
Test Vessels	1 L glass jars with ~ 10 cm inner diameter; covered
Mass of Sediment	18 g
Volume of Test Water	900 mL
Elutriate Preparation	The overlying water and sediment were mixed for 10 seconds, and then allowed to settle overnight before test initiation.
Analysts	L. Stavroff, M. Lauder, K. Ko, A. Rakhmangulova
Water Renewal	None
# Organisms / Vessel	Each replicate inoculated with 20000-40000 larvae. For details regarding larval density calculations see the Embryo Density Determination sheet.
Number of Replicates	5 (plus one measurement jar) for each sediment sample
Feeding Regime	None
Observations & Measurements	
Dissolved Oxygen Concentrations (DO), Temperature, pH and Salinity	In the overlying water at 0, 24 and 48 hrs, in the replicate jars included for this purpose. See the Test Measurements sheets.
Survival and Normal Development	The overlying water from each replicate was carefully swirled and decanted into a clean beaker. Using a plunger, the larvae were kept in suspension while three 10 mL aliquots were extracted, and preserved.
Overlying Water – Chemical Analysis	Samples of the overlying water were analysed for Ammonia on Day 0 (start).
Anything Unusual about the Test, Deviation from Test Method, other Problems	Each test vessel was seeded with an estimated 236 embryos. However, when the replicates used to the determine the initial counts were quantified, the actual number seeded averaged to 128 embryos per vessel. This is under the target inoculation density of 200-400 embryos per vessel, but does not impact the overall test results.

Results	
Endpoints	Percentage Survival, Normality and Combined Survival-Normality See Embryo Microscopic Examination sheet.
Endpoint Results	**Comparison with Laboratory Control** There was a statistically significant reduction in **mean normal development** between all test sediments and the laboratory control except for M1E and M2E. There was a statistically significant reduction in **mean survival** between test sediments M1E, M2E and M4E. There was a statistically significant reduction in **mean combined survival-normal development** between test sediments all test sediments and the laboratory control except for PB1, M8E, C4E, and C1E. **Comparison with Reference Sediment (PB1)** There was a statistically significant reduction in **mean survival** between test sediments M1E, M2E and M4E, and the reference sediment. There were no statistically significant reductions in **mean normal development** between any test sediment and the reference sediment. There was a statistically significant reduction in **mean combined survival-normal development** between test sediments M1E, M4E, M1SE, and the reference sediment.
Name and citation of program and methods used for calculating statistical endpoint	CETIS v1.7.0.3 – Parametric; Equal or Unequal t Two Sample Test Data was tested for normality using Shapiro-Wilk's test and homogeneity of variance using Bartlett's test
QA/QC	
Test Validity Criteria • Mean survival in the seawater controls must be ≥70% • Mean proportion normally developed in the seawater controls must be ≥70%	• The mean survival in the control was 94.5% • The mean proportion normally developed in the control was 94.4%
Proportion Normally Developed: Ref Tox Test EC50 (95% CL)(µg Cu^{2+}/L)	11.24(10.8, 11.6)
Invalid Ref Tox Test?	No
Ref Tox Test Historic Mean and 2SD Range (µg Cu^{2+}/L)	10.2; 2SD range: (7.6, 12.8)
Date of Ref Tox Test	2011 Oct 25
Organisms Batch and Ref Tox Test Type	Static 48-h water-only test. Same batch of organisms used in test.

Bivalve Larval Survival and Development Test — **Maxxam Analytics**

Analysis ID:	06-7760-1821	**Endpoint:**	Combined Proportion Normal	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:28	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	03-5560-6105	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	25 Oct-11 18:32	**Protocol:**	PSEP (1995)	**Diluent:**	Natural Seawater (DFO)
Ending Date:	27 Oct-11 18:32	**Species:**	Mytilis galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Marine Research and Educational Products	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					12.23%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
SW Control		SED Control	3.438	1.86	0.1631	0.0044	Significant Effect
		PB1	1.814	1.86	0.211	0.0536	Non-Significant Effect
		PB2	2.566	1.86	0.2199	0.0167	Significant Effect
		PB3	1.927	1.86	0.1751	0.0450	Significant Effect
		M1E	4.711	1.86	0.2265	0.0008	Significant Effect
		M2E	2.759	1.86	0.2734	0.0123	Significant Effect
		M8E	0.2596	1.86	0.2097	0.4009	Non-Significant Effect
		M4E	4.903	1.86	0.1637	0.0006	Significant Effect
		C2E	3.158	1.86	0.1665	0.0067	Significant Effect
		M1SE	3.601	1.86	0.2729	0.0035	Significant Effect
		C4E	1.841	1.86	0.1926	0.0515	Non-Significant Effect
		C1E	1.67	1.86	0.305	0.0667	Non-Significant Effect
		MINW	3.241	1.86	0.1858	0.0059	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	1.766895	0.135915	13	3.984	0.0001	Significant Effect
Error	1.910304	0.03411258	56			
Total	3.677199	0.1700276	69			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	21.35	27.69	0.0664	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9685		0.0752	Normal Distribution

Analyst: 2012 Jan 09 QA: 2012 Jan 30

Bivalve Larval Survival and Development Test — Maxxam Analytics

Analysis ID: 06-7760-1821 Endpoint: Combined Proportion Normal CETIS Version: CETISv1.7.0
Analyzed: 09 Jan-12 15:28 Analysis: Parametric-Two Sample Official Results: Yes

Combined Proportion Normal Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
SW Control	5	0.8938	0.8468	0.9407	0.6797	0.9844	0.05517	0.1234	13.8%	0.0%
SED Control	5	0.6813	0.6583	0.7042	0.6016	0.7656	0.027	0.06036	8.86%	23.78%
PB1	5	0.7563	0.699	0.8135	0.5078	0.9141	0.06727	0.1504	19.89%	15.38%
PB2	5	0.6719	0.6053	0.7384	0.4063	0.8594	0.07824	0.175	26.04%	24.83%
PB3	5	0.7828	0.7539	0.8117	0.7266	0.9063	0.034	0.07603	9.71%	12.41%
M1E	5	0.4188	0.3462	0.4913	0.1953	0.7031	0.08525	0.1906	45.52%	53.15%
M2E	5	0.5641	0.4758	0.6524	0.3359	0.9375	0.1038	0.2321	41.15%	36.89%
M8E	5	0.8781	0.8423	0.9139	0.7969	0.9844	0.04212	0.09417	10.72%	1.75%
M4E	5	0.5563	0.5307	0.5818	0.4453	0.625	0.0301	0.0673	12.1%	37.76%
C2E	5	0.6978	0.6715	0.724	0.6372	0.7969	0.03085	0.06898	9.89%	21.93%
M1SE	5	0.4594	0.362	0.5567	0.2344	0.8203	0.1144	0.2559	55.7%	48.6%
C4E	5	0.7719	0.728	0.8157	0.6328	0.8906	0.05155	0.1153	14.93%	13.64%
C1E	5	0.6688	0.577	0.7605	0.4141	0.9922	0.1079	0.2413	36.08%	25.17%
MINW	5	0.6567	0.6142	0.6993	0.5547	0.8383	0.05003	0.1119	17.03%	26.52%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
SW Control	5	1.274	1.203	1.344	0.9692	1.445	0.08267	0.1848	14.51%	0.0%
SED Control	5	0.9722	0.9473	0.9971	0.8877	1.065	0.02926	0.06543	6.73%	23.67%
PB1	5	1.068	1.002	1.134	0.7932	1.273	0.07776	0.1739	16.28%	16.17%
PB2	5	0.9702	0.8983	1.042	0.6911	1.186	0.08458	0.1891	19.49%	23.83%
PB3	5	1.092	1.054	1.131	1.021	1.26	0.04514	0.1009	9.24%	14.25%
M1E	5	0.6999	0.6237	0.776	0.4578	0.9946	0.08948	0.2001	28.59%	45.05%
M2E	5	0.8681	0.7647	0.9715	0.6182	1.318	0.1216	0.2718	31.31%	31.85%
M8E	5	1.244	1.179	1.31	1.103	1.445	0.0767	0.1715	13.78%	2.3%
M4E	5	0.842	0.8163	0.8678	0.7306	0.9117	0.0303	0.06774	8.05%	33.89%
C2E	5	0.9909	0.9616	1.02	0.9244	1.103	0.03447	0.07707	7.78%	22.2%
M1SE	5	0.7452	0.6421	0.8484	0.5054	1.133	0.1213	0.2711	36.38%	41.49%
C4E	5	1.083	1.03	1.136	0.9198	1.234	0.06239	0.1395	12.88%	14.97%
C1E	5	0.9997	0.8792	1.12	0.699	1.482	0.1417	0.3168	31.69%	21.51%
MINW	5	0.95	0.9023	0.9977	0.8402	1.157	0.05609	0.1254	13.2%	25.42%

Analyst: 2012 Jan 09 QA: 2012 Jan 30

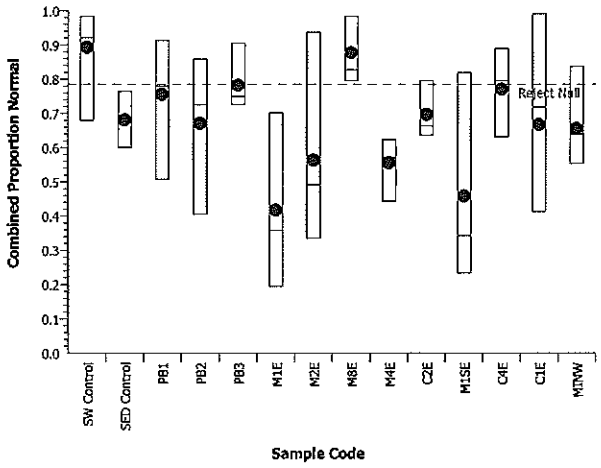
Bivalve Larval Survival and Development Test — **Maxxam Analytics**

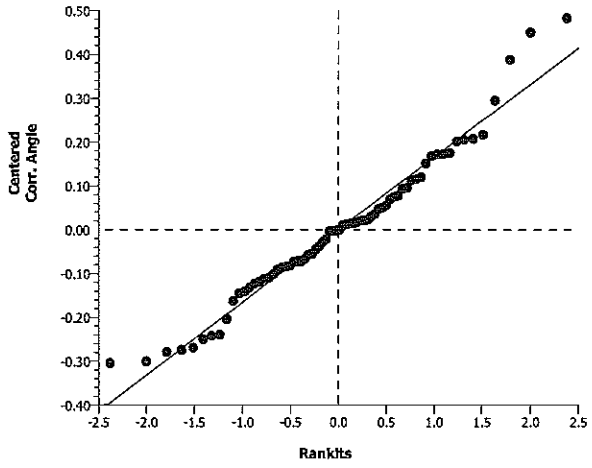
Analysis ID:	06-7760-1821	**Endpoint:**	Combined Proportion Normal	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:28	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Combined Proportion Normal Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
SW Control	0.9219	0.9141	0.6797	0.9688	0.9844
SED Control	0.6016	0.7656	0.7031	0.6797	0.6563
PB1	0.8125	0.5078	0.7813	0.9141	0.7656
PB2	0.8594	0.7266	0.7656	0.6016	0.4063
PB3	0.8047	0.7266	0.9063	0.7266	0.75
M1E	0.3438	0.1953	0.3594	0.7031	0.4922
M2E	0.9375	0.4375	0.3359	0.4922	0.6172
M8E	0.8281	0.8047	0.7969	0.9844	0.9766
M4E	0.625	0.5547	0.4453	0.5703	0.5859
C2E	0.6372	0.6484	0.7969	0.7422	0.6641
M1SE	0.8203	0.6328	0.2656	0.3438	0.2344
C4E	0.6719	0.6328	0.8672	0.7969	0.8906
C1E	0.7188	0.4453	0.4141	0.7734	0.9922
MINW	0.8383	0.6719	0.5547	0.5781	0.6406

Graphics





Analyst: 12 Jan 09 QA: 2012 Jan 30

Bivalve Larval Survival and Development Test — **Maxxam Analytics**

Analysis ID:	10-9313-2792	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:28	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	03-5560-6105	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	25 Oct-11 18:32	**Protocol:**	PSEP (1995)	**Diluent:**	Natural Seawater (DFO)
Ending Date:	27 Oct-11 18:32	**Species:**	Mytilis galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Marine Research and Educational Products	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					7.82%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
SW Control		SED Control	3.756	1.86	0.1815	0.0028	Significant Effect
		PB1	-0.1988	1.86	0.2546	0.5763	Non-Significant Effect
		PB2	0.69	1.86	0.272	0.2549	Non-Significant Effect
		PB3	-0.1296	1.86	0.2005	0.5500	Non-Significant Effect
		M1E	5.029	1.86	0.243	0.0005	Significant Effect
		M2E	2.389	1.86	0.337	0.0220	Significant Effect
		M8E	0.2305	1.86	0.228	0.4117	Non-Significant Effect
		M4E	1.957	1.86	0.2045	0.0430	Significant Effect
		C2E	-1.393	1.86	0.1714	0.8995	Non-Significant Effect
		M1SE	1.606	1.86	0.4068	0.0735	Non-Significant Effect
		C4E	-0.7715	1.86	0.1822	0.7687	Non-Significant Effect
		C1E	0.7068	1.86	0.3422	0.2499	Non-Significant Effect
		MiNW	0.5792	1.86	0.1984	0.2892	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	3.318588	0.255276	13	4.843	<0.0001	Significant Effect
Error	2.951499	0.05270535	56			
Total	6.270087	0.3079813	69			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	140.5	27.69	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.9733		0.1394	Normal Distribution

2012Jan09 2012Jan30

Analyst: QA:

Bivalve Larval Survival and Development Test — **Maxxam Analytics**

Analysis ID:	10-9313-2792	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:28	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
SW Control	5	0.9422	0.8995	0.9849	0.7422	1	0.05018	0.1122	11.91%	0.0%
SED Control	5	0.7344	0.7101	0.7586	0.6406	0.8047	0.02849	0.06371	8.68%	22.06%
PB1	5	0.9453	0.8988	0.9918	0.7266	1	0.05469	0.1223	12.94%	-0.33%
PB2	5	0.8875	0.8288	0.9462	0.625	1	0.06907	0.1544	17.4%	5.8%
PB3	5	0.9641	0.9476	0.9806	0.9063	1	0.01939	0.04336	4.5%	-2.32%
M1E	5	0.4563	0.381	0.5315	0.2344	0.7578	0.08848	0.1978	43.36%	51.58%
M2E	5	0.6297	0.5331	0.7263	0.3438	1	0.1136	0.254	40.33%	33.17%
M8E	5	0.9375	0.9075	0.9675	0.8438	1	0.03529	0.0789	8.42%	0.5%
M4E	5	0.8469	0.8112	0.8826	0.7109	0.9531	0.04197	0.09385	11.08%	10.12%
C2E	5	1	1	1	1	1	0	0	0.0%	-6.14%
M1SE	5	0.6656	0.5465	0.7847	0.3359	1	0.14	0.3132	47.05%	29.35%
C4E	5	0.9875	0.9807	0.9943	0.9609	1	0.008043	0.01799	1.82%	-4.81%
C1E	5	0.8375	0.7516	0.9234	0.5391	1	0.101	0.2258	26.97%	11.11%
MINW	5	0.9359	0.9182	0.9537	0.8828	1	0.02088	0.04668	4.99%	0.66%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
SW Control	5	1.398	1.32	1.477	1.038	1.527	0.09219	0.2061	14.74%	0.0%
SED Control	5	1.031	1.004	1.059	0.9279	1.113	0.03213	0.07184	6.97%	26.23%
PB1	5	1.425	1.339	1.511	1.021	1.527	0.1012	0.2263	15.88%	-1.95%
PB2	5	1.297	1.201	1.394	0.9117	1.527	0.1136	0.2539	19.58%	7.22%
PB3	5	1.412	1.365	1.46	1.26	1.527	0.05595	0.1251	8.86%	-1.0%
M1E	5	0.7409	0.6621	0.8197	0.5054	1.056	0.09264	0.2072	27.96%	47.01%
M2E	5	0.9652	0.8325	1.098	0.6265	1.527	0.156	0.3488	36.14%	30.97%
M8E	5	1.37	1.301	1.439	1.164	1.527	0.08084	0.1808	13.2%	2.02%
M4E	5	1.183	1.132	1.234	1.003	1.353	0.05995	0.134	11.33%	15.39%
C2E	5	1.527	1.527	1.527	1.527	1.527	0	0	0.0%	-9.19%
M1SE	5	1.047	0.8781	1.216	0.6182	1.527	0.1984	0.4437	42.38%	25.12%
C4E	5	1.474	1.446	1.502	1.372	1.527	0.03314	0.07411	5.03%	-5.41%
C1E	5	1.268	1.133	1.404	0.8245	1.527	0.1593	0.3562	28.09%	9.3%
MINW	5	1.336	1.291	1.382	1.221	1.527	0.05374	0.1202	8.99%	4.42%

2012 Jan 09 Analyst: M.Cy

2012 Jan 30 QA:

Bivalve Larval Survival and Development Test

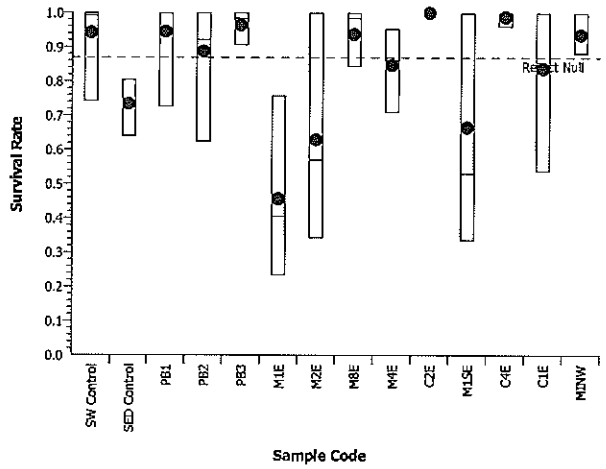
Maxxam Analytics

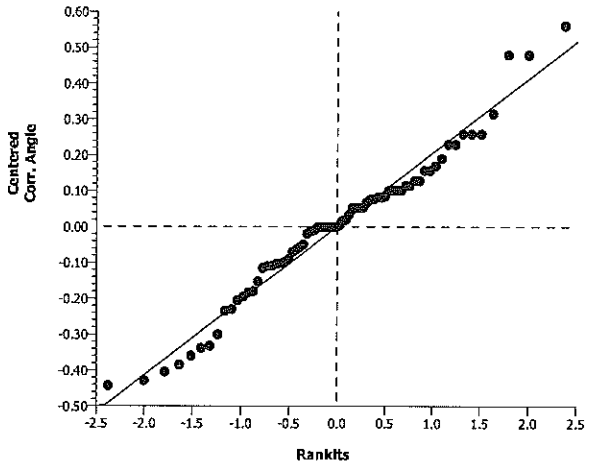
Analysis ID:	10-9313-2792	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:28	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
SW Control	1	1	0.7422	0.9766	0.9922
SED Control	0.6406	0.8047	0.7266	0.7188	0.7813
PB1	1	0.7266	1	1	1
PB2	1	0.9219	1	0.8906	0.625
PB3	0.9844	0.9297	1	1	0.9063
M1E	0.3594	0.2344	0.4063	0.7578	0.5234
M2E	1	0.4844	0.3438	0.5703	0.75
M8E	0.9844	0.8438	0.8594	1	1
M4E	0.9531	0.8594	0.7109	0.9063	0.8047
C2E	1	1	1	1	1
M1SE	1	1	0.4609	0.5313	0.3359
C4E	0.9609	0.9766	1	1	1
C1E	1	0.5391	0.6484	1	1
MINW	1	0.9531	0.8984	0.9453	0.8828

Graphics





Analyst: M.Gy 2012 Jan 09 QA: JP 2012 Jan 30

Bivalve Larval Survival and Development Test — **Maxxam Analytics**

Analysis ID:	18-0436-3345	**Endpoint:**	Proportion Normal	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:27	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	03-5560-6105	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	25 Oct-11 18:32	**Protocol:**	PSEP (1995)	**Diluent:**	Natural Seawater (DFO)
Ending Date:	27 Oct-11 18:32	**Species:**	Mytilis galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Marine Research and Educational Products	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					6.29%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
SW Control		SED Control	0.6751	1.86	0.1212	0.2593	Non-Significant Effect
		PB1	5.286	1.86	0.1392	0.0004	Significant Effect
		PB2	4.869	1.86	0.1201	0.0006	Significant Effect
		PB3	4.226	1.86	0.1239	0.0014	Significant Effect
		M1E	1.303	1.86	0.119	0.1145	Non-Significant Effect
		M2E	1.481	1.86	0.1306	0.0884	Non-Significant Effect
		M8E	2.098	1.86	0.1565	0.0346	Significant Effect
		M4E	7.381	1.86	0.1031	<0.0001	Significant Effect
		C2E	8.804	1.86	0.1036	<0.0001	Significant Effect
		M1SE	7.537	1.86	0.1043	<0.0001	Significant Effect
		C4E	4.366	1.86	0.1345	0.0012	Significant Effect
		C1E	3.871	1.86	0.1365	0.0024	Significant Effect
		MINW	5.14	1.86	0.1302	0.0004	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	1.569828	0.120756	13	12.39	<0.0001	Significant Effect
Error	0.5457854	0.009746168	56			
Total	2.115614	0.1305022	69			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	11.1	27.69	0.6022	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9869		0.6798	Normal Distribution

Analyst: MG 2012Jan09 QA: 2012Jan30

Bivalve Larval Survival and Development Test — **Maxxam Analytics**

Analysis ID:	18-0436-3345	**Endpoint:**	Proportion Normal	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:27	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Proportion Normal Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
SW Control	5	0.9443	0.9277	0.9609	0.9077	0.9921	0.01953	0.04367	4.63%	0.0%
SED Control	5	0.9288	0.9095	0.9481	0.84	0.9677	0.0227	0.05075	5.47%	1.65%
PB1	5	0.6673	0.6232	0.7115	0.4685	0.7748	0.05192	0.1161	17.4%	29.33%
PB2	5	0.7413	0.7125	0.77	0.65	0.8271	0.03377	0.07552	10.19%	21.51%
PB3	5	0.769	0.7375	0.8006	0.6242	0.8276	0.03713	0.08302	10.79%	18.56%
M1E	5	0.9085	0.8896	0.9275	0.8333	0.9565	0.02226	0.04978	5.48%	3.79%
M2E	5	0.8937	0.872	0.9155	0.8229	0.9773	0.02559	0.05723	6.4%	5.36%
M8E	5	0.8414	0.8021	0.8808	0.7022	0.9537	0.04626	0.1034	12.29%	10.9%
M4E	5	0.657	0.6412	0.6728	0.6264	0.7282	0.01858	0.04154	6.32%	30.43%
C2E	5	0.5786	0.5613	0.5959	0.5204	0.6372	0.02033	0.04545	7.86%	38.73%
M1SE	5	0.6444	0.6268	0.662	0.5763	0.6977	0.02071	0.04632	7.19%	31.76%
C4E	5	0.7375	0.7024	0.7725	0.648	0.8837	0.04125	0.09224	12.51%	21.91%
C1E	5	0.7645	0.7277	0.8012	0.6386	0.8819	0.04324	0.09669	12.65%	19.05%
MINW	5	0.6996	0.6643	0.7349	0.6116	0.8383	0.04151	0.09282	13.27%	25.92%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
SW Control	5	1.355	1.311	1.399	1.262	1.482	0.05174	0.1157	8.54%	0.0%
SED Control	5	1.311	1.277	1.345	1.159	1.39	0.03963	0.08862	6.76%	3.25%
PB1	5	0.9593	0.9133	1.005	0.7538	1.076	0.0541	0.121	12.61%	29.2%
PB2	5	1.04	1.008	1.073	0.9377	1.142	0.03868	0.08649	8.31%	23.21%
PB3	5	1.074	1.038	1.109	0.9109	1.143	0.04194	0.09378	8.74%	20.77%
M1E	5	1.272	1.24	1.304	1.15	1.361	0.03768	0.08426	6.63%	6.15%
M2E	5	1.251	1.211	1.291	1.136	1.419	0.04745	0.1061	8.48%	7.68%
M8E	5	1.178	1.122	1.235	0.9936	1.354	0.06637	0.1484	12.59%	13.03%
M4E	5	0.9457	0.9287	0.9627	0.9132	1.022	0.01996	0.04463	4.72%	30.21%
C2E	5	0.8646	0.847	0.8821	0.8058	0.9244	0.02063	0.04612	5.33%	36.19%
M1SE	5	0.9324	0.9141	0.9508	0.862	0.9886	0.02159	0.04828	5.18%	31.19%
C4E	5	1.039	0.9961	1.082	0.9356	1.223	0.05057	0.1131	10.88%	23.31%
C1E	5	1.071	1.027	1.115	0.9258	1.22	0.05203	0.1163	10.86%	20.96%
MINW	5	0.995	0.9548	1.035	0.8979	1.157	0.04721	0.1056	10.61%	26.57%

2012 Jan 09 2012 Jan 30
Analyst: QA:

Bivalve Larval Survival and Development Test

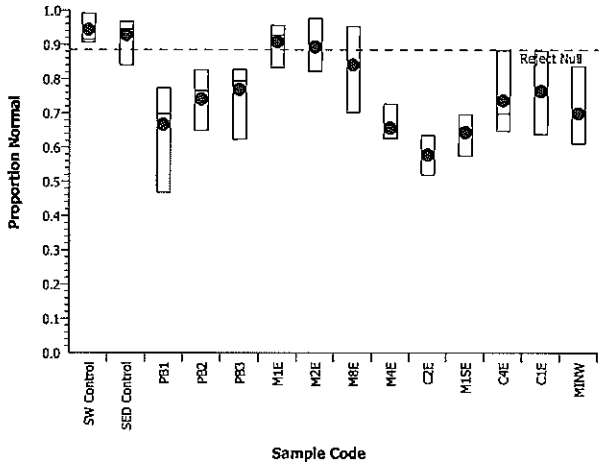
Maxxam Analytics

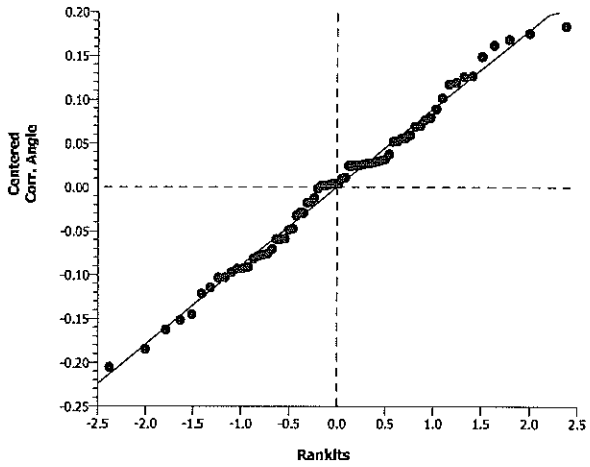
Analysis ID:	18-0436-3345	**Endpoint:**	Proportion Normal	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:27	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Proportion Normal Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
SW Control	0.9077	0.9141	0.9158	0.992	0.9921
SED Control	0.939	0.9515	0.9677	0.9457	0.84
PB1	0.4685	0.6989	0.6944	0.7748	0.7
PB2	0.8271	0.7881	0.7656	0.6754	0.65
PB3	0.8175	0.7815	0.7945	0.6242	0.8276
M1E	0.9565	0.8333	0.8846	0.9278	0.9403
M2E	0.9023	0.9032	0.9773	0.863	0.8229
M8E	0.8413	0.9537	0.9273	0.7826	0.7022
M4E	0.6557	0.6455	0.6264	0.6293	0.7282
C2E	0.6372	0.5497	0.5204	0.5828	0.6028
M1SE	0.6731	0.6279	0.5763	0.6471	0.6977
C4E	0.6992	0.648	0.6894	0.7669	0.8837
C1E	0.7023	0.8261	0.6386	0.7734	0.8819
MINW	0.8383	0.7049	0.6174	0.6116	0.7257

Graphics





2012 Jan09 2012 Jan30

Analyst: M.G. QA: JP

Bivalve Larval Survival and Development Test — **Maxxam Analytics**

Analysis ID:	17-8287-0583	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:29	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	03-5560-6105	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	25 Oct-11 18:32	**Protocol:**	PSEP (1995)	**Diluent:**	Natural Seawater (DFO)
Ending Date:	27 Oct-11 18:32	**Species:**	Mytilis galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Marine Research and Educational Products	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					7.91%

Unequal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
PB1		PB2	0.8424	1.895	0.2882	0.2137	Non-Significant Effect
		PB3	0.1145	1.943	0.2247	0.4563	Non-Significant Effect
		M1E	4.989	1.895	0.26	0.0008	Significant Effect
		M2E	2.475	1.943	0.3614	0.0241	Significant Effect
		M8E	0.4283	1.895	0.2454	0.3406	Non-Significant Effect
		M4E	2.061	1.943	0.2286	0.0425	Significant Effect
		C2E	-1	2.132	0.2158	0.8130	Non-Significant Effect
		M1SE	1.699	2.015	0.4488	0.0750	Non-Significant Effect
		C4E	-0.4541	2.132	0.227	0.6634	Non-Significant Effect
		C1E	0.8335	1.943	0.3667	0.2182	Non-Significant Effect
		MINW	0.7769	1.943	0.2227	0.2334	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	2.969457	0.2699507	11	4.693	<0.0001	Significant Effect
Error	2.760874	0.05751821	48			
Total	5.730331	0.3274689	59			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	134.9	24.72	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.9794		0.4052	Normal Distribution

Analyst: 2012 Jan 09 QA: 2012 Jan 30

Bivalve Larval Survival and Development Test — Maxxam Analytics

Analysis ID:	17-8287-0583	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:29	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
PB1	5	0.9453	0.8988	0.9918	0.7266	1	0.05469	0.1223	12.94%	0.0%
PB2	5	0.8875	0.8288	0.9462	0.625	1	0.06907	0.1544	17.4%	6.12%
PB3	5	0.9641	0.9476	0.9806	0.9063	1	0.01939	0.04336	4.5%	-1.98%
M1E	5	0.4563	0.381	0.5315	0.2344	0.7578	0.08848	0.1978	43.36%	51.74%
M2E	5	0.6297	0.5331	0.7263	0.3438	1	0.1136	0.254	40.33%	33.39%
M8E	5	0.9375	0.9075	0.9675	0.8438	1	0.03529	0.0789	8.42%	0.83%
M4E	5	0.8469	0.8112	0.8826	0.7109	0.9531	0.04197	0.09385	11.08%	10.41%
C2E	5	1	1	1	1	1	0	0	0.0%	-5.79%
M1SE	5	0.6656	0.5465	0.7847	0.3359	1	0.14	0.3132	47.05%	29.59%
C4E	5	0.9875	0.9807	0.9943	0.9609	1	0.008043	0.01799	1.82%	-4.46%
C1E	5	0.8375	0.7516	0.9234	0.5391	1	0.101	0.2258	26.97%	11.4%
MINW	5	0.9359	0.9182	0.9537	0.8828	1	0.02088	0.04668	4.99%	0.99%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
PB1	5	1.425	1.339	1.511	1.021	1.527	0.1012	0.2263	15.88%	0.0%
PB2	5	1.297	1.201	1.394	0.9117	1.527	0.1136	0.2539	19.58%	8.99%
PB3	5	1.412	1.365	1.46	1.26	1.527	0.05595	0.1251	8.86%	0.93%
M1E	5	0.7409	0.6621	0.8197	0.5054	1.056	0.09264	0.2072	27.96%	48.02%
M2E	5	0.9652	0.8325	1.098	0.6265	1.527	0.156	0.3488	36.14%	32.28%
M8E	5	1.37	1.301	1.439	1.164	1.527	0.08084	0.1808	13.2%	3.89%
M4E	5	1.183	1.132	1.234	1.003	1.353	0.05995	0.134	11.33%	17.01%
C2E	5	1.527	1.527	1.527	1.527	1.527	0	0	0.0%	-7.1%
M1SE	5	1.047	0.8781	1.216	0.6182	1.527	0.1984	0.4437	42.38%	26.55%
C4E	5	1.474	1.446	1.502	1.372	1.527	0.03314	0.07411	5.03%	-3.39%
C1E	5	1.268	1.133	1.404	0.8245	1.527	0.1593	0.3562	28.09%	11.04%
MINW	5	1.336	1.291	1.382	1.221	1.527	0.05374	0.1202	8.99%	6.25%

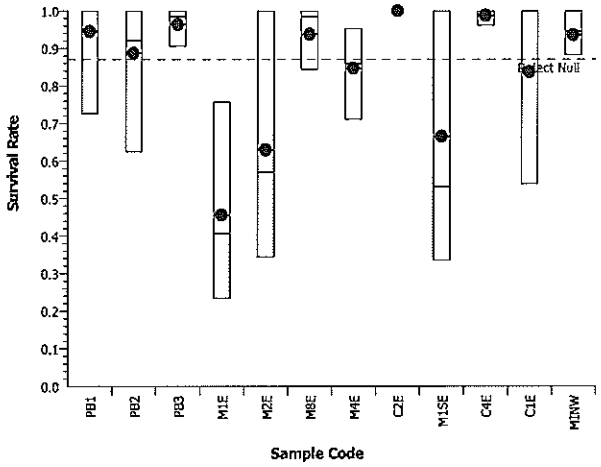
Bivalve Larval Survival and Development Test — **Maxxam Analytics**

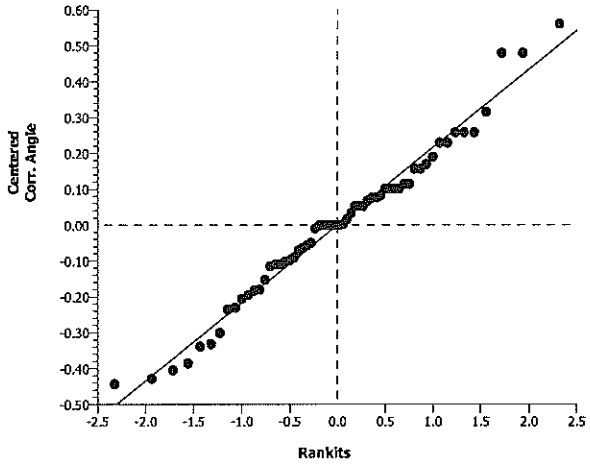
Analysis ID:	17-8287-0583	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:29	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
PB1	1	0.7266	1	1	1
PB2	1	0.9219	1	0.8906	0.625
PB3	0.9844	0.9297	1	1	0.9063
M1E	0.3594	0.2344	0.4063	0.7578	0.5234
M2E	1	0.4844	0.3438	0.5703	0.75
M8E	0.9844	0.8438	0.8594	1	1
M4E	0.9531	0.8594	0.7109	0.9063	0.8047
C2E	1	1	1	1	1
M1SE	1	1	0.4609	0.5313	0.3359
C4E	0.9609	0.9766	1	1	1
C1E	1	0.5391	0.6484	1	1
MINW	1	0.9531	0.8984	0.9453	0.8828

Graphics





Analyst: 2012 Jan 09 QA: 2012 Jan 30

Bivalve Larval Survival and Development Test — **Maxxam Analytics**

Analysis ID:	20-1058-2847	**Endpoint:**	Proportion Normal	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:29	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	03-5560-6105	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	25 Oct-11 18:32	**Protocol:**	PSEP (1995)	**Diluent:**	Natural Seawater (DFO)
Ending Date:	27 Oct-11 18:32	**Species:**	Mytilis galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Marine Research and Educational Products	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					19.03%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
PB1		PB2	-1.22	1.86	0.1237	0.8714	Non-Significant Effect
		PB3	-1.669	1.86	0.1273	0.9331	Non-Significant Effect
		M1E	-4.737	1.86	0.1226	0.9993	Non-Significant Effect
		M2E	-4.053	1.86	0.1338	0.9982	Non-Significant Effect
		M8E	-2.559	1.86	0.1592	0.9832	Non-Significant Effect
		M4E	0.236	1.86	0.1072	0.4097	Non-Significant Effect
		C2E	1.636	1.86	0.1077	0.0703	Non-Significant Effect
		M1SE	0.4613	1.86	0.1083	0.3284	Non-Significant Effect
		C4E	-1.077	1.86	0.1377	0.8436	Non-Significant Effect
		C1E	-1.488	1.86	0.1396	0.9124	Non-Significant Effect
		MINW	-0.4969	1.86	0.1335	0.6837	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.8874347	0.08067588	11	8.403	<0.0001	Significant Effect
Error	0.4608257	0.009600535	48			
Total	1.34826	0.09027641	59			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	10.8	24.72	0.4600	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9858		0.7133	Normal Distribution

Analyst: 2012Jan09 QA: 2012Jan30

Bivalve Larval Survival and Development Test — **Maxxam Analytics**

Analysis ID:	20-1058-2847	**Endpoint:**	Proportion Normal	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:29	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Proportion Normal Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
PB1	5	0.6673	0.6232	0.7115	0.4685	0.7748	0.05192	0.1161	17.4%	0.0%
PB2	5	0.7413	0.7125	0.77	0.65	0.8271	0.03377	0.07552	10.19%	-11.08%
PB3	5	0.769	0.7375	0.8006	0.6242	0.8276	0.03713	0.08302	10.79%	-15.24%
M1E	5	0.9085	0.8896	0.9275	0.8333	0.9565	0.02226	0.04978	5.48%	-36.14%
M2E	5	0.8937	0.872	0.9155	0.8229	0.9773	0.02559	0.05723	6.4%	-33.93%
M8E	5	0.8414	0.8021	0.8808	0.7022	0.9537	0.04626	0.1034	12.29%	-26.09%
M4E	5	0.657	0.6412	0.6728	0.6264	0.7282	0.01858	0.04154	6.32%	1.55%
C2E	5	0.5786	0.5613	0.5959	0.5204	0.6372	0.02033	0.04545	7.86%	13.3%
M1SE	5	0.6444	0.6268	0.662	0.5763	0.6977	0.02071	0.04632	7.19%	3.44%
C4E	5	0.7375	0.7024	0.7725	0.648	0.8837	0.04125	0.09224	12.51%	-10.51%
C1E	5	0.7645	0.7277	0.8012	0.6386	0.8819	0.04324	0.09669	12.65%	-14.55%
MINW	5	0.6996	0.6643	0.7349	0.6116	0.8383	0.04151	0.09282	13.27%	-4.83%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
PB1	5	0.9593	0.9133	1.005	0.7538	1.076	0.0541	0.121	12.61%	0.0%
PB2	5	1.04	1.008	1.073	0.9377	1.142	0.03868	0.08649	8.31%	-8.46%
PB3	5	1.074	1.038	1.109	0.9109	1.143	0.04194	0.09378	8.74%	-11.91%
M1E	5	1.272	1.24	1.304	1.15	1.361	0.03768	0.08426	6.63%	-32.56%
M2E	5	1.251	1.211	1.291	1.136	1.419	0.04745	0.1061	8.48%	-30.41%
M8E	5	1.178	1.122	1.235	0.9936	1.354	0.06637	0.1484	12.59%	-22.84%
M4E	5	0.9457	0.9287	0.9627	0.9132	1.022	0.01996	0.04463	4.72%	1.42%
C2E	5	0.8646	0.847	0.8821	0.8058	0.9244	0.02063	0.04612	5.33%	9.87%
M1SE	5	0.9324	0.9141	0.9508	0.862	0.9886	0.02159	0.04828	5.18%	2.8%
C4E	5	1.039	0.9961	1.082	0.9356	1.223	0.05057	0.1131	10.88%	-8.32%
C1E	5	1.071	1.027	1.115	0.9258	1.22	0.05203	0.1163	10.86%	-11.64%
MINW	5	0.995	0.9548	1.035	0.8979	1.157	0.04721	0.1056	10.61%	-3.72%

Analyst: 2012 Jan 09 QA: 2012 Jan 30

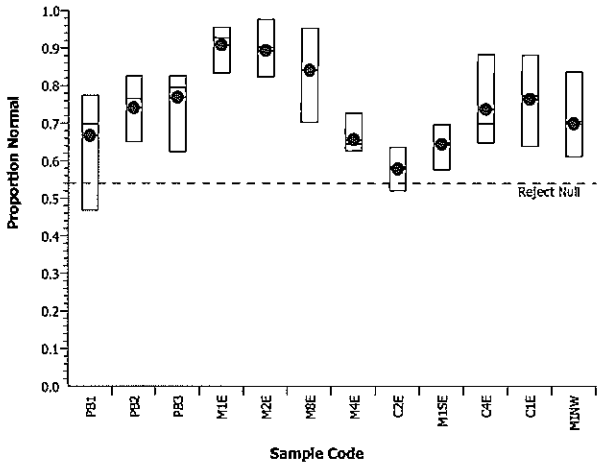
Bivalve Larval Survival and Development Test — **Maxxam Analytics**

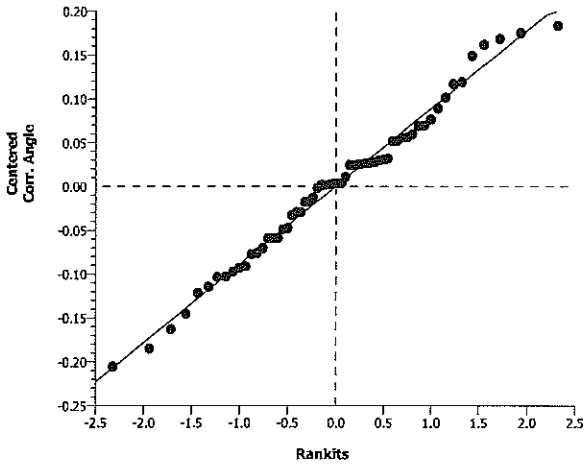
Analysis ID:	20-1058-2847	**Endpoint:**	Proportion Normal	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:29	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Proportion Normal Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
PB1	0.4685	0.6989	0.6944	0.7748	0.7
PB2	0.8271	0.7881	0.7656	0.6754	0.65
PB3	0.8175	0.7815	0.7945	0.6242	0.8276
M1E	0.9565	0.8333	0.8846	0.9278	0.9403
M2E	0.9023	0.9032	0.9773	0.863	0.8229
M8E	0.8413	0.9537	0.9273	0.7826	0.7022
M4E	0.6557	0.6455	0.6264	0.6293	0.7282
C2E	0.6372	0.5497	0.5204	0.5828	0.6028
M1SE	0.6731	0.6279	0.5763	0.6471	0.6977
C4E	0.6992	0.648	0.6894	0.7669	0.8837
C1E	0.7023	0.8261	0.6386	0.7734	0.8819
MINW	0.8383	0.7049	0.6174	0.6116	0.7257

Graphics





Analyst: MG 09 Jan 12 QA: JP 2012Jan30

Bivalve Larval Survival and Development Test — **Maxxam Analytics**

Analysis ID:	00-6508-3001	**Endpoint:**	Combined Proportion Normal	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:29	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	03-5560-6105	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	25 Oct-11 18:32	**Protocol:**	PSEP (1995)	**Diluent:**	Natural Seawater (DFO)
Ending Date:	27 Oct-11 18:32	**Species:**	Mytilis galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Marine Research and Educational Products	**Age:**	

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					20.22%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
PB1		PB2	0.8493	1.86	0.2136	0.2102	Non-Significant Effect
		PB3	-0.2712	1.86	0.1672	0.6034	Non-Significant Effect
		M1E	3.104	1.86	0.2204	0.0073	Significant Effect
		M2E	1.384	1.86	0.2683	0.1019	Non-Significant Effect
		M8E	-1.617	1.86	0.2031	0.9278	Non-Significant Effect
		M4E	2.705	1.86	0.1552	0.0134	Significant Effect
		C2E	0.904	1.86	0.1582	0.1962	Non-Significant Effect
		M1SE	2.239	1.86	0.2679	0.0277	Significant Effect
		C4E	-0.1534	1.86	0.1854	0.5590	Non-Significant Effect
		C1E	0.4214	1.86	0.3005	0.3423	Non-Significant Effect
		MINW	1.229	1.86	0.1783	0.1270	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	1.319757	0.1199779	11	3.279	0.0021	Significant Effect
Error	1.756509	0.03659393	48			
Total	3.076266	0.1565719	59			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	16.81	24.72	0.1136	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9645		0.0784	Normal Distribution

2012 Jan 09 Analyst: M.Ay QA: 2012 Jan 30

Bivalve Larval Survival and Development Test — Maxxam Analytics

Analysis ID: 00-6508-3001 Endpoint: Combined Proportion Normal CETIS Version: CETISv1.7.0
Analyzed: 09 Jan-12 15:29 Analysis: Parametric-Two Sample Official Results: Yes

Combined Proportion Normal Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
PB1	5	0.7563	0.699	0.8135	0.5078	0.9141	0.06727	0.1504	19.89%	0.0%
PB2	5	0.6719	0.6053	0.7384	0.4063	0.8594	0.07824	0.175	26.04%	11.16%
PB3	5	0.7828	0.7539	0.8117	0.7266	0.9063	0.034	0.07603	9.71%	-3.51%
M1E	5	0.4188	0.3462	0.4913	0.1953	0.7031	0.08525	0.1906	45.52%	44.63%
M2E	5	0.5641	0.4758	0.6524	0.3359	0.9375	0.1038	0.2321	41.15%	25.41%
M8E	5	0.8781	0.8423	0.9139	0.7969	0.9844	0.04212	0.09417	10.72%	-16.12%
M4E	5	0.5563	0.5307	0.5818	0.4453	0.625	0.0301	0.0673	12.1%	26.45%
C2E	5	0.6978	0.6715	0.724	0.6372	0.7969	0.03085	0.06898	9.89%	7.74%
M1SE	5	0.4594	0.362	0.5567	0.2344	0.8203	0.1144	0.2559	55.7%	39.26%
C4E	5	0.7719	0.728	0.8157	0.6328	0.8906	0.05155	0.1153	14.93%	-2.07%
C1E	5	0.6688	0.577	0.7605	0.4141	0.9922	0.1079	0.2413	36.08%	11.57%
MINW	5	0.6567	0.6142	0.6993	0.5547	0.8383	0.05003	0.1119	17.03%	13.16%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
PB1	5	1.068	1.002	1.134	0.7932	1.273	0.07776	0.1739	16.28%	0.0%
PB2	5	0.9702	0.8983	1.042	0.6911	1.186	0.08458	0.1891	19.49%	9.14%
PB3	5	1.092	1.054	1.131	1.021	1.26	0.04514	0.1009	9.24%	-2.28%
M1E	5	0.6999	0.6237	0.776	0.4578	0.9946	0.08948	0.2001	28.59%	34.46%
M2E	5	0.8681	0.7647	0.9715	0.6182	1.318	0.1216	0.2718	31.31%	18.7%
M8E	5	1.244	1.179	1.31	1.103	1.445	0.0767	0.1715	13.78%	-16.54%
M4E	5	0.842	0.8163	0.8678	0.7306	0.9117	0.0303	0.06774	8.05%	21.14%
C2E	5	0.9909	0.9616	1.02	0.9244	1.103	0.03447	0.07707	7.78%	7.2%
M1SE	5	0.7452	0.6421	0.8484	0.5054	1.133	0.1213	0.2711	36.38%	30.21%
C4E	5	1.083	1.03	1.136	0.9198	1.234	0.06239	0.1395	12.88%	-1.43%
C1E	5	0.9997	0.8792	1.12	0.699	1.482	0.1417	0.3168	31.69%	6.38%
MINW	5	0.95	0.9023	0.9977	0.8402	1.157	0.05609	0.1254	13.2%	11.03%

Analyst: 2012 Jan 09 QA: 2012 Jan 10

Bivalve Larval Survival and Development Test

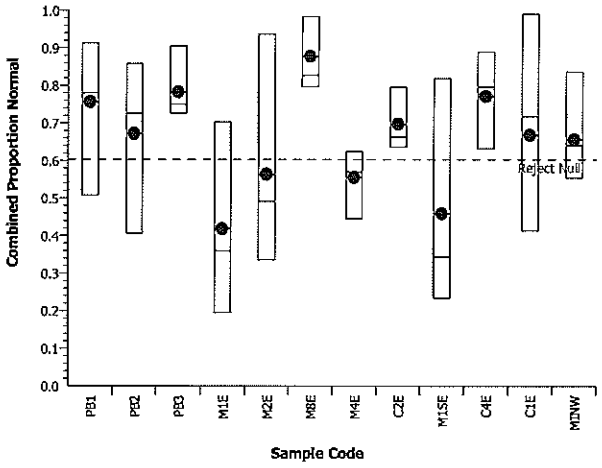
Maxxam Analytics

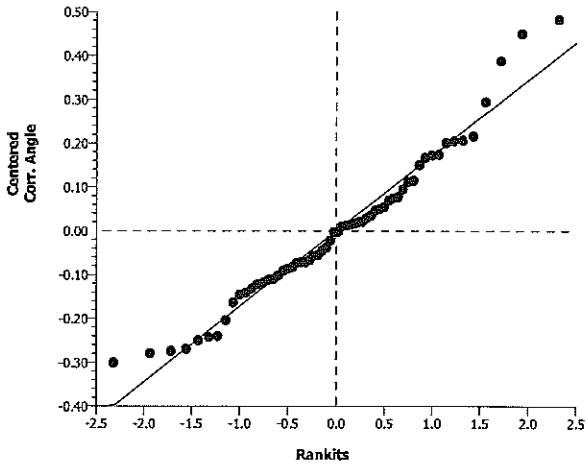
Analysis ID:	00-6508-3001	**Endpoint:**	Combined Proportion Normal	**CETIS Version:**	CETISv1.7.0
Analyzed:	09 Jan-12 15:29	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Combined Proportion Normal Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
PB1	0.8125	0.5078	0.7813	0.9141	0.7656
PB2	0.8594	0.7266	0.7656	0.6016	0.4063
PB3	0.8047	0.7266	0.9063	0.7266	0.75
M1E	0.3438	0.1953	0.3594	0.7031	0.4922
M2E	0.9375	0.4375	0.3359	0.4922	0.6172
M8E	0.8281	0.8047	0.7969	0.9844	0.9766
M4E	0.625	0.5547	0.4453	0.5703	0.5859
C2E	0.6372	0.6484	0.7969	0.7422	0.6641
M1SE	0.8203	0.6328	0.2656	0.3438	0.2344
C4E	0.6719	0.6328	0.8672	0.7969	0.8906
C1E	0.7188	0.4453	0.4141	0.7734	0.9922
MINW	0.8383	0.6719	0.5547	0.5781	0.6406

Graphics





Analyst: 2012 Jan 20 QA: 2012 Jan 30

Maxx Analytics

Bivalve Embryo-Larval Test
Embryo Microscopic Examination

Species: *Mytilus galloprovincialis*
Client: 1399 CRD
Sample ID: Various
Job# / Sample #: B192421

Start Date and Time: 2011 Oct 25 @ 18:32
End Date and Time: 2011 Oct 27 @ 18:32
Analyst(s): M. Lauder, K. Ko, L. Stavroff

Date Counted: 2011 Nov 07-Dec06
Organism Lot #: MR111025

Sample ID	Replicate	Normal (#)	Abnormal (#)	Total Number	Normal (%)			# Initial Embryos	Survival (%)			Proportion Normal/Alive	Combined Normal/Alive (%)		
					Normal	Average	SD		Survival	Average	SD		Combined	Average	SD
Control	A	118	12	130	90.77	94.43	4.37	128	101.56	94.53	11.44	0.92	92.19	89.38	12.34
	B	117	11	128	91.41			128	100.00			0.91	91.41		
	C	87	8	95	91.58			128	74.22			0.68	67.97		
	D	124	1	125	99.20			128	97.66			0.97	96.88		
	E	126	1	127	99.21			128	99.22			0.98	98.44		
Sediment	A	77	5	82	93.90	92.88	5.08	128	64.06	73.44	6.37	0.60	60.16	68.13	6.04
Control	B	98	5	103	95.15			128	80.47			0.77	76.56		
	C	90	3	93	96.77			128	72.66			0.70	70.31		
	D	87	5	92	94.57			128	71.88			0.68	67.97		
	E	84	16	100	84.00			128	78.13			0.66	65.63		
M1E	A	44	2	46	95.65	90.85	4.98	128	35.94	45.63	19.78	0.34	34.38	41.88	19.06
(C100)	B	25	5	30	83.33			128	23.44			0.20	19.53		
	C	46	6	52	88.46			128	40.63			0.36	35.94		
	D	90	7	97	92.78			128	75.78			0.70	70.31		
	E	63	4	67	94.03			128	52.34			0.49	49.22		
M2E	A	120	13	133	90.23	89.37	5.72	128	103.91	63.75	26.84	0.94	93.75	56.41	23.21
(C101)	B	56	6	62	90.32			128	48.44			0.44	43.75		
	C	43	1	44	97.73			128	34.38			0.34	33.59		
	D	63	10	73	86.30			128	57.03			0.49	49.22		
	E	79	17	96	82.29			128	75.00			0.62	61.72		
M8E	A	106	20	126	84.13	84.14	10.34	128	98.44	106.72	24.54	0.83	82.81	87.81	9.42
(C102)	B	103	5	108	95.37			128	84.38			0.80	80.47		
	C	102	8	110	92.73			128	85.94			0.80	79.69		
	D	126	35	161	78.26			128	125.78			0.98	98.44		
	E	125	53	178	70.22			128	139.06			0.98	97.66		
M4E	A	80	42	122	65.57	65.70	4.15	128	95.31	84.69	9.38	0.63	62.50	55.63	6.73
(C103)	B	71	39	110	64.55			128	85.94			0.55	55.47		
	C	57	34	91	62.64			128	71.09			0.45	44.53		
	D	73	43	116	62.93			128	90.63			0.57	57.03		
	E	75	28	103	72.82			128	80.47			0.59	58.59		
C2E	A	137	78	215	63.72	57.86	4.55	128	167.97	135.31	24.40	1.07	107.03	78.44	17.08
(C104)	B	83	68	151	54.97			128	117.97			0.65	64.84		
	C	102	94	196	52.04			128	153.13			0.80	79.69		
	D	95	68	163	58.28			128	127.34			0.74	74.22		
	E	85	56	141	60.28			128	110.16			0.66	66.41		
PB1	A	104	118	222	46.85	66.73	11.61	128	173.44	117.19	36.16	0.81	81.25	75.63	15.04
(C105)	B	65	28	93	69.89			128	72.66			0.51	50.78		
	C	100	44	144	69.44			128	112.50			0.78	78.13		
	D	117	34	151	77.48			128	117.97			0.91	91.41		
	E	98	42	140	70.00			128	109.38			0.77	76.56		
Analysts		ML/KK/LS	ML/KK/LS					ML							

J. Pickard 2012 Jan 30

Maxxam Analytics

Bivalve Embryo-Larval Test
Embryo Microscopic Examination

Species: *Mytilus galloprovincialis*
Client: 1399 CRD
Sample ID: Various
Job# / Sample #: B192421

Start Date and Time: 2011 Oct 25 @ 18:32
End Date and Time: 2011 Oct 27 @ 18:32
Analyst(s): M. Lauder, K. Ko, L. Stavroff

Date Counted: 2011 Nov 07-Dec06
Organism Lot #: MR111025

Sample ID	Replicate	Normal (#)	Abnormal (#)	Total Number	Normal (%)			# Initial Embryos	Survival (%)			Proportion Normal/Alive	Combined Normal/Alive (%)		
					Normal	Average	SD		Survival	Average	SD		Combined	Average	SD
M1SE	A	105	51	156	67.31	64.44	4.63	128	121.88	71.09	38.13	0.82	82.03	45.94	25.59
(C106)	B	81	48	129	62.79			128	100.78			0.63	63.28		
	C	34	25	59	57.63			128	46.09			0.27	26.56		
	D	44	24	68	64.71			128	53.13			0.34	34.38		
	E	30	13	43	69.77			128	33.59			0.23	23.44		
PB3	A	103	23	126	81.75	76.90	8.30	128	98.44	102.50	11.99	0.80	80.47	78.28	7.60
(C107)	B	93	26	119	78.15			128	92.97			0.73	72.66		
	C	116	30	146	79.45			128	114.06			0.91	90.63		
	D	93	56	149	62.42			128	116.41			0.73	72.66		
	E	96	20	116	82.76			128	90.63			0.75	75.00		
C4E	A	86	37	123	69.92	73.75	9.22	128	96.09	104.84	12.08	0.67	67.19	77.19	11.53
(C108)	B	81	44	125	64.80			128	97.66			0.63	63.28		
	C	111	50	161	68.94			128	125.78			0.87	86.72		
	D	102	31	133	76.69			128	103.91			0.80	79.69		
	E	114	15	129	88.37			128	100.78			0.89	89.06		
C1E	A	92	39	131	70.23	76.45	9.67	128	102.34	86.72	25.69	0.72	71.88	66.88	24.13
(C109)	B	57	12	69	82.61			128	53.91			0.45	44.53		
	C	53	30	83	63.86			128	64.84			0.41	41.41		
	D	99	29	128	77.34			128	100.00			0.77	77.34		
	E	127	17	144	88.19			128	112.50			0.99	99.22		
PB2	A	110	23	133	82.71	74.13	7.55	128	103.91	89.53	16.23	0.86	85.94	67.19	17.50
(C110)	B	93	25	118	78.81			128	92.19			0.73	72.66		
	C	98	30	128	76.56			128	100.00			0.77	76.56		
	D	77	37	114	67.54			128	89.06			0.60	60.16		
	E	52	28	80	65.00			128	62.50			0.41	40.63		
M1NW	A	140	27	167	83.83	69.96	9.28	128	130.47	99.69	17.47	1.09	109.38	70.78	22.08
(C111)	B	86	36	122	70.49			128	95.31			0.67	67.19		
	C	71	44	115	61.74			128	89.84			0.55	55.47		
	D	74	47	121	61.16			128	94.53			0.58	57.81		
	E	82	31	113	72.57			128	88.28			0.64	64.06		
Analyst		ML KK	ML KK					ML							

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

MaxXam

Organism: M. galloprovincialis
Organism Lot #: MRIH025
Supplier: MREP
Customer #: 1399 CRD

Arrival Date & Time: 2011Oct25 @ 1045
Age upon Arrival: grand
Ordered: 1 lot
Study/Project # : 24-1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
1	5	0	n/a	n/a	n/a	n/a	no	LS

Container ID: _____

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst

LS 2011Oct25

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
~70 mussels were scrubbed + placed in an 11L bucket containing seawater (@15°C) → Placed bucket in 4°C cold room & added airline. Organisms staged in cold room until required for test.	LS	2011Oct25
LS 2011Oct25		

Maxxam Analytics **Bivalve Embryo-Larval Development Test**

Embryo Density Determination

Species: M. galloprovincialis

Organism Lot # : MR111025

Date: 2011Oct25

Analyst/s: KStalwoff M. Lauder

Initial Egg Suspension Counts (10 µL):

348	369	292

Ave. Count (300-400): 330

Test Embryo Suspension Counts (10 µL) :

242	240	225

Ave. Count (200-400): 236

Control Embryo Counts: (1mL aliquots from monitoring jars)

100	138	127	125	129	147

Ave. Count: 128

Volume of egg suspension (75 mL) diluted with 0 mL of seawater
to obtain a final volume of 75 mL with a density of 30,000-40,000 eggs/mL

Volume of sperm suspension used for fertilization 30mL

Volume of embryo suspension (~110 mL) diluted with 0 mL of seawater
to obtain a final volume of ~110 mL with a density of 20,000-40,000 embryos/mL

- checked for floating, but they were not
- counter Account

Maxxam Analytics **Bivalve Embryo-Larval Development Test**

Bivalve Spawning Record

Species: M. galloprovincialis

Date: 2016Oct25

Organism Lot #: MR161025

Analyst/s: LStaniuff

Temperature of Water	Time In/out	Length of Time	Comments	Analyst
15	1405			LS
15	1409		♀	↓
15	1417		Turn on pump	
16	1423			
17	1428			
18	1439		1 ♀	
19	1448			
20	1451		♂	
20	1453		♂	
20	1455		♂	
21	1507		♂	
22	1516		♂ n/a uneventful 25	
22	1524		♂ +20?	
23	1536			↓

LStaniuff 2016Oct25

Maxxam Analytics **48-60 hour Bivalve Development**
Test Counting

Species: M. galloprovincialis

Client # and Name: 1399 CRD

Test Started: 2011Oct25 Test Ended: 2011Oct27

Organism Lot #: MR111025 Statistical File: n/a

% Fertilized: n/a with n/a Sperm:Egg Ratio

Approximate # of embryos per test vessel: 12800/jar

Analyst(s): Stavroff, K Ko. M. Lauder

Date Counted: 2011 Nov 07,

	Replicate	A	B	C	D	E
Seawater Control	Normal	118	117	87	124	126.
	Abnormal	12	11	8.	1.	1.
Sediment Control	Normal	77	98	90.	87	84
	Abnormal	5	5	3.	5	16
Analyst		KK	KK	KK	KK	KK LS

Sample #: B08687-01

Sample Date: 2011 Sep 21 Date Counted: 2011. Nov. 09.

Sample Name	Replicate	A	B	C	D	E
C100	Normal	44.	32/25	19/46	109/90	63
	Abnormal	2.	0/5	1/6	4/7	4
Analyst		K.K	KK/MEL	KK/MEL	KK/MEL	MEL

Maxxam Analytics **48-60 hour Bivalve Development**
Test Counting

Sample #: B28686-01

Sample Date: 2011 Sep 21 Date Counted: 2011. Nov. 08.

Sample Name	Replicate	A	B	C	D	E
C101	Normal	124/120	56	43	22/63	79
	Abnormal	11/13	6	1	3/10	17
Analyst		KK/MK	KK	KK	KK/MK	[illegible]

Sample #: B28689-01

Sample Date: 2011 Sep 22 Date Counted: 2011. Nov. 10.

Sample Name	Replicate	A	B	C	D	E
C102	Normal	63/106	103	102	126	125
	Abnormal	2/20	5.	8.	35.	53
Analyst		KK/MK	KK.	KK.	[illegible]	KK.

Sample #: B28688-01

Sample Date: 2011 Sep 14 Date Counted: 2011. Nov. 14.

Sample Name	Replicate	A	B	C	D	E
C103	Normal	80	71	57	73	75
	Abnormal	42	39.	34	43	28
Analyst		KK.	KK.	KK.	KK.	[illegible]

Maxxam Analytics **48-60 hour Bivalve Development**
Test Counting

Sample #: B28694-01

Sample Date: 2011 Sep 19 Date Counted: 2011. Nov. 16. Dec 6

Sample Name	Replicate	A	B	C	D	E
C104	Normal	137	83	102	95	85
	Abnormal	78	68	94	68	56
Analyst		K.K.	KK.	KK.	KK.	[illegible]

Sample #: B28690-01

Sample Date: 2011 Sep 20 Date Counted: 2011. Nov. 17/18 ~~Dec 6~~ (A)

Sample Name	Replicate	A	B	C	D	E
C105	Normal	104	65	100	117	98
	Abnormal	118.	28	44	34	42.
Analyst		KK.	[illegible]	[illegible]	[illegible]	KK.

(D) [illegible] 2011 Dec 6 WE

Sample #: B28685-01

Sample Date: 2011 Sep 16 Date Counted: 2011. Nov. 23. 24./Dec 6

Sample Name	Replicate	A	B	C	D	E
C106	Normal	105	81	34	44.	30
	Abnormal	51	48.	25	24.	13
Analyst		KK.	KK.	KK.	KK.	[illegible]

Maxxam Analytics **48-60 hour Bivalve Development**
Test Counting

Sample #: B28692-01

Sample Date: 2011 Sep 20 Date Counted: 2011. Nov. 24. 25. Dec 6

Sample Name	Replicate	A	B	C	D	E
C107	Normal	103	93.	116	93.	96
	Abnormal	23	26.	30	56.	20
Analyst		KK.	KK.	KK.	KK.	[illegible]

Sample #: B28695-01

Sample Date: 2011 Sep 16 Date Counted: 2011. Nov. 28. 29. / Dec 6

Sample Name	Replicate	A	B	C	D	E
C108	Normal	86	81	111	102	114
	Abnormal	37	44	50	31	15
Analyst		KK.	KK.	KK.	KK.	[illegible]

Sample #: B28693-01

Sample Date: 2011 Sep 19 Date Counted: 2011. Nov. 29. 30. / Dec 6

Sample Name	Replicate	A	B	C	D	E
C109	Normal	92	57 46	53	99	127
	Abnormal	39	12 35	30	29	17
Analyst		KK.	[illegible] KK.	KK.	KK.	[illegible]

Maxxam Analytics **48-60 hour Bivalve Development Test Counting**

Sample #: B28691-01

Sample Date: 2011 Sep 20 Date Counted: 2011 Nov 18

Sample Name	Replicate	A	B	C	D	E
C110	Normal	110 ~~95~~ (4)	93	98	77	52
	Abnormal	23 ~~20~~	25	30	37	28
Analyst		WEL	WEL	WEL	WEL	KK.

(4) WEL 2011 Nov 18 WE

Sample #: B28684-01

Sample Date: 2011 Sep 15 Date Counted: 2011 Nov 18, 20, 22

Sample Name	Replicate	A	B	C	D	E
C111	Normal	140	86	71	74	82
	Abnormal	27	36	44	47	31
Analyst		WE	KK.	KK	KK.	KK.

~~Sample #:~~

~~Sample Date:~~ ~~Date Counted:~~

Sample Name	Replicate	A	B	C	D	E
	Normal					
	Abnormal					
Analyst						

N/A WOP 2040ct25

ECOTOXICOLOGY
TEST OBSERVATIONS – NON GLP

Maxxam

Test Method: Bivalve Larval Development Sediment Test
Test Method DCN: BB42SOP-00032
Test Start Date: 2011Oct25 Customer Name and #: 1399 C
Sample ID: N/A Maxxam Analytics #: N/A

2011Oct24 – Added 900mL overlying water (DFO 2011Oct21) to each replicate plunged vigorously for ~ 10sec with perforated plexiglas plunger/rep.
– Elutriates prepared by 16:35 1S 2011Oct24

2011Oct25 – tracks seen on sediment surface of C100repD, C108repD C101repB, E & C103repA. while removing aliquots of overlying water for Ammonia analysis 1S 2011Oct25

MG 2012Jan30

Revision: 01
Revision Date: March 25, 2010
Document Control Number: 80-F-010-01

Form approved by: Janet Pickard
Effective date: Apr 01, 2010

Maxxam Analytics

Sediment Sample Descriptions

Client # / Name: 1399 CRD **Job #:** B192421

Maxxam Sample Name	Sample #	Client Sample Name	Date Homogenised / Subsampled	Grain Size & Colour	Type of Debris Removed (e.g. rock, wood, plant, etc...)	Endemic Animals Removed	Odour	Additional Comments/Observations	Analyst
C100	B028687	M1E	2011 Oct 24	muddy. almost black	n/a	n/a	light sewage	n/a	LT
C101	B028686	M2E	2011 Oct 24	muddy almost black	n/a	n/a	light sewage	n/a	LT
C102	B028689	M8E	2011 Oct 24	muddy charcoal grey	n/a	n/a	light sewage	n/a	LT
C103	B028688	M4E	2011 Oct 24	muddy charcoal grey	n/a	n/a	light sewage	n/a	LT
C104	B028694	C2E	2011 Oct 24	Sandy charcoal grey.	WE LT 2011 Oct 24 ~~n/a~~ hair small rocks	n/a	sewage	n/a	LT
C105	B028690	PB1	2011 Oct 24	sandy/ muddy grey.	n/a	n/a	light sewage	n/a	LT
C106	B028681	M1SE	2011 Oct 24	sandy/ muddy grey dark	small rocks	n/a	sewage	n/a	LT
C107	B028692	PB3	2011 Oct 24	sandy/muddy dark grey	n/a	n/a	light marine	n/a	LT
C108	B028695	C4E	2011 Oct 24	sandy dark grey	small rocks pieces of shell	n/a	light marine	n/a	LT

Maxxam Analytics

Sediment Sample Descriptions

Client # / Name: 1399 CRD

Job #: B192421

Maxxam Sample Name	Sample #	Client Sample Name	Date Homogenised / Subsampled	Grain Size & Colour	Type of Debris Removed (e.g. rock, wood, plant, etc...)	Endemic Animals Removed	Odour	Additional Comments/Observations	Analyst
C109	B028593	C1E	2011 Oct 24	Sandy dark grey	Small rocks	n/a	Sewage	N/A	LT
C110	B028591	PB2	2011 Oct 24	Sandy/muddy dark grey.	n/a	n/a	light Sewage	N/A	LT
C111	B028684	M1NW	2011 Oct 24	Sandy/muddy dark grey	n/a	n/a	light Sewage	N/A	LT
CONTROL	N/A	n/a	2011 Oct 24	Sandy grey	n/a	n/a	methane	n/a	LT
				M. Cy - 192 Tum. 30					

Maxxam Analytics **Bivalve Larvae Sediment 48-60 hour Test - Test Measurements**

Species: M. galloprovincialis

Client # and Name: 1399 CRD

Organism Lot #: MR111025

Sample Date: various

Date Received: 2011 Sep 28

Date & Time Started: 2011 Oct 25 @ 18:32

Date & Time Ended: 2011 Oct 27 @ 18:32

Control Water Date: DFO 2011 Oct 21

pH 7.8 Temperature (°C) 14.8

D.O. (mg/L) 8.6 Salinity (‰) 29

Sample	Salinity (‰)				Temperature (°C)				pH				D.O. (mg/L)			
	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr
SW Ctrl	28	(A) n/a	25	n/a	14.4	14.4	14.4	n/a	7.6	7.5	7.8	n/a	8.7	8.6	~~10.2~~ 8.4 *	n/a
Sed Ctrl	28	(A) n/a	25	n/a	14.3	14.2	14.5	n/a	7.7	7.7	7.9	n/a	8.8	8.5	~~10.1~~ 8.4 *	n/a
Analyst	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a

* WEAR 2011 Oct 27

Sample ID: C100 Sample#: B28687

Sample	Salinity (‰)				Temperature (°C)				pH				D.O. (mg/L)			
	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr
	29	(A) n/a	25	n/a	14.3	14.2	14.5	n/a	7.8	7.7	7.8	n/a	8.0	7.7	~~9.1~~ 8.4 *	n/a
Analyst	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a

(A) Salinity measurements were missed at 24 hrs. LS 2011 Dec 05.

Sample ID: C101 Sample#: B28686

Sample	Salinity (‰)				Temperature (°C)				pH				D.O. (mg/L)			
	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr
	29	n/a	25	n/a	14.3	14.3	14.6	n/a	7.8	7.7	7.7	n/a	7.7	7.0	7.0	n/a
Analyst	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a

Sample ID: C102 Sample#: B28689

Sample	Salinity (‰)				Temperature (°C)				pH				D.O. (mg/L)			
	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr
	29	*25/n/a	25	n/a	14.3	14.3	14.6	n/a	7.8	7.8	7.8	n/a	7.7	7.2	6.6	n/a
Analyst	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a

*WE20110e27 AR

Sample ID: C103 Sample#: B28688

Sample	Salinity (‰)				Temperature (°C)				pH				D.O. (mg/L)			
	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr
	29	n/a	25	n/a	14.2	14.2	14.5	n/a	7.7	7.7	7.7	n/a	7.5	7.3	7.1	n/a
Analyst	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a

Sample ID: C104 Sample#: BQ8694

Sample	Salinity (‰)				Temperature (°C)				pH				D.O. (mg/L)			
	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr
	29	n/a	25	n/a	14.2	14.2	14.6	n/a	7.8	7.7	7.5	n/a	7.4	7.5	6.1	n/a
Analyst	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a

Sample ID: C105 Sample#: BQ8690

Sample	Salinity (‰)				Temperature (°C)				pH				D.O. (mg/L)			
	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr
	29	n/a	25	n/a	14.2	14.4	14.6	n/a	7.8	7.7	7.7	n/a	7.9	7.2	6.7	n/a
Analyst	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a

Sample ID: C106 Sample#: BQ8685

Sample	Salinity (‰)				Temperature (°C)				pH				D.O. (mg/L)			
	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr
	29	n/a	25	n/a	14.2	14.4	14.4	n/a	7.7	7.7	7.8	n/a	6.7	6.7	7.1	n/a
Analyst	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a

DO 6.7 mg/L ≈ 77% sat.

Sample ID: C107 Sample#: B28692

Sample	Salinity (‰)				Temperature (°C)				pH				D.O. (mg/L)			
	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr
	29	n/a	25	n/a	14.3	14.3	14.4	n/a	7.8	7.7	7.8	n/a	7.4	7.4	7.5	n/a
Analyst	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a

Sample ID: C108 Sample#: B28695

Sample	Salinity (‰)				Temperature (°C)				pH				D.O. (mg/L)			
	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr
	29	n/a	25	n/a	14.3	14.4	14.5	n/a	7.8	7.7	7.7	n/a	7.8	7.8	7.6	n/a
Analyst	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a

Sample ID: C109 Sample#: B28693

Sample	Salinity (‰)				Temperature (°C)				pH				D.O. (mg/L)			
	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr
	29	n/a	25	n/a	14.1	14.1	14.3	n/a	7.8	7.7	7.7	n/a	7.1 (A)	6.5	6.9	n/a
Analyst	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a	LS	LS	AR	n/a

(A) ISCUE 20110825

DO: 6.5mg/L = 75% sat

Sample ID: C110 Sample#: BQ8691

Sample	Salinity (‰)				Temperature (°C)				pH				D.O. (mg/L)			
	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr
	29	n/a	25	N/a	14.2	14.2	14.5	N/a	7.7	7.8	7.8	N/a	7.9	7.9	7.5 * 9.2	N/a
Analyst	LS	LS	AR	N/a	LS	LS	AR	N/a	LS	LS	AR	N/a	LS	LS	AR	N/a

* AR WE 2011 Oct 27

Sample ID: C111 Sample#: BQ8684

Sample	Salinity (‰)				Temperature (°C)				pH				D.O. (mg/L)			
	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr
	29	n/a	25	N/a	14.2	14.2	14.5	N/a	7.8	7.8	7.8	N/a	7.6	7.5	7.4	N/a
Analyst	LS	LS	AR	N/a	LS	LS	AR	N/a	LS	LS	AR	N/a	LS	LS	AR	N/a

Sample ID: Sample#:

Sample	Salinity (‰)				Temperature (°C)				pH				D.O. (mg/L)			
	Initial	24 hr	48 hr	60hr	~~Initial~~ 24 hr		48 hr	60hr	Initial	24 hr	48 hr	60hr	Initial	24 hr	48 hr	60hr
Analyst																

Maxxam

Success Through Science

Maxxam Job #: B1A2935
Report Date: 2011/10/31

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085
Site Location: CRD
Your P.O. #: 2-11-1085
Sampler Initials: LS

Day0

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BX8668	BX8669	BX8670		BX8671		BX8672	BX8673	BX8674	BX8675	BX8676	
Sampling Date		2011/10/25 18:00	2011/10/25 18:00	2011/10/25 18:00		2011/10/25 18:00		2011/10/25 18:00	2011/10/25 18:00	2011/10/25 18:00	2011/10/25 18:00	2011/10/25 18:00	
COC#		G032284	G032284	G032284		G032284		G032284	G032284	G032284	G032284	G032284	
	Units	**SED CTRL OVERLY BIVALVES**	**C100 OVERLY BIVALVES**	**C101 OVERLY BIVALVES**	**RDL**	**C102 OVERLY BIVALVES**	**RDL**	**C103 OVERLY BIVALVES**	**C104 OVERLY BIVALVES**	**C105 OVERLY BIVALVES**	**C106 OVERLY BIVALVES**	**C107 OVERLY BIVALVES**	**RDL**
Nutrients													
Ammonia (N)	mg/L	0.036	0.35	0.36	0.005	0.63	0.01	0.42	0.40	0.20	0.79	0.23	0.005

Maxxam ID		BX8677		BX8678		BX8679		BX8680		BX8681	
Sampling Date		2011/10/25 18:00		2011/10/25 18:00		2011/10/25 18:00		2011/10/25 18:00		2011/10/25 18:00	
COC#		G032284		G032284		G032284		G032285		G032285	
	Units	**C108 OVERLY BIVALVES**	**RDL**	**C109 OVERLY BIVALVES**	**RDL**	**C110 OVERLY BIVALVES**	**RDL**	**C111 OVERLY BIVALVES**	**RDL**	**CONTROL OVERLY BIVALVES**	**RDL**
Nutrients											
Ammonia (N)	mg/L	0.44	0.005	0.87	0.01	0.33	0.005	0.43	0.01	0.034	0.005

RDL = Reportable Detection Limit

Maxxam Analytics **Randomization Chart for Sediment Tests**

Client Name and #: 1399 CRD
Project #: 2-11-1085
Maxxam Job #: B192421

Test Type: 48-h Bivalve Test
Test Species: M. galloprovincialis
Test Start Date: 2011 Oct 25

Instructions: please follow the position map below when placing vessels on the test bench.

Back Wall

5	10	↑			
4	9				
3	8	13			
2	7	12			
1	6	11	→	→	→

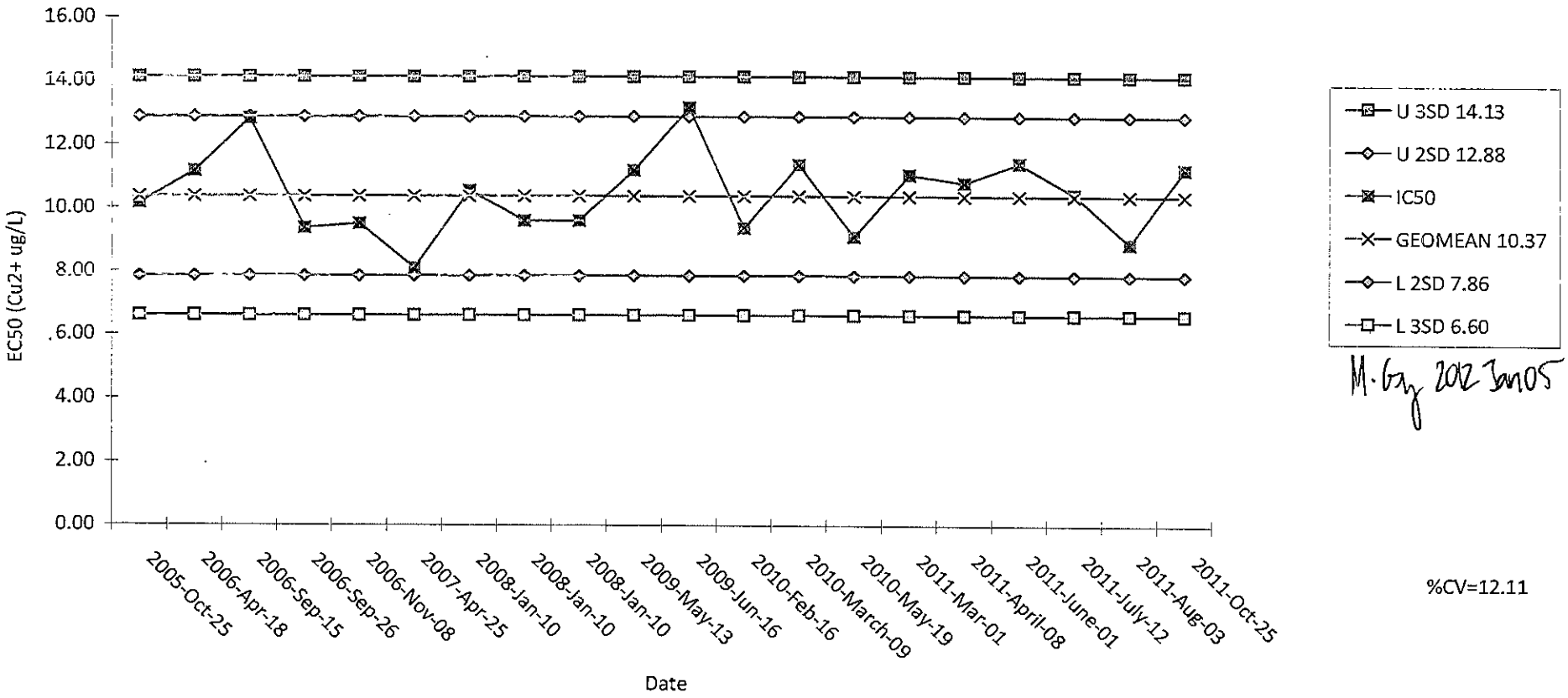
Left — Front of Counter — Right

Position #	Treatment	Replicate	Colour
16	Control	A	Red
18	Control	B	Red
68	Control	C	Red
22	Control	D	Red
45	Control	E	Red
15	Control	Measure	Red
75	C100	A	Dk Orange
30	C100	B	Dk Orange
12	C100	C	Dk Orange
1	C100	D	Dk Orange
38	C100	E	Dk Orange
79	C100	Measure	Dk Orange
13	C101	A	Lt Orange
44	C101	B	Lt Orange
53	C101	C	Lt Orange
78	C101	D	Lt Orange
81	C101	E	Lt Orange
41	C101	Measure	Lt Orange
52	C102	A	Yellow
31	C102	B	Yellow
77	C102	C	Yellow
73	C102	D	Yellow
55	C102	E	Yellow
8	C102	Measure	Yellow
83	C103	A	Fl Green
25	C103	B	Fl Green
17	C103	C	Fl Green
50	C103	D	Fl Green
35	C103	E	Fl Green
60	C103	Measure	Fl Green
66	C104	A	Green
14	C104	B	Green
56	C104	C	Green
43	C104	D	Green
4	C104	E	Green
63	C104	Measure	Green
10	C105	A	Blue
59	C105	B	Blue
32	C105	C	Blue
29	C105	D	Blue
51	C105	E	Blue
3	C105	Measure	Blue
57	C106	A	Dark Blue
21	C106	B	Dark Blue
48	C106	C	Dark Blue
82	C106	D	Dark Blue
23	C106	E	Dark Blue
24	C106	Measure	Dark Blue
69	C107	A	Purple
58	C107	B	Purple
9	C107	C	Purple
47	C107	D	Purple
11	C107	E	Purple
20	C107	Measure	Purple
19	C108	A	Pink
36	C108	B	Pink
39	C108	C	Pink
74	C108	D	Pink
46	C108	E	Pink
2	C108	Measure	Pink
49	C109	A	White
28	C109	B	White
84	C109	C	White
37	C109	D	White
33	C109	E	White
40	C109	Measure	White
34	C110	A	yellow w red star
5	C110	B	yellow w red star
76	C110	C	yellow w red star
80	C110	D	yellow w red star
70	C110	E	yellow w red star
67	C110	Measure	yellow w red star
7	C111	A	red w silver star
64	C111	B	red w silver star
27	C111	C	red w silver star
62	C111	D	red w silver star
61	C111	E	red w silver star
72	C111	Measure	red w silver star
71	Sed Control	A	lt orange w red
26	Sed Control	B	lt orange w red
6	Sed Control	C	lt orange w red
54	Sed Control	D	lt orange w red
65	Sed Control	E	lt orange w red
42	Sed Control	Measure	lt orange w red

Maxxam Analytics
Burnaby, BC

Mussel Embryo-Larval Development
Proportion Normal

Reference Toxicant Control Chart for Copper Chloride



M. Gay 2023/05

%CV=12.11

28 DAY *NEREIS VIRENS* BIOACCUMULATION TEST

Test Summary

Raw Data

Supporting Test Data

Acclimation and Holding Conditions

Overlying Water Chemistry

Tissue Chemistry Results

28-d Polychaete Bioaccumulation Test Summary

Client Name/Location	Capital Regional District/ Victoria, B.C.
Testing Lab/Location	Maxxam Analytics / Burnaby, BC
Sample Information	
Sample Names	M1E, M2E, M8E, PB1
Type of Sample	Field collected sediments
Method of Collection	See Chain of Custody form
Sample Collector	See Chain of Custody form
Sample Volume	For M1E, M2E, M8E: 99 L For PB1: 44L
Sample Containers	11-L white food grade plastic buckets
Sample Collection Date	2011 Sep 20; 2011 Sep 21; 2011 Sept 22
Sample Temperature upon Arrival	Not measured on arrival
Date & Time of Sample Receipt	2011 Sep 28 @ 14:50
Storage Conditions	From receipt to test initiation, the samples were stored in a temperature controlled cold room at 4 $\pm$ 2°C
Sediment and Pore Water Characterisation	See Sediment Sample Descriptions sheet and analytical chemistry reports
Sample Preparation	
Homogenisation	Samples were individually mixed until homogenised at ambient laboratory temperature; if necessary, large debris and indigenous macro-organisms were removed during homogenisation (see Sediment Sample Descriptions sheet)
Date of Homogenisation	2011 Oct 20
Sediment – Physical Analyses	TOC, moisture content and grain size were measured in each sediment prior to toxicity test initiation. The results of these analyses are available in the Sample Information section of this report.
Sediment Porewater – Chemical Analyses	Samples of homogenised sediment were centrifuged for 30 minutes, at 5000 rpm, to produce porewater. The porewater was then analysed for dissolved organic carbon, ammonia, sulphides and hardness. See chemical analysis reports.
Test Organisms	
Species	*Nereis virens*
Source	Aquatic Research Organisms; Hampton, NH
Age at Start of Test	Adult; non-reproductive stage
Date of Organism Arrival	2011 Oct 18
Holding and Acclimation Conditions	See Acclimation and Holding Conditions sheets

Laboratory Control Information	
Overlying Water	Seawater collected at the Vancouver Aquarium, from Burrard Inlet, 40-45' deep inlet, gravity sand filter with sand mesh size 22, filtered through 5 µm filter and passed through UV Sterilizer
Type and Quantity of Chemicals Added to Water	None
Pre-treatment of Overlying Water	The seawater was UV sterilized and filtered through a 1 um filter, warmed to the test temperature of 12±2°C, and was continuously aerated prior to use.
Reference Site Sediment	PB1
Baseline Control (T=0)	T=0 worms were collected on Day 0, alongside worms to be used in the bioaccumulation test. They were purged for ≈24 hours in clean seawater, rinsed with deionised water, then patted dry and placed in clean glass sample jars. They were submitted in triplicate for analysis alongside the worms extracted from the test sediments.
Test Conditions & Facilities	
Test Method	USEPA 1993, Guidance Manual: Bedded Sediment Bioaccumulation Tests (EPA/600R-93/183); ASTM 2000, Standard Guide for Determination of the Bioaccumulation of Sediment-Associated Contaminants by Benthic Invertebrates (E1688-00a).
Test Type / Duration	28-d whole sediment bioaccumulation test. Static-renewal
Test Temperature	12 ± 2°C. See the Test Conditions and Survival Data sheets.
Light levels and Photoperiod	24 hr continuous light, ambient laboratory light levels
Aeration	Continuous and minimal in each test vessel; checked 3 times daily. Compressed oil-free air delivered through glass Pasteur pipettes
Test Start Date	2011 Oct 21
Test Completion Date	2011 Nov 18
Test Vessels	20L glass aquaria.
Sediment Mass at Test Initiation	2.5 kg (≈ 3cm depth)
Volume of Test Water	8L
Analysts	M. Grey, M. Brassil, D. Greschner, C. Tra, L. Takahashi, E. Chen, N. Shergill, D. Lai, J. Baker, A. Rakhmangulova,
Water Renewal	50% water renewal twice weekly, after recording water quality (See Test Conditions Page).
# Organisms and average biomass/ Vessel	3 worms per vessel, the initial biomass per replicate ranged from 14.6 to 15.1g.
Number of Replicates	3
Sediment Addition	None required

Observations & Measurements	
Dissolved Oxygen (DO), Temperature, pH and Salinity	Twice weekly, directly before water renewals. See Test Conditions and Survival Data sheets
Sediment Appearance During Test	See Aeration Checks, Test Conditions and Survival Data sheets
Test Observations	Organism behaviour during the test, visible mortalities and/or abnormal behaviour was recorded on Test Conditions and Survival Data sheets
Survival	All live polychaetes recovered from each test vessel were counted. See Test Conditions Data sheet
Overlying Water – Chemical Analyses	Samples of the overlying water were analysed for Ammonia on Day 0 (start) and Day 28 (end) of the test. See chemical analysis reports
Anything Unusual about the Test, Deviation from Test Method, other Problems	The water temperature in the tanks measured on Day 0 was slightly above the target temperature of the test (12±2°C). The room temperature was decreased and the appropriate test water temperature was reached. The aerations checks on Day 1 were missed. However, the following day the aeration checks indicated that all tanks were aerating properly since test initiation. One worm, from rep B-M8E, was damaged during worm recovery on Day 28. It was excluded from any further analyses.
Results	
Endpoints	Metals, lipids, and methyl mercury Concentration in *Nereis* Tissue; was measured on a composite of each sample and three replicates of the T=0 treatment.
Endpoint Results	The bioaccumulation of select analytes was measured in Nereis tissue, after purging the worms for 24 hours in clean seawater. See Chemistry Results in the "28 day *Nereis virens* Bioaccumulation Test" section.
Number of surviving organisms in each test vessel	See Test Conditions and Survival Data sheet
QA/QC	
Test Validity Criteria • Mean survival in the test sediments must be ≥90% • Initial sediment mass should exceed 1680g (2 times the estimated mass of sediment processed during the test by *Nereis virens*) • Initial sediment depth must be greater than 2cm.	• Mean survival in the test sediments was 100% • Initial sediment mass was 2500g per replicate. The processing rate for this species is 2g wet sediment/ 1g wet worm tissue/day. • Sediment depth was ≈3 cm

Maxxam Analytics

Nereis virens 28-d Test
Summary of the Initial and Final Biomass Measurments

Client # & Name: #1399 CRD

Start Date and Time: 2011 Oct 21 @ 13:45

Project # 2-11-1085

End Date: 2011 Nov 18

Maxxam Group #: B192421

Organism Lot #: AR111018NV

Analyst(s): J. Baker, L. Takahashi, C. Tra, D. Lai

Sample ID	Replicate	# Worms	Biomass T=0 (g)	Mean Initial biomass/ sample (g)	SD (g)	Biomass T=28 (g)	Total biomass/ sample (g)
T=0 Control*	A	3	15.1	12.5	2.70		
	B	3	12.6				
	C	3	9.7				
M1E	A	3	15.0	14.9	0.23	12.0	35.5
	B	3	15.0			12.3	
	C	3	14.6			11.2	
M2E	A	3	15.0	15.1	0.06	11.5	33.8
	B	3	15.0			10.8	
	C	3	14.9			11.5	
M8E	A	3	15.1	15.1	0.00	12.0	31.2
	B	3	15.1			8.0	
	C	3	15.1			11.2	
PB1	A	3	15.1	14.9	0.26	8.8	29.3
	B	3	15.0			10.6	
	C	3	14.6			9.9	
			JB CT LT			DML	

*Worms purged for 24 hours prior to recording weights.

JP 2012 Jan 30

Maxxam Analytics

Nereis virens Bioaccumulation Test
Final Weights

Client # & Name: 1399 CRD **Test Date:** 2011 Oct 21

Balance ID: 003538 **Project Number:** 2-11-1085

Analysts: M. Grey

Final Weights (g)					
Sample ID	**A**	**B**	**C**	**D**	**Total**
T=0 (1 of 3)	5.6	4.5	5.0		15.1
T=0 (2 of 3)	4.2	4.4	4.0		12.6
T=0 (3 of 3)	2.6	3.0	4.1		9.7

M. Grey 2011 Oct 21

M. Grey 2011 Oct 21

Comments: Measurements recorded after purging worms for 24 hours in clean seawater, then rinsing worms w/ DI water, and patting them dry. 2011 Oct 21 HS

Maxxam Analytics

Nereis virens Bioaccumulation Test
Final Weights

Client # & Name: #1899 **Test Date:** 2011 Nov 19

Balance ID: 003538 **Project Number:** 2-11-1085

Analysts: DML

Final Weights (g)					
Sample ID	**A**	**B**	**C**	**D**	**Total**
C100 20 worms sep A DML	12.0	12.3	11.2		35.5
C101	11.5	10.8	11.5		
C102	12.0	ⓐ 8.0	11.2		
C105	8.8	10.6	9.9	n/a DML	
				2011 Nov 19	

Comments: ⓐ only two worms DML 2011 Nov 19

Measurements taken after purging worms for 24 hrs in clean seawater, then rinsing worms w DI water, and patting dry. 2011 Nov 19 MG

Maxxam Analytics **Randomization Chart for Nereis Seeding**

Client Name and #: 1399 CRD
Project #: 2-11-1085
Maxxam Job #: B192421

Test Type: 28-d Bioaccumulation
Test Species: N. virens
Test Start Date: 2011 Oct 21

Group #	Treatment	Replicate
3	C100	A
1	C100	B
13	C100	C
5	C101	A
10	C101	B
6	C101	C
7	C102	A
12	C102	B
15	C102	C
9	C105	A
2	C105	B
14	C105	C
8	T=0	A
11	T=0	B
4	T=0	C

Maxxam Analytics *Nereis virens* inital Weights

Customer Name/#: 1399 #CRD
Balance ID: 10-0718
Analysts: LTAKAHASHI, CTEA

Test Start Date and Time: 21Oct2011 13:45
Project Number: 211-10-85

Group Number	Individual Nereis Weights (g) 1	2	3	4	5	Total Weight (g)
1	5.2	5.0	4.8			15.0
2	6.5	5.0	3.5			15.0
3	4.9	4.0	6.1			15.0
4	4.7	4.0	6.2			14.9
5	4.0	5.3	5.7			15.0
6	4.9	5.2	4.8			14.9
7	4.0	4.3	6.8			15.1
8	3.2	7.0	5.1			15.3
9	4.1	5.7	5.3			15.1
10	4.1	5.7	5.2			15.0
11	4.2	5.3	5.6			15.1
12	5.1	4.8	5.2			15.1
13	4.6	4.5	5.5			14.6
14	4.5	4.8	5.3			14.6
15	3.8	7.1	4.2			15.1
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

Maxxam Analytics

28 day Nereis Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD
Project #: 2-11-1085
Organism Lot #: AR111018NV
Job#: B1924Z1
Analyst(s): M. Gu

Start Date and Time: 2011 Oct 21 @ 13:45
End Date: 2011 Nov 18
Biomass per replicate(g) : 15 ± 1 g
Organisms per replicate: 3

Sample ID: C100
Sample #:

Date	2011 OCT 21	2011 oct 24	2011 OCT 27	2011 oct 31	2011 nov 03	2011 NOV 07	2011 NOV 10	2011 NOV 14	2011 NOV 17	2011 NOV 18	
Replicate	A	B	C	A	B	C	A	B	C	A	B
Temp. (ºC)	15.4	12.4	13.4	12.3	11.8	13.2	12.7	11.3	12.1	12.3	
D.O. (mg/L)	8.2	8.6	8.3	8.5	8.5	8.7	8.7	8.9	8.8	8.7	
pH	7.9	8.0	8.1	8.0	8.1	8.1	8.0	~~7.9~~ 8.0 ⊛	7.8	7.9	
Salinity (‰)	27	28	28	29	29	29	29	30	29	28	
Analyst	CT	EC	CT	EC	EC	CT	EC	EC	CT	CT	

⊛ WEEC NOV 14 2011

Replicate	A	B	C
# Surviving	3	3	3
Analyst	EC	CT	EC

Ammonia (mg/L)	
Day 0	Day 28
CT	EC
	0.56

Maxxam Analytics

28 day Nereis Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD
Project #: 2-11-1085
Organism Lot #: AR111018NV
Job#: B192421
Analyst(s): M.Gy

Start Date and Time: 2011 Oct 21 @ 13:45
End Date: 2011 Nov 18
Biomass per replicate(g) : 15 ± 1 g
Organisms per replicate: 3

Sample ID: C101
Sample #:

Date	2011 OCT 21	2011 OCT 24	2011 OCT 27	2011 OCT 31	2011 NOV 03	2011 NOV 07	2011 NOV 10	2011 NOV 14	2011 NOV 17	2011 NOV 18	
Replicate	A	B	C	A	B	C	A	B	C	A	B
Temp. (ºC)	15.1	12.4	13.1	12.4	12.0	13.0	12.4	11.9	12.2	12.1	21 Nov
D.O. (mg/L)	8.3	8.6	8.4	8.5	8.5	8.6	8.6	8.9	8.6	8.8	
pH	7.9	8.0	8.1	7.9	8.0	8.2	8.1	8.1	7.8	8.1	M.G
Salinity (‰)	27	28	28	29	29	29	29	30	29	28	
Analyst	CT	EC	CT	EC	EC	CT	EC	EC	CT	CT	

Replicate	A	B	C
# Surviving	3	3	3
Analyst	CT	EC	EC

Ammonia (mg/L)	
Day 0	Day 28
LT	EC
	0.61

Maxxam Analytics

28 day Nereis Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD
Project #: 2-11-1085
Organism Lot #: AR111018NV
Job#: B192421
Analyst(s): M.Gy

Start Date and Time: 2011 Oct 21 @ 13:45
End Date: Nov 18, 2011
Biomass per replicate(g) : 15±1 g
Organisms per replicate: 3

Sample ID: C102
Sample #:

Date	2011 Oct 21	2011 Oct 24	2011 Oct 27	2011 Oct 31	2011 Nov 03	2011 Nov 07	2011 Nov 10	2011 Nov 14	2011 Nov 17	2011 Nov 18	
Replicate	A	B	C	A	B	C	A	B	C	A	B
Temp. (ºC)	14.5	12.5	13.0	12.1	11.6	13.0	12.3	11.4	12.0	12.0	
D.O. (mg/L)	8.2	8.6	8.5	8.7	8.8	8.7	8.7	8.9	8.6	8.9	
pH	7.9	7.8	8.0	7.9	7.9	8.0	7.9	7.9	7.8	8.0	
Salinity (‰)	27	28	28	29	29	29	29	29	28	28	
Analyst	CT	EC	CT	EC	EC	CT	EC	EC	CT	CT	

2011 Dec 11 M.Gy

Replicate	A	B	C
# Surviving	3	*2	3
Analyst	CT	CT	EC

* one worm damaged. Not included in analysis. Mo 2011 Nov 18.

Ammonia (mg/L)	
Day 0	Day 28
LT	EC
	0.56

Maxxam Analytics

28 day Nereis Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD (week 2011 Oct 21)
Project #: 2-11-18 1085
Organism Lot #: AR111018NV
Job#: B192421
Analyst(s): M.G

Start Date and Time: 2011 Oct 21 @ 13:45
End Date: 2011 Nov 18
Biomass per replicate(g) : 15 ± 1 g
Organisms per replicate: 3

Sample ID: C105
Sample #:

Date	2011 OCT 21	2011 Oct 24	2011 OCT 27	2011 Oct 31	2011 NOV 03	2011 NOV 07	2011 NOV 10	2011 NOV 14	2011 NOV 17	2011 NOV 18	
Replicate	A	B	C	A	B	C	A	B	C	A	B
Temp. (ºC)	14.3	12.4	12.9	12.0	11.9	12.9	12.4	11.5	11.8	11.9	
D.O. (mg/L)	8.4	8.8	8.5	8.5	8.7	8.8	8.6	8.9	8.7	8.8	
pH	7.9	7.9	8.0	7.8	7.8	7.9	7.8	7.8	7.7	7.9	
Salinity (‰)	27	28	28	29	29	29	29	29	29	28	
Analyst	CT	EC	CT	EC	EC	CT	EC	EC	CT	CT	

Replicate	A	B	C
# Surviving	3	3	3
Analyst	EC	EC	CT

Ammonia (mg/L)	
Day 0	Day 28
LT	EC
	0.18

Maxxam Analytics *Nereis virens* **28 Day Bioaccumulation Test**
Aeration Checks

Client # & Name: 1399 CRD Start Date & Time: 2011 Oct 21 @ 13:45

Initial when aeration is checked. If air is off record DO and note which replicate(s) in comments section.

	Day -1	0	1	2	3	4	5	6	7	8
Date	2011 Oct 20	2011 OCT 21	2011 Oct 22	2011 oct 23	2011 oct 24	2011 Oct 25	2011 OCT 26	2011 OCT 27	2011 OCT 28	2011 Oct 29
Early AM		CT		EC (A)	LT (B)	MG	EC	CT	CT	
Mid-day		CT		EC	EC	EC	EC	CT	EC	CT
Late PM	MG	CT		EC (A)	EC	CT	EC	CT	CT	CT

	Day 9	10	11	12	13	14	15	16	17	18
Date	2011 oct 30	2011 OCT 31	2011 NOV 01	2011 NOV 02	2011 NOV 03	2011 NOV 04	2011 NOV 05	2011 NOV 06	2011 NOV 07	2011 NOV 08
Early AM	DML	LT	CT	CT	CT	EC	EC		LT	AR
Mid-day	DML	EC	EC	CT	CT	EC	CT		CT	AR
Late PM	DML	EC	CT	CT	EC	CT	EC		CT	AR

	19	20	21	Day 22	23	24	25	26	27	28
Date	2011 NOV 09	2011 NOV 10	2011 NOV 11	2011 NOV 12	2011 NOV 13	2011 NOV 14	2011 NOV 15	2011 NOV 16	2011 NOV 17	2011 NOV 18
Early AM	CT	EC	NS	NS		EC	EC	EC	EC	EC
Mid-day	EC	EC	NS	NS		EC	EC	EC	EC	
Late PM	CT	EC	NS	NS		EC	EC	EC	EC	

Comments:

(A) Tank C101 Rep A – 3 Nereis's tails stuck out. Alive EL 2011 oct 23
– late PM aeration check found 3 Nereis emerged. One nereis fully emerged EC

(B) Tank C101 Rep A – 2 neris' tails out of sand, 1 neris appears dead. or close to it. Did to bury when gently prodded. LT 2011 oct 24.
2011 Oct 24 MG DO (mg/L) = 4.5 mg/L in C101, rep A = 50% saturation. Sediment visually observed to be anoxic. Aeration levels increased and mistake position in tank corrected. MG 2011 Oct 24

2011 oct 24 – seawater WQ: salinity = 28‰ ; pH = 7.8 ; T = 12.7°C ; 8.9 = DO mg/L EC
2011 oct 31 – All Nereis buried in sediment.

MG 2012 Jan 17

Client Name and #: 1399 CRD

Project #: 2-11-1085

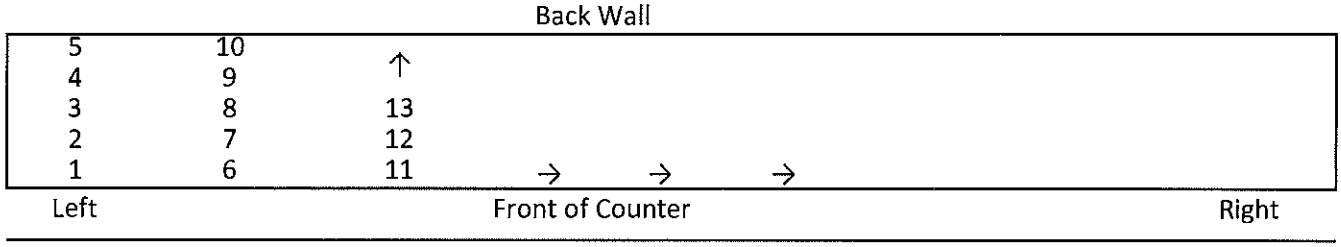
Maxxam Job #: B192421

Test Type: 28 d Bioaccumulation

Test Species: *Nereis virens*

Test Start Date: 2011 Oct 21

Instructions: please follow the position map below when placing vessels on the test bench.



Position #	Treatment	Replicate	Colour
2	C100	A	Red
9	C100	B	Red
3	C100	C	Red
7	C101	A	Orange
1	C101	B	Orange
6	C101	C	Orange
11	C102	A	Yellow
10	C102	B	Yellow
8	C102	C	Yellow
4	C105	A	green
5	C105	B	green
12	C105	C	green

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

MaxXam

Organism: Nereis virens
Organism Lot #: AR111018NV
Supplier: ARO
Customer #: 1399

Arrival Date & Time: 2011 Oct 18 @ 10:20
Age upon Arrival: adult
Ordered: ~150
Study/Project # : 2-11-1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
n/a	0	(A)	n/a	n/a	n/a	n/a	n/a	MG

Container ID: Tank A → C.

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
A 2011 Oct 19	0	0	30	12.3	7.9	8.0	No	MG
B 2011 Oct 19	0	0	30	12.8	7.9	8.1	No	MG
C 2011 Oct 19	0	0	30	12.5	7.9	8.0	No	MG
			M.Cy 2011 Dec 15					

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
(A) Discarded ~25 worms that appeared injured and/or too large for testing	MG	2011 Oct 18
Performed a 50% H_2O D on all tanks	MG	2011 Oct 19
	MG	2011 Oct 20
M.Cy 2011 Dec 15		

Aquatic Research Organisms

AR11018NV
M.Gy
2011 Oct 18

DATA SHEET

CHAIN OF CUSTODY

I. Organism History

Species: Neries virens

Source: Lab reared_____ Hatchery reared_____ Field collected X

Collection date 10/17/11 Receipt date 10/17/11

Lot number 1017INV Strain Wild

Brood Origination Damariscotta River, Boothbay Harbor, Maine

II. Water Quality

Temperature 15 °C Salinity 28-32 ppt DO Saturated

pH 7.8-8.2 Hardness N.A. ppm

III. Culture Conditions

System: Held at 4°C on moist seaweed

Diet: Flake Food_____ Phytoplankton_____ Trout Chow_____

Brine Shrimp_____ Rotifers_____ Other Not feed

Prophylactic Treatments:_____

Comments: Shipped on moistened seaweed, gel ice packs to keep cool.

IV. Shipping Information

Client: MAXXAM BC # of Organisms: 150+

Carrier: FED EX Date Shipped: 10/17/11

Tracking #_____ # of cartons 1

RELEASED BY: [signature] DATE: 10/17/11 TIME: 16:30

RECEIVED BY:_____ DATE: TIME:

1 - 800 - 927 - 1650

PO Box 1271 • One Lafayette Road • Hampton, NH 03842 • (603) 926-1650

Maxxam Job #: B1B2382
Report Date: 2011/11/24

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1087 #1399 NENE'S

Sampler Initials: EC

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		CD9281	CD9282	CD9283	CD9284	
Sampling Date		2011/11/18 10:00	2011/11/18 10:00	2011/11/18 10:00	2011/11/18 10:00	
COC#		G047691	G047691	G047691	G047691	
	Units	**C100 OVERLY 28 NEREIS**	**C101 OVERLY 28 NEREIS**	**C102 OVERLY 28 NEREIS**	**C105 OVERLY 28 NEREIS**	**RDL**
Nutrients						
Ammonia (N)	mg/L	0.56	0.61	0.56	0.18	0.0050

RDL = Reportable Detection Limit

Maxxam Job #: B1A1550
Report Date: 2011/10/26

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085;28D NERIES

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BW8226		BW8227	BW8228		BW8229	
Sampling Date		2011/10/21		2011/10/21	2011/10/21		2011/10/21	
COC#		G032315		G032315	G032315		G032315	
	Units	**C100 OVERLY 28 NERIES**	**RDL**	**C101 OVERLY 28 NERIES**	**C102 OVERLY 28 NERIES**	**RDL**	**C105 OVERLY 28 NERIES**	**RDL**
Nutrients								
Ammonia (N)	mg/L	1.9	0.03	1.3	1.3	0.01	0.64	0.005

RDL = Reportable Detection Limit

Maxxam Job #: B191064
Report Date: 2012/01/23

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

RESULTS OF CHEMICAL ANALYSES OF TISSUE

Maxxam ID		CF2950	CF2951		CF2952		CF2953		CF2954		CF2955		
	Units	**T=0**	**T=0 DUPLICATE**	**RDL**	**T=0 TRIPLICATE**	**RDL**	**M2E T=28**	**RDL**	**M1E T=28**	**RDL**	**M8E T=28**	**RDL**	**QC Batch**
Metals													
Hex. Chromium (Cr 6+)	mg/kg	<18(1)		18	<8.0(1)	8.0	<7.0(1)	7.0	<12(1)	12	<7.0(1)	7.0	5480683
Parameter													
Lipid Content	%	23.1	14.5	0.1	15.7	0.1	13.0	0.1	22.3	0.1	17.3	0.1	5479581
Subcontract Parameter	N/A	ATTACHED	ATTACHED	N/A	ATTACHED	N/A	ATTACHED	N/A	ATTACHED	N/A	ATTACHED	N/A	5506604

Maxxam ID		CF2957		
	Units	**PB1 T=28**	**RDL**	**QC Batch**
Metals				
Hex. Chromium (Cr 6+)	mg/kg	<8.0(1)	8.0	5480683
Parameter				
Lipid Content	%	40.0	0.1	5479581
Subcontract Parameter	N/A	ATTACHED	N/A	5506604

N/A = Not Applicable
RDL = Reportable Detection Limit
(1) - Detection limits raised due to limited sample.

ELEMENTS BY ATOMIC SPECTROSCOPY - DRY WT (TISSUE)

Maxxam ID		CF2950	CF2951	CF2952	CF2953	CF2954	CF2955	CF2957		
	Units	**T=0**	**T=0 DUPLICATE**	**T=0 TRIPLICATE**	**M2E T=28**	**M1E T=28**	**M8E T=28**	**PB1 T=28**	**RDL**	**QC Batch**
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	6	345	20	10	23	7	13	1	5394000
Total Antimony (Sb)	mg/kg	0.034	0.033	0.048	0.043	0.055	0.022	0.019	0.005	5394000
Total Arsenic (As)	mg/kg	19.5	14.5	17.4	13.9	14.6	12.4	15.1	0.05	5394000
Total Beryllium (Be)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	5394000
Total Cadmium (Cd)	mg/kg	0.30	0.23	0.29	0.28	0.33	0.31	0.33	0.01	5394000
Total Chromium (Cr)	mg/kg	<0.5	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	5394000
Total Copper (Cu)	mg/kg	20.5	36.0	28.0	12.2	14.4	10.6	9.51	0.05	5394000
Total Iron (Fe)	mg/kg	562	948	531	424	496	363	467	10	5394000
Total Lead (Pb)	mg/kg	1.26	2.19	1.71	0.84	1.21	0.75	0.82	0.01	5394000
Total Magnesium (Mg)	mg/kg	6390	5390	4910	5290	6030	4890	5460	10	5394000
Total Manganese (Mn)	mg/kg	7.0	12.9	10.5	2.3	8.3	3.7	4.5	0.2	5394000
Total Mercury (Hg)	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	5394000
Total Nickel (Ni)	mg/kg	1.3	1.4	1.2	1.2	2.5	1.0	0.9	0.5	5394000
Total Selenium (Se)	mg/kg	1.62	1.23	1.29	1.57	1.63	1.22	1.38	0.05	5394000
Total Silver (Ag)	mg/kg	0.20	0.15	0.17	0.11	0.10	0.11	0.15	0.02	5394000
Total Thallium (Tl)	mg/kg	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	5394000
Total Zinc (Zn)	mg/kg	185	193	196	54.9	218	102	151	0.2	5394000

RDL = Reportable Detection Limit

Maxxam Job #: B191064
Report Date: 2012/01/23

CAPITAL REGIONAL DISTRICT
Client Project #: SEDIMENT CHEMISTRY

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		CF2950	CF2951	CF2952	CF2953	CF2954	CF2955	CF2957		
	Units	T=0	T=0 DUPLICATE	T=0 TRIPLICATE	M2E T=28	M1E T=28	M8E T=28	PB1 T=28	RDL	QC Batch
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	0.5	33.5	2.1	1.3	2.7	1.0	1.6	0.2	5470932
Total Antimony (Sb)	mg/kg	0.003	0.003	0.005	0.005	0.006	0.003	0.002	0.001	5470932
Total Arsenic (As)	mg/kg	1.69	1.40	1.79	1.72	1.66	1.65	1.88	0.01	5470932
Total Beryllium (Be)	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	5470932
Total Cadmium (Cd)	mg/kg	0.026	0.022	0.030	0.034	0.037	0.041	0.041	0.002	5470932
Total Chromium (Cr)	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	5470932
Total Copper (Cu)	mg/kg	1.78	3.49	2.88	1.51	1.64	1.41	1.19	0.01	5470932
Total Iron (Fe)	mg/kg	49	92	55	53	57	48	58	2	5470932
Total Lead (Pb)	mg/kg	0.110	0.212	0.176	0.104	0.138	0.100	0.102	0.002	5470932
Total Magnesium (Mg)	mg/kg	556	523	506	656	688	651	683	2	5470932
Total Manganese (Mn)	mg/kg	0.60	1.25	1.08	0.29	0.95	0.50	0.57	0.04	5470932
Total Mercury (Hg)	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.03	5470932
Total Nickel (Ni)	mg/kg	0.1	0.1	0.1	0.2	0.3	0.1	0.1	0.1	5470932
Total Selenium (Se)	mg/kg	0.14	0.12	0.13	0.19	0.19	0.16	0.17	0.01	5470932
Total Silver (Ag)	mg/kg	0.017	0.014	0.017	0.013	0.012	0.014	0.019	0.004	5470932
Total Thallium (Tl)	mg/kg	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0004	5470932
Total Zinc (Zn)	mg/kg	16.1	18.7	20.2	6.81	24.9	13.6	18.8	0.04	5470932

PHYSICAL TESTING (TISSUE)

Maxxam ID		CF2950	CF2951	CF2952	CF2953	CF2954	CF2955	CF2957		
	Units	T=0	T=0 DUPLICATE	T=0 TRIPLICATE	M2E T=28	M1E T=28	M8E T=28	PB1 T=28	RDL	QC Batch
Physical Properties										
Moisture	%	91	90	90	88	89	87	88	0.3	5477562

RDL = Reportable Detection Limit

56 DAY *NEREIS VIRENS* BIOACCUMULATION TEST

Test Summary

Raw Data

Supporting Test Data

Acclimation and Holding Conditions

Overlying Water Chemistry

Tissue Chemistry Results

56-d Polychaete Bioaccumulation Test Summary

Client Name/Location	Capital Regional District/ Victoria, B.C.
Testing Lab/Location	Maxxam Analytics / Burnaby, BC
Sample Information	
Sample Names	M1E, M2E, M8E
Type of Sample	Field collected sediments
Method of Collection	See Chain of Custody form
Sample Collector	See Chain of Custody form
Sample Volume	99 L
Sample Containers	11-L white food grade plastic buckets
Sample Collection Date	2011 Sep 21; 2011 Sept 22
Sample Temperature upon Arrival	Not measured on arrival
Date & Time of Sample Receipt	2011 Sep 28 @ 14:50
Storage Conditions	From receipt to test initiation, the samples were stored in a temperature controlled cold room at 4 ± 2°C
Sediment and Pore Water Characterisation	See Sediment Sample Descriptions sheet and analytical chemistry reports
Sample Preparation	
Homogenisation	Samples were individually mixed until homogenised at ambient laboratory temperature; if necessary, large debris and indigenous macro-organisms were removed during homogenisation (see Sediment Sample Descriptions sheet)
Date of Homogenisation	Oct 04; Nov 02
Sediment – Physical Analyses	TOC, moisture content and grain size were measured in each sediment prior to toxicity test initiation. The results of these analyses are not included in this report.
Sediment Porewater – Chemical Analyses	Samples of homogenised sediment were centrifuged for 30 minutes, at 5000 rpm, to produce porewater. The porewater was then analysed for dissolved organic carbon, ammonia, sulphides, and hardness. The results were sent directly to the client and are not included in this report.
Test Organisms	
Species	*Nereis virens*
Source	Aquatic Research Organisms; Hampton, NH
Age at Start of Test	Adult; non-reproductive stage
Date of Organism Arrival	2011 Sept 29
Holding and Acclimation Conditions	See Acclimation and Holding Conditions sheets

Laboratory Control Information	
Overlying Water	Seawater collected at the Vancouver Aquarium, from Burrard Inlet, 40-45' deep inlet, gravity sand filter with sand mesh size 22, filtered through 5 µm filter and passed through UV Sterilizer
Type and Quantity of Chemicals Added to Water	None
Pre-treatment of Overlying Water	The seawater was UV sterilized, filtered through a 1 um filter, warmed to 12±2°C, and was continuously aerated prior to use.
Reference Site Sediment	N/A
Baseline Control (T=0)	T=0 worms were collected on Day 0, alongside worms to be used in the bioaccumulation test. They were purged for ≈24 hours in clean seawater, rinsed with deionised water, patted dry and placed in clean glass sample jars. They were submitted for analysis alongside the worms extracted from the test sediments.
Test Conditions & Facilities	
Test Method and References	USEPA 1993, Guidance Manual: Bedded Sediment Bioaccumulation Tests (EPA/600R-93/183); ASTM 2000, Standard Guide for Determination of the Bioaccumulation of Sediment-Associated Contaminants by Benthic Invertebrates (E1688-00a); USACE 2010, Determining Steady-state Tissue Residues for Invertebrates in Contaminated Sediment, ERDC/EL TR-10-2, Kennedy et al.
Test Type / Duration	56-d whole sediment bioaccumulation test. Static-renewal. Worms removed on Day 0, 14, 28, and 56.
Test Temperature	12°C ± 2°C. See the Test Conditions and Survival Data sheets.
Light levels and Photoperiod	16:8hr light: dark cycle. Laboratory light levels 500-1000 lux.
Aeration	Continuous and minimal in each test vessel; checked 3 times daily. Compressed oil-free air delivered through glass Pasteur pipettes
Test Start Date	2011 Oct 05
Test Completion Date	2011 Oct 19 (T=14), 2011 Nov 02(T=28), 2011 Nov 30(T=56)
Test Vessels	20L glass aquaria.
Sediment Mass at Test Initiation	3.6 kg (≈ 3-4 cm depth).
Volume of Test Water	10L
Analysts	M. Grey, M. Brassil, D. Greschner, C. Tra, L. Takahashi, E. Chen
Water Renewal	50% water renewal twice weekly, after recording water quality (See Test Conditions Page).
# Organisms and average biomass/ Vessel	5 worms per vessel, the initial biomass per replicate ranged from 26.0- 24.9g.
Number of Replicates	4
Sediment Addition	Sediment completely renewed on Day 28.

Observations & Measurements	
Dissolved Oxygen (DO), Temperature, pH and Salinity	Twice weekly, directly before water renewals. See Test Conditions and Survival Data sheets
Sediment Appearance During Test	See Aeration Checks, Test Conditions and Survival Data sheets
Test Observations	Organism behaviour during the test, visible mortalities and/or abnormal behaviour was recorded on Test Conditions and Survival Data sheets
Survival	All live polychaetes recovered from each test vessel were counted. See Test Conditions Data sheet
Overlying Water – Chemical Analyses	Samples of the overlying water were analysed for Ammonia on Day 0, 14, 28 and 56 of the test. See chemical analysis reports.
Anything Unusual about the Test, Deviation from Test Method, other Problems	No worms were recovered from replicate B of the M8E, T=14 time point. It is likely that this replicate was not seeded at the start of the test due to the lack of worms burrows present in the sediment. The day 17 the aeration checks were missed for this test.
Results	
Endpoints	Moisture, Lipids and Metals Concentration in *Nereis* Tissue; was measured on a composite of each sample at the following time points: Day 0, Day 14, Day 28, and Day 56.
Endpoint Results	The bioaccumulation of select analytes was measured in Nereis tissue, after purging the worms for 24 hours in clean seawater. See Chemistry Results in the "56 day *Nereis virens* Bioaccumulation Test" section.
Number of surviving organisms in each test vessel	See Test Conditions and Survival Data sheet
QA/QC	
Test Validity Criteria • Mean survival in the test sediments must be ≥90% • Initial sediment mass should exceed 2800g (2 times the estimated mass of sediment processed during the test by *Nereis virens*) • Initial sediment depth must be greater than 2 cm.	• Lowest mean survival in the test sediments was 95% • Initial sediment mass was 3600g per replicate. The processing rate for this species is 2g wet sediment/ 1g wet worm tissue/day. • Sediment depth was ≈3-4 cm

Maxxam Analytics

Nereis virens 56-d Test
Summary of the Initial and Final Biomass Measurments

Client # & Name: #1399 CRD

Start Date and Time: 2011 Oct 05

Project # 2-11-1085

End Date: Various

Maxxam Group #: B192421

Organism Lot #: AR110929NV

Analyst(s): M. Brassil, C. Tra, E. Chen, N. Shergill, M. Grey, L. Takahshi

Sample ID	Time Point	Rep	Initial Biomass (g)	Post Purge Biomass (g)	Total Biomass per timepoint (g)	Mean Biomass (g)	SD
M1E	0		96.7	90.2			
	14	A	24.9	24.2	104.2	26.1	1.3
	14	B	25.4	27.4			
	14	C	26.0	26.4			
	14	D	25.0	26.2			
	28	A	26.0	23.2	99.5	24.9	1.1
	28	B	26.0	25.3			
	28	C	25.8	25.7			
	28	D	25.9	25.4			
	56	A	26.0	27.0	98.9	24.7	1.8
	56	B	25.0	25.2			
	56	C	26.0	23.7			
	56	D	25.1	23.0			
M2E	0		99.4	95.5			
	14	A	26.0	25.4	103.4	25.9	0.7
	14	B	24.9	26.7			
	14	C	25.0	26.1			
	14	D	25.0	25.2			
	28	A	25.1	23.3	94.6	23.7	1.3
	28	B	26.0	23.3			
	28	C	25.9	25.5			
	28	D	26.0	22.5			
	56	A	26.0	24.1	91.1	22.8	1.3
	56	B	26.0	22.6			
	56	C	25.8	21.1			
	56	D	25.9	23.3			
M8E	0		100.2	95.2			
	14	A	25.5	23.0	73.2	24.4	1.7
	14	B	25.1	n/a			
	14	C	24.9	26.3			
	14	D	25.0	23.9			
	28	A	26.0	23.0	89.8	22.5	0.4
	28	B	26.0	22.0			
	28	C	25.0	22.7			
	28	D	26.0	22.2			
	56	A	26.0	21.0	84.3	21.1	1.1
	56	B	25.0	20.4			
	56	C	25.2	22.6			
	56	D	25.0	20.3			

JP 2012 Jan 30

Maxxam Analytics

Nereis virens 56- d Test
Summary of Survival

Client # & Name: #1399 CRD

Start Date and Time: 2011 Oct 05

Project # 2-11-1085

End Date: Various

Maxxam Group #: B192421

Organism Lot #: AR110929NV

Analyst(s): C. Tra, E. Chen, M. Grey, L. Takahshi, D. Lai

Sample ID	Time Point	Rep	Initial # Seeded	Final # Recovered	Mean survival (%)	Mean survival sample (%)	SD
M1E	14	A	5	5	100	95	10
	14	B	5	5	100		
	14	C	5	5	100		
	14	D	5	4	80		
	28	A	5	5	100	100	0
	28	B	5	5	100		
	28	C	5	5	100		
	28	D	5	5	100		
	56	A	5	5	100	100	0
	56	B	5	5	100		
	56	C	5	5	100		
	56	D	5	5	100		
M2E	14	A	5	5	100	100	0
	14	B	5	5	100		
	14	C	5	5	100		
	14	D	5	5	100		
	28	A	5	5	100	100	0
	28	B	5	5	100		
	28	C	5	5	100		
	28	D	5	5	100		
	56	A	5	5	100	100	0
	56	B	5	5	100		
	56	C	5	5	100		
	56	D	5	5	100		
M8E	14	A	5	5	100	100	0
	14	B	5	0	N/A		
	14	C	5	5	100		
	14	D	5	5	100		
	28	A	5	5	100	100	0
	28	B	5	5	100		
	28	C	5	5	100		
	28	D	5	5	100		
	56	A	5	5	100	100	0
	56	B	5	5	100		
	56	C	5	5	100		
	56	D	5	5	100		

JP 2012 Jan 24

Maxxam Analytics

***Nereis virens* inital Weights**

Customer Name/#: 1399 CRD

Test Start Date and Time: 2011 Oct 05 @ 18:50

Balance ID: Mettler PG16

Project Number: 2-11-1085

Analysts: LT, MGreg

Group Number	Individual Nereis Weights (g)					Total Weight (g)
	1	2	3	4	5	
1	7.2	7.5	3.5	2.9	3.8	24.9
2	7.5	7.1	3.8	3.7	2.9	25.0
3	7.3	7.1	3.8	3.5	3.2	24.9
4	7.3	7.2	3.9	3.7	2.8	24.9
5	7.1	7.2	3.9	3.3	3.6	25.1
6	7.2	7.1	3.9	3.3	3.6	25.1
7	7.0	7.5	3.6	3.8	3.2	25.1
8	3.7	2.7	7.5	7.2	3.9	25.0
9	3.1	3.4	7.10	7.5	4.0	25.0
10	7.0	7.2	4.0	3.1	3.7	25.0
11	7.3	6.9	4.1	3.0	3.7	25.0
12	3.0	3.4	7.6	6.9	4.1	25.0
13	4.1	7.6	6.8	3.0	3.5	25.0
14	6.7	6.4	4.1	4.3	3.7	25.2
15	6.7	6.4	4.1	4.4	3.4	25.0
16	6.4	6.4	4.1	4.4	4.7	26.0
17	WE LT 2011/10/06 4.4	4.7	6.4	6.3	4.2	26.0
18	4.7	4.2	4.4	6.4	6.8 3 WE LT 2011/10/06	26.0
19	6.0	6.5	4.3	4.5	4.7	26.0
20	4.5	4.7	6.1	6.3	4.3	25.9
21	4.7	4.3	6.1	4.6	6.3	26.0
22	6.1	6.3	4.3	4.6	4.7	26.0
23	6.2	6.2	4.3	4.6	4.7	26.0
24	6.0	4.6	4.8	6.3	4.3 WE LT 2011/10/06	26.0
25	4.9	2.9	6.6	6.0	2.9 5.6	26.0
26	6.8	5.9	5.5	5.0	2.6	25.8
27	6.8	2.4	5.5	5.5	5.8	26.0
28	5.3	5.5	6.8 WE LT 2011/10/06	2.2	6.2	26.0
29	6.6	6.3	5.6	5.5	2.0	26.0
30	6.5	5.7	5.8	5.8	2.0	25.8
31	5.6	4.9	5.6	5.0	4.9	26.0
32	4.8	5.7	5.1	5.4	5.0	26.0

Nereis virens inital Weights

Group Number	Individual Nereis Weights (g)					Total Weight (g)
	1	2	3	4	5	
33	5.1	5.7	4.8	5.4	4.9	25.9
34	5.4	4.9	4.8	5.7	5.1	25.9
35	4.9	4.9	4.8	5.2	5.6	25.4
36	5.2	5.0	4.9	5.1	5.3	25.5
37 MIE	4.5	3.5	7.9	8.7	n/a	Total wet wt
38 T=0	2.3	8.0	5.4	7.7	n/a	90.2g
39	7.7	7.7	8.7	n/a	n/a	WB
40 ↓	5.4	5.4	5.4	8.4	n/a	2011oct06
41 MRE	7.7	8.9	8.2	n/a	n/a	Total wet wt
42 T=0	8.9	6.5	9.2	n/a	n/a	95.5g
43	7.9	8.4	8.3	n/a	n/a	WB
44 ↓	5.4	5.7	6.6	7.7	n/a	2011oct06
45 MBE	7.9	8.3	8.0	n/a	n/a	Total wet wt
46 T=0	6.5	5.6	5.4	7.8	n/a	95.2g
47	8.6	8.2	8.3	n/a	n/a	WB
48 ↓	8.7	7.9	8.7	n/a	n/a	2011oct06

Maxxam Analytics **Randomization Chart for Nereis Seeding**

Client Name and #: 1399 CRD

Project #: 2-11-1085

Maxxam Job #: B192421

Test Type: 56-day Nereis Bioaccumulation

Test Species: Nereis virens

Test Start Date: 20/1 Oct 05

Group #	Treatment	Replicate	Group #	Treatment	Replicate
1	C100 T=14	A	22	C101 T=56	A
35	C100 T=14	B	28	C101 T=56	B
27	C100 T=14	C	26	C101 T=56	C
8	C100 T=14	D	20	C101 T=56	D
21	C100 T=28	A	36	C102 T=14	A
29	C100 T=28	B	6	C102 T=14	B
30	C100 T=28	C	3	C102 T=14	C
34	C100 T=28	D	12	C102 T=14	D
23	C100 T=56	A	25	C102 T=28	A
2	C100 T=56	B	24	C102 T=28	B
32	C100 T=56	C	15	C102 T=28	C
5	C100 T=56	D	17	C102 T=28	D
18	C101 T=14	A	19	C102 T=56	A
4	C101 T=14	B	10	C102 T=56	B
9	C101 T=14	C	14	C102 T=56	C
13	C101 T=14	D	11	C102 T=56	D
7	C101 T=28	A			
16	C101 T=28	B			
33	C101 T=28	C			
31	C101 T=28	D			

Maxxam Analytics

***Nereis virens* Bioaccumulation Test**
Final Weights

UE uB2012 Jan 30
2011 Oct 03

Client # & Name: 1399 CRD **Test Date:** ~~2011 Oct 04~~

Balance ID: 3538 **Project Number:** 2-11-1085

Analysts: uBrassil

(A) Final Weights (g)					
Sample ID	**A**	**B**	**C**	**D**	**Total**
M1E (C100)	24.2	27.4	26.4	26.2	104.2
M2E (C101)	25.4	26.7	26.1	25.2	103.4
M8E (C102)	23.0	(B)	26.3	23.9	73.2

M.Cy 2012-Jan-10

Comments: (A) T = 14 - uB 2011 Oct 20

(B) Rep not seeded. Placed DI rinsed worms into freezer 3521 uB2011 Oct 20.

M.Cy 2012-Jan-11

Maxxam Analytics

***Nereis virens* Bioaccumulation Test**
Final Weights

Client # & Name: 1399 CRD **Test Date:** 2011 Oct 05

Balance ID: BB42-0015 **Project Number:** 2-11-1085

Analysts: EChen

Final Weights (g)					
Sample ID	**A**	**B**	**C**	**D**	**Total**
C100 ~~Rep A~~	23.18g	25.34g	25.65g	25.42g	99.59g
C101	23.34g	23.29g	25.45g	22.53g	94.61g
C102	22.99g	22.04g (*)	22.65g	22.20g	89.88g
	4.6g	2012 Jan 10			

(*) + 0.17g

Comments: T=28 for Nereis Bioaccumulation Test. Worms purged in clean sea H2O for ~24 hrs, then rinsed with DI H2O and patted dry.

Maxxam Analytics

Nereis virens Bioaccumulation Test
Final Weights

Client # & Name: 1399 CRD **Test Date:** 2011 oct 05 JP WE 2012 Jan 24

Balance ID: 3538 **Project Number:** 2-11-1085 WE JP 2012 Jan 24

Analysts: NS Morgan

Final Weights (g)					
Sample ID	**A**	**B**	**C**	**D**	**Total**
M1E (C100)	27.03	25.21	23.71	22.96	98.7
M2E (C10)	24.14	22.61	21.06	23.28	91.1
M8E (C102)	20.98	20.44	22.58	20.28	84.3
		NS 2011 Oct 05			

Comments: T=56 for Nereis Bioaccumulation Test. Worms purged in MF clean seawater for ~24 hrs. Then rinsed with D.I water and patted dry.

M. Grey 2012 Jan 11

Maxxam Analytics

56 day Nereis Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD
Start Date and Time: 2011 Oct 05 @ 18:50
Project #: 2-11-1085
End Date: 2011 Oct 19
Organism Lot #: AR110929NV
Biomass per replicate(g) : 25 ± 1 g
Job#: B192421
Organisms per replicate: 5
Analyst(s): M. Greg; D. Greschner, E. Chen, CTEA
Sample ID: C100 T=14
Sample #: B28687-01

Date	2011 Oct 05	2011 Oct 08	2011 Oct 10	2011 OCT 13	2011 Oct 17
Replicate	A	B	C	D	A
Temp. (ºC)	13.0	13.1	~~12.8~~ 13.9 (*)	13.8	12.1
D.O. (mg/L)	8.4	8.4	~~8.0~~ 7.9 (*)	8.1	8.5
pH	7.9	7.9	7.9	7.8	8.3
Salinity (‰)	29	31	30	29	29
Analyst	AR	DY	EC	CT	EC

(*) WE EC 2011 Oct 10

Replicate	A	B	C	D
# Surviving	5	5	5	4
Analyst	MG	MG	MG	MG

Ammonia (mg/L)	
Day 0	Day 28
1.8	2.4

WE MG 2011 Oct 13

Maxxam Analytics

56 day Nereis Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Start Date and Time: 2011 OCT 05 @ 18:50

Project #: 2-11-1085

End Date: 2011 oct 19

Organism Lot #: AR110929NV

Biomass per replicate(g) : 25±1 g

Job#: BQ2421

Organisms per replicate: 5

Analyst(s): D. Greschner, E.Chen, CTRA, M.Gl

Sample ID: C101 T=14

Sample #: BQ8686

Date	2011 Oct 05	2011 OCT 08	2011 oct 10	2011 OCT 13	2011 Oct 17
Replicate	A	B	C	D	A
Temp. (ºC)	12.8	13.1	13.2	14.0	12.6
D.O. (mg/L)	8.1	8.4	7.7	8.2	8.4
pH	8.0	7.9	7.9	7.9	8.3
Salinity (‰)	30	30	30	29	29
Analyst	AR		EC	CT	EC

Replicate	A	B	C	D
# Surviving	5	5	5	5
Analyst	MG	MG	MG	MG

Ammonia (mg/L)	
✓ec Day 0	✓ Day 28/14 2011 Oct 13
1.6	2.8

Maxxam Analytics

56 day Nereis Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Start Date and Time: 2011 Oct 05 @ 18:50

Project #: 211-1085

End Date: 2011 Oct 19

Organism Lot #: AR110929NV

Biomass per replicate(g) : 25 ± 1 g

Job#: B197421

Organisms per replicate: 5

Analyst(s): D. Greschner, EChen, CTRA, M. Gay

Sample ID: C102 T=14

Sample #: B28689-01

Date	2011 Oct 05	2011 Oct 08	2011 Oct 10	2011 Oct 13	2011 Oct 17
Replicate	A	B	C	D	A
Temp. (ºC)	13.0	13.2	12.8	13.8	12.4
D.O. (mg/L)	8.3	8.4	8.2	8.2	8.5
pH	8.0	8.0	7.9	7.9	8.1
Salinity (‰)	29	30	30	29	29
Analyst	AR	[illegible]	EC	CT	EC

Replicate	A	@ B	C	D
# Surviving	5	05	5	5
Analyst	MG	MG	MG	MG

MG 2011 Oct 19

Ammonia (mg/L)	
✓ Day 0	✓ Day 28/14
0.99	2.0

MG 2011 Oct 13

@ replicate B likely not seeded. There was no evidence of live worm activity that would indicate the presence of worms; nor were there any dark patches + mold, that would indicate mortalities. MG 2011 Oct 19

Maxxam Analytics

56 day Nereis Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD
Start Date and Time: 2011 OCT 05 @ 19:50
Project #: 2-11-1085
End Date: 2011 Nov 02
Organism Lot #: AR110929NV
Biomass per replicate(g) : 25 ± 1 g
Job#: B192421
Organisms per replicate: 5
Analyst(s): E.Chen, CTRA, D.Lai
Sample ID: ~~T~~ C100 T=28
Sample #: BQ8687-01

Date	2011 Oct05	2011 Oct08	2011 Oct10	2011 OCT 13	2011 Oct17	2011 Oct20	2011 Oct24	2011 OCT 27	2011 Oct31	2011 Nov02 ~~Nov 04~~	2011 Nov ~~03~~ 07	
Replicate	A	B	C	D	A	B	C	D	A	B	C	D
Temp. (ºC)	13.5		~~13.2~~ 12.7 (*)	14.3	12.5	13.0	12.0	12.9	12.4	~~12.0~~ 13.3		
D.O. (mg/L)	8.1		~~7.5~~ 7.7 (*)	8.3	8.6	8.5	8.3	8.2	8.5	~~8.8~~ 8.9		
pH	8.0	(B)	~~7.8~~ 8.1 (*)	8.0	8.4	8.2	8.1	8.1	~~8.8~~ 8.0 WEEC 2011 Oct31	~~7.9~~ 7.9	MG 2012 Jan 10	
Salinity (‰)	29		30	29	29	28	28	28	29	~~29~~ 29		
Analyst	AR		EC	CT	EC	EC	EC	CT	EC	~~EC~~ DML		

(*) WEEC 2011 Oct10

(a) WE DML 2011 Nov02

(B) Water quality on this sample missed on this day MG 2011 Oct 17

Replicate	A	B	C	D
# Surviving	5	5	5	5
Analyst	DML	DML	DML	DML

Ammonia (mg/L)
Day 28
1.5

Maxxam Analytics

56 day Nereis Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Start Date and Time: 2011 OCT 05 18:50

Project #: 2-11-1085

End Date: 2011 Nov 02

Organism Lot #: AR110929NV

Biomass per replicate(g) : 25 ± 1 g

Job#: B92421

Organisms per replicate: 5

Analyst(s): O. Greschner, E. Chen, CTRA, DLai, L. Takahashi

Sample ID: C101 T=28

Sample #: B028686-01

Date	2011 Oct 05	2011 Oct 08	2011 Oct 10	2011 OCT 13	2011 Oct 17	2011 OCT 20	2011 Oct 24	2011 OCT 27	2011 Oct 31	2011 Nov 2 ~~Nov 01~~		
Replicate	A	B	C	D	A	B	C	D	A	B	C	D
Temp. (ºC)	12.8	13.3	12.8	14.0	12.3	12.8	12.3	12.7	11.7	12.2		
D.O. (mg/L)	8.5	8.6	8.2	8.3	8.5	8.5	8.5	8.4	8.5	9.0 @ 8.5		
pH	8.1	7.9	8.1	7.9	8.3	8.2	8.2	8.2	8.2	8.1		
Salinity (‰)	29	30	30	29	29	28	28	28	30	29		
Analyst	AR	[illegible]	EC	CT	EC	EC	EC	CT	EC	~~EC~~ DNL		

Jan 10 2012 May

(A) LC DNL 2011 Nov 2

Replicate	A	B	C	D
# Surviving	5	5	5	5
Analyst	LT	LT	LT	LT

Ammonia (mg/L)
Day 28
1.3

Maxxam Analytics

56 day Nereis Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Start Date and Time: 2011 OCT 05 @ 13:50

Project #: 211-1085

End Date: 2011 Nov 02

Organism Lot #: AR110929NV

Biomass per replicate(g) : 25 ± 1 g

Job#: B192421

Organisms per replicate: 5

Analyst(s): D. Greschner, E.Chen, CTRA, D.Lai, L. Takahashi

Sample ID: CR02 T=28

Sample #: B28689-01

Date	2011 Oct05	2011 Oct 08	2011 Oct 10	2011 OCT 13	2011 Oct 17	2011 Oct 20	2011 Oct 24	2011 OCT 27	2011 OCT 31	2011 Nov 02 ~~Nov 01~~		
Replicate	A	B	C	D	A	B	C	D	A	B	C	D
Temp. (ºC)	13.0	13.2	~~13.2~~ 13.0 ⊛	14.3	11.9	13.0	12.3	13.0	11.5	~~12.0~~ 12.3		
D.O. (mg/L)	8.6	8.6	~~7.5~~ 8.0 ⊛	8.3	8.5	8.6	8.7	8.5	8.6	~~8.6~~ ⊕ 8.9 3.8		
pH	8.1	7.9	~~7.3~~ 8.0 ⊛	8.0	8.2	8.1	8.0	8.1	8.1	~~7.9~~ 8.0 3.0		
Salinity (‰)	29	30	30	29	29	28	28	28	30	~~29~~ 29		
Analyst	AR	[illegible]	EC	CT	EC	EC	EC	CT	EC	~~EC~~		

⊛ WE EC OCT 10 2011 ⊕ WE SAL 2011 NOV 02

Replicate	A	B	C	D
# Surviving	5	5	5	5
Analyst	LT	LT	LT	LT

Ammonia (mg/L)
Day 28
1.3

Maxxam Analytics

56 day Nereis Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD
Start Date and Time: 2011 OCT 05 @13:50
Project #: 2-11-1085
End Date: 2011 Nov 30
Organism Lot #: AR110929 NV
Biomass per replicate(g) : 25 ± 1
Job#: B192421
Organisms per replicate: 5
Analyst(s): D. Greschner, E. Chen, CTRA
Sample ID: C100 T=56
Sample #: B28687-01

Date	2011 Oct 05	2011 Oct 08	2011 Oct 10	2011 OCT 13	2011 Oct 17	2011 Oct 20	2011 Oct 24	2011 OCT 27	2011 Oct 31	2011 NOV 03	2011 NOV 07	2011 NOV 10
Replicate	A	B	C	D	A	B	C	D	A	B	C	D
Temp. (ºC)	13.0	13.2	12.8	14.0	12.3	13.1	12.1	13.0	8.~~7~~9 12.8	12.2	13.5	12.6
D.O. (mg/L)	8.4	8.3	7.9	8.4	8.5	8.4	8.5	8.5	8.5	8.4	8.0	8.5
pH	8.1	7.0	8.1	8.1	8.4	8.2	8.1	8.1	8.0	7.9	7.8	8.1
Salinity (‰)	29	30	30	29	29	28	28	28	29	30	30	30
Analyst	AR	[illegible]	EC	CT	EC	EC	EC	CT	EC	EC	CT	EC

Date	2011 NOV 14	2011 NOV 17	2011 NOV 21	2011 NOV 24	2011 NOV 28	2011 NOV 30
Replicate	A	B	C ~~WE 2011 NOV 21~~	D	A	B
Temp. (ºC)	12.0	12.2	~~14.1~~ 13.1	13.1	13.7	14.0
D.O. (mg/L)	8.~~8~~5 (A)	8.6	8.3	8.1	8.2	8.2
pH	~~8~~.0	8.0	8.1	8.0	7.7	7.8
Salinity (‰)	29	29	28	29	28	29
Analyst	EC	CT	CT	CT	CT	CT

(A) WE EC 2011 OCT 31
(A) WE EC 2011 NOV 14

Replicate	A	B	C	D
# Surviving	5	5	5	5
Analyst	EC	CT	EC	CT

Ammonia (mg/L)
Day 56
1.2

Maxxam Analytics

56 day Nereis Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Start Date and Time: 2011 OCT 05 @ 18:50

Project #: 2-11-1085

End Date: 2011 NOV 30

Organism Lot #: AR110929NV

Biomass per replicate(g) : 25 ± 1 g

Job#: B192421

Organisms per replicate: 5

Analyst(s): D. Greschner, ECHEN, CTRA

Sample ID: C101 T=56

Sample #: B286586-01

Date	2011 Oct 05	2011 Oct 08	2011 OCT 10	2011 OCT 13	2011 OCT 17	2011 OCT 20	2011 OCT 24	2011 OCT 27	2011 OCT 31	2011 NOV 03	2011 NOV 07	2011 NOV 10
Replicate	A	B	C	D	A	B	C	D	A	B	C	D
Temp. (ºC)	13.2	13.6	12.6	13.7	12.5	12.8	11.9	12.5	12.7	12.4	13.2	13.0
D.O. (mg/L)	8.1	8.0	8.1	8.3	8.7	8.6	8.5	8.4	8.2	7.9	8.3	8.1
pH	8.0	8.0	8.1	8.0	8.3	8.1	8.2	8.2	8.2	7.7	8.0	8.0
Salinity (‰)	29	30	31	29	29	28	28	28	29	30	29	29
Analyst	AR	[illegible]	EC	CT	EC	EC	EC	CT	EC	EC	CT	EC

Date	2011 NOV 14	2011 NOV 17	2011 NOV 21	2011 NOV 24	2011 NOV 28	2011 NOV 30
Replicate	A	B	C	D	A	B
Temp. (ºC)	11.5	12.1	12.8	12.7	13.5	13.6
D.O. (mg/L)	8.9	8.5	8.2	8.1	7.9	7.9
pH	8.0	8.0	8.1	8.0	7.8	7.9
Salinity (‰)	30	28	28	28	28	28
Analyst	EC	CT	CT	CT	CT	CT

Replicate	A	B	C	D
# Surviving	5	5	5	5
Analyst	CT	EC	EC	CT

Ammonia (mg/L)
Day 56
0.95

Maxxam Analytics

56 day Nereis Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Start Date and Time: 2011 OCT 05 @ 18:50

Project #: 2-11-1085

End Date: 2011 Nov 30

Organism Lot #: ARI 0929 NV

Biomass per replicate(g) : 25 ± 1 g

Job#: B192421

Organisms per replicate: 5

Analyst(s): D. Greschner, E. Chan, CTRA

Sample ID: C102 T=56

Sample #: B28689-01

Date	2011 Oct 05	2011 Oct 08	2011 Oct 10	2011 OCT 13	2011 OCT 17	2011 OCT 20	2011 OCT 24	2011 OCT 27	2011 OCT 31	2011 NOV 03	2011 NOV 07	2011 NOV 10
Replicate	A	B	C	D	A	B	C	D	A	B	C	D
Temp. (ºC)	13.4	13.2	13.2	14.0	12.5	12.9	12.1	12.6	12.4	12.0	12.9	13.0
D.O. (mg/L)	8.1	8.7	7.5	8.3	8.7	8.7	8.4	8.6	8.4	8.2	8.4	~~8.4~~ 8.6 (A)
pH	8.0	7.9	7.8	8.0	8.2	8.1	8.0	8.1	8.0	7.9	8.0	8.0
Salinity (‰)	29	30	30	29	29	28	28	28	29	30	29	~~30~~ 29
Analyst	AR	[illegible]	EC	CT	EC	EC	EC	CT	EC	EC	CT	EC

(A) WE EC 2011 NOV 10

Date	2011 NOV 14	2011 NOV 17	2011 NOV 21	2011 NOV 24	2011 NOV 28	2011 NOV 30
Replicate	A	B	C	D	A	B
Temp. (ºC)	11.6	12.1	13.0	12.7	13.6	13.6
D.O. (mg/L)	8.9	8.6	8.5	8.1	8.1	8.0
pH	7.9	7.8	8.0	7.9	7.8	8.8
Salinity (‰)	30	29	28	29	28	28
Analyst	EC	CT	CT	CT	CT	CT

Replicate	A	B	C	D
# Surviving	5	5	5	5
Analyst	CT	CT	CT	CT

Ammonia (mg/L)
Day 56
1.1

Nereis Test Observations

Date: 2011 Oct 05 Sample ID's: Various

Client # & Name: 1399 CRD Project No. 2-11-1085

2011 Oct 05 → 5 worms, each ~2-7.5 g in weight, were seeded MG into every replicate aquaria. Another sub-set of worms were set aside to purge overnight in aerating seawater. Approximately 15 minutes after all the nereids had been seeded, it was noted that: One replicate had not been seeded, and that the worms instead, were added to the same sample that contained Macoma. This error was corrected immediately and all five worms were removed from the Macoma aquaria (C101 T=14, rep B), and were placed in their correct aquaria (C101, T=14, rep B). The sediment in the Macoma aquaria was slightly disturbed during the retrieval of the worms. One Nereid may have been slightly injured during the retrieval.

2011 Oct 06 - checked on Nereis replicate C101 T=14, rep B and Macoma replicate C01 T=14, rep B: All organisms buried in sediment and appear healthy.

2011 oct 07 Neris C101 T=14 rep B OK! 2011oct07 LT

2011 oct 10 ~~C100 T=56 Rep B — one Macoma not dug in.~~ EC 2011 Oct 10 All tanks look good EC

2011 Oct 11 Nothing unordinary CT

2011 Oct 12 all organisms buried CT

2011 oct 12 C100 T=28 Rep B, thick layer of white film near front of tank EC

2011 OCT 13 All tanks look good

2011 Oct 14 All tanks appear normal. MG

2011 oct 17 all tanks look healthy & normal EC

2011 Oct 19 → Final WQ for T=14 tanks, rep B.

C100 : DO(mg/L) = 8.3, temp(C°) = 12.9, pH = 8.0, sal(ppt) = 29

C101 : DO(mg/L) = 8.4, temp(C°) = 12.9, pH = 8.0, sal(ppt) = 29

C102 : DO(mg/L) = 8.5, temp(C) = 12.9, pH = 8.0, sal(ppt) = 29

retrieved

2011 Oct 20 → Red-orange film on sed surface of C100 T=56 Rep B/C/A EC

→ similar red-orange film on sed surface of C100 T=28 Rep C EC

Nereis Test Observations

Date: 2011 Oct 05 Sample ID's: Various

Client # & Name: 1399 (CRD) Project No. 2-11-1085

2011 oct 23 - all Nereis look healthy EC

2011 OCT 25 - Nereis tanks good CT

2011 oct31 - Nereis look good EC

- noticed in afternoon (15:30) that there is a 1 cm segment of Nereis tail lying on sediment surface; removed EC

2011 NOV 02 - C102 Rep D T=56, tail fragment found, ~~unsure~~ all nereis alive CT

2011 NOV 05 - all Nereis buried EC

→ 2011 NOV 02 - C102 Rep A one Nereis not buried EC

M.G 2011 Dec 15

Maxxam Analytics

Nereis virens 56 Day Bioaccumulation Test
Aeration Checks

Client # & Name: 1399 CRD

Start Date & Time: 2011 Oct 05 @ 18:50

Initial when aeration is checked. If air is off record DO and note which replicate(s) in comments section.

	Day -1	0	1	2	3	4	5	6	7	8
Date	2011 Oct 04	2011 Oct 05	2011 Oct 06	2011 Oct 07	2011 Oct 08	2011 Oct 09	2011 Oct 10	2011 Oct 11	2011 Oct 12	Oct 13
Early AM		AR	DS	DS			EC	CT	CT	CT
Mid-day		EC	JB	MG			EC	CT	EC	CT
Late PM	MG	CT	AR	MG			EC	CT	EC	CT

	Day 9	10	11	12	13	14	15	16	17	18
Date	2011 Oct 14	2011 Oct 15	2011 Oct 16	2011 Oct 17	2011 Oct 18	2011 Oct 19	2011 Oct 20	2011 Oct 21	2011 Oct 22	2011 Oct 23
Early AM	CT	MG	DML	EC	CT	MG	EC	CT	MG for DG	EC
Mid-day	CT	MG	DML	EC	MG	MG	EC	CT	MG for DG	EC
Late PM	CT	MG	DML	EC	MG	MG	CT	CT	MG for DG	EC

	Day 19	20	21	22	23	24	25	26	27	28
Date	2011 Oct 24	2011 Oct 25	2011 Oct 26	2011 Oct 27	2011 Oct 28	2011 Oct 29	2011 Oct 30	2011 Oct 31	2011 Nov 01	2011 Nov 02
Early AM	LT	MG	CT	CT	CT		DML	EC	CT	MG 8:12 Tue
Mid-day	EC	EC	EC	CT	EC	CT	DML	EC	CT	
Late PM	EC	CT	EC	CT	CT	CT	DML	EC	CT	EC

Comments:

M.G 2011 Jan 11

Maxxam Analytics

Nereis virens 56 Day Bioaccumulation Test
Aeration Checks

Client # & Name: 1394 (CRD)

Start Date & Time: 2011 Oct 05 @ 18:50

Initial when aeration is checked. If air is off record DO and note which replicate(s) in comments section.

	Day 29	30	31	32	33	34	35	36	37	38
Date	2011 NOV 03	2011 NOV 04	2011 NOV 05	2011 NOV 06	2011 NOV 07	2011 NOV 08	2011 NOV 09	2011 NOV 10	2011 NOV 11	2011 NOV 12
Early AM	CT	EC	EC	LS	LT	AK	CT	EC	NS	WR
Mid-day	EC	EC	CT	LS	CT	AK	CT	EC	NS	NS
Late PM	EC	CT	CT	LS	CT	AK	CT	EC	NS	NS

	Day 39	40	41	42	43	44	45	46	47	48
Date	2011 NOV 13	2011 NOV 14	2011 NOV 15	2011 NOV 16	2011 NOV 17	2011 NOV 18	2011 NOV 19	2011 NOV 20	2011 NOV 21	2011 NOV 22
Early AM	LS	EC	EC	EC	EC	EC	DML	LS	CT	CT
Mid-day	LS	EC	EC	EC	EC	CT	DML	LS	CT	CT
Late PM	LS	EC	EC	EC	EC	EC	NS	LS	CT	CT

	Day 49	50	51	52	53	54	55	56
Date	2011 NOV 23	2011 NOV 24	2011 NOV 25	2011 NOV 26	2011 NOV 27	2011 NOV 28	2011 NOV 29	2011 NOV 30
Early AM	CT	CT	CT	DML	LS	CT	CT	CT
Mid-day	CT	CT	CT	DML	LS	CT	CT	
Late PM	CT	LT	EC	DML	LS	EC	CT	

Comments:

2012 Jan 11 M.C.

(Bioaccumulation Test)

Client Name and #: 1399 CRD

Project #: 2-11-1085

Maxxam Job #: B192421

Test Type: 56-day Neries

Test Species: Neries virens

Test Start Date: 2011 Oct 04 05 2012 Jan 11

Instructions: please follow the position map below when placing vessels on the test bench.

Back Wall

5	10	↑			
4	9				
3	8	13			
2	7	12			
1	6	11	→	→	→

Left — Front of Counter — Right

Position #	Treatment	Replicate	Colour	Position #	Treatment	Replicate	Colour
14	C100 (T=28)	A	Red	8	C102 (T=56)	A	Purple
11	C100 (T=28)	B	Red	6	C102 (T=56)	B	Purple
21	C100 (T=28)	C	Red	1	C102 (T=56)	C	Purple
12	C100 (T=28)	D	Red	4	C102 (T=56)	D	Purple
20	C100 (T=56)	A	Orange				
2	C100 (T=56)	B	Orange				
19	C100 (T=56)	C	Orange				
9	C100 (T=56)	D	Orange				
24	C101 (T=28)	A	Yellow				
13	C101 (T=28)	B	Yellow				
17	C101 (T=28)	C	Yellow				
5	C101 (T=28)	D	Yellow				
3	C101(T=56)	A	Green				
18	C101(T=56)	B	Green				
22	C101(T=56)	C	Green				
15	C101(T=56)	D	Green				
23	C102 (T=28)	A	Blue				
7	C102 (T=28)	B	Blue				
16	C102 (T=28)	C	Blue				
10	C102 (T=28)	D	Blue				

(Bioaccumulation Test)

Client Name and #: 1399 CRD

Project #: 2-11-1085

Maxxam Job #: B192421

Test Type: 56-d Nereis Test

Test Species: Nereis virens

Test Start Date: 2011 Oct 04 05 Jan 11

Instructions: please follow the position map below when placing vessels on the test bench.

Back Wall

5	10	↑			
4	9				
3	8	13			
2	7	12			
1	6	11	→	→	→

Left — Front of Counter — Right

Position #	Treatment	Replicate	Colour
10	C100 (T=14)	A	Red
3	C100 (T=14)	B	Red
9	C100 (T=14)	C	Red
5	C100 (T=14)	D	Red
1	C101 (T=14)	A	Orange
7	C101 (T=14)	B	Orange
12	C101 (T=14)	C	Orange
4	C101 (T=14)	D	Orange
8	C102 (T=14)	A	Yellow
11	C102 (T=14)	B	Yellow
6	C102 (T=14)	C	Yellow
2	C102 (T=14)	D	Yellow

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

Maxxam

Organism: Nereis virens
Organism Lot #: AR110929NV
Supplier: ARO
Customer #: 1399

Arrival Date & Time: 2011 Sept 29 @ 11:00
Age upon Arrival: adult
Ordered: ~300
Study/Project # : 2-11-1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
1,2,3	0	A	n/a*	n/a*	n/a*	n/a*	No	MG

Container ID: Tank A

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
2011 Sep 30	4	0	31	14.8	7.8	8.3		MG
2011 oct 01	0	0	29.6	14.3	7.8	8.4		MG
2011 oct 02	0	0	30.0	14.2	8.0	8.4		MG
2011 oct 03	0	0	30	14.3	7.9	8.4		MG
2011 oct 04	0	0	30	14.3	7.8	8.4		MG
2011 oct 05	0	0	30	14.4	8.0	8.3		MG

MG 2011 Oct 06

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
* worms shipped w/ wet water on damp seaweed + newspaper	MG	2011 Sept 29
A) within baked 1-3, approx 30 worms discarded due to injury. These were distributed to tanks A, B, C, D.	MG	2011 Sept 29
80% H2O Δ @ ~10:30. Cleaned out filter pump (removed some dead Nereis)	MG	2011 Sept 30
50% H2O Δ @ 11:30	MG	2011 Oct 03

Revision: 01
Revision Date: March 25, 2010
Document Control Number: 80-F-089-01

Form approved by: Janet Rickard
Effective date: Apr 01, 2010

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

Maxxam

Organism: Nereis virens
Organism Lot #: AR110929NV
Supplier: ARO
Customer #: 1399

Arrival Date & Time: 2011 Sept 29 @ 11:00
Age upon Arrival: adult
Ordered: ~300
Study/Project # : 2-11-1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
1,2,3	0	(A)	na*	na*	n/a*	n/a*	No	MG

Container ID: Tank B

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
20180930	4	0	31	14.9	7.8	8.2		MB
2011 Oct 01	0	0	29.6	14.3	7.8	8.4		DY
2011 Oct 02	0	0	30.0	14.2	8.0	8.4		DY
2011 Oct 03	0	0	30	14.2	7.9	8.4		MB
2011 Oct 04	0	8	30	14.2	7.8	8.3		MB
2011 Oct 05	0	8	30	14.3	8.0	8.3		CEB
		M.Gy 2011 Oct 06						

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
* worms shipped w/out water, on damp seaweed and newspaper.	MG	2011 Sept 29
(A) within boxes 1-3, approximately 30 worms were discarded due to injury. The rest were distributed to Tanks A, B, C, D.	MG	2011 Sept 29
80% H2O Δ @ ~10:30. cleaned out filter	MG	2011 Sept 29
Temp (removed some dead worms)	CEB	2011 09 30
50% H2O Δ @ 11:30	CEB	2011 10 03

Revision: 01
Revision Date: March 25, 2010
Document Control Number: 80-F-089-01

Form approved by: Janet Pickard
Effective date: Apr 01, 2010

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

MaxXam

Organism: Neries virens
Organism Lot #: ARI10929NV
Supplier: ARO
Customer #: 1399

Arrival Date & Time: 2011 Sept 29 @ 11:00
Age upon Arrival: adult
Ordered: ~300
Study/Project # : 2-11-1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
1,2,3	0	(A)	n/a*	n/a*	n/a*	n/a*	No	MG

Container ID: Tank C

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
2011 Sept 30	4	0	31	14.8	7.9	8.2		MG
2011 Oct 01	0	0	29.4	14.0	7.8	8.5		MG
2011 Oct 02	0	0	29.9	14.0	8.0	8.5		MG
2011 oct 03	0	0	30	14.1	7.9	8.4		MG
2011 oct 04	0	0	30	14.0	7.8	8.3		MG
2011 oct 05	0	0	30	14.1	8.0	8.3		MG

M. Oct 2011

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
* worms shipped wet at water on damp seaweed + newspaper.	MG	2011 Sept 29
(A) within boxes 1-3, approximately 30 worms discarded due to injury. Boxes of worms distributed to tanks A, B, C, D.	MG	2011 Sept 29
80% H2O Δ @ ~10:30. Cleaned out filter pump (removed some dead Nereis	MG	2011 Sept 30
50% H2O Δ @ 11:30	MG	2011 Oct 03

Revision: 01
Revision Date: March 25, 2010
Document Control Number: 80-F-089-01

Form approved by: Janet Rickard
Effective date: Apr 01, 2010

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

MaxXam

Organism: Neomysis Vulgaris
Organism Lot #: AR1109 29 NV
Supplier: ARO
Customer #: 1399

Arrival Date & Time: 2011 Sep 29 @ 11:00
Age upon Arrival: adult
Ordered: ~300
Study/Project # : 2-11-1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst

Container ID: Tank D

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
2011sep30	4	0	31	14.8	7.8	8.2		MS
2011oct01	0	0	29.6	14.3	7.8	8.4		[illegible]
2011oct02	0	0	30.0	14.2	7.9	8.3		[illegible]
2011oct03	0	0	30	14.2	7.9	8.4		MS
2011oct04	0	0	30	14.2	7.8	8.4		CLS
2011oct05	0	0	30	14.2	7.9	8.3		CLS

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
50% H_2O Δ @ ~10:30. Cleared out filter pump. removed some dead Neomysis	CLS	2011sep30
50% H_2O Δ @ 11:30	MS	2011sep30
	CLS	2011oct03

M.Cy 2012 Jan 10

Revision: 01
Revision Date: March 25, 2010
Document Control Number: 80-F-089-01

Form approved by: Janet Rickard
Effective date: Apr 01, 2010

Maxxam Job #: B195406
Report Date: 2011/10/14

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085 NEREIS SED TEST

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BS8974	BS8975		BS8976	
Sampling Date		2011/10/05 16:55	2011/10/05 16:55		2011/10/05 16:55	
COC#		G047254	G047254		G047254	
	Units	**C100 (T=0) OVERLY AMMONIA**	**C101 (T=0) OVERLY AMMONIA**	**RDL**	**C102 (T=0) OVERLY AMMONIA**	**RDL**
Nutrients						
Ammonia (N)	mg/L	1.8	1.6	0.01	0.99	0.005

RDL = Reportable Detection Limit

Maxxam Job #: B1A1754
Report Date: 2011/10/27

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085 BIOACCUMULATION SED
Site Location: NA

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BX0045	BX0046		BX0047		BX0048		BX0049	BX0050	
Sampling Date		2011/10/18 11:45	2011/10/18 11:45		2011/10/18 11:45		2011/10/19		2011/10/19	2011/10/19	
COC#		G047284	G047284		G047284		G047284		G047284	G047284	
	Units	**C101 OVERLY MACOMA**	**C100 OVERLY MACOMA**	**RDL**	**C102 OVERLY MACOMA**	**RDL**	**C100 OVERLY NEREIS**	**RDL**	**C101 OVERLY NEREIS**	**C102 OVERLY NEREIS**	**RDL**
Nutrients											
Ammonia (N)	mg/L	2.9	2.8	0.05	2.2	0.03	2.4	0.05	2.8	2.0	0.03

RDL = Reportable Detection Limit

Maxxam Job #: B1A6368
Report Date: 2011/11/10

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085

Your P.O. #: 2-11-1085

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		CA2124	CA2125	CA2126	
Sampling Date		2011/11/02	2011/11/02	2011/11/02	
COC#		G032301	G032301	G032301	
	Units	**C100 OVERLY NERIS**	**C101 OVERLY NERIS**	**C102 OVERLY NERIS**	**RDL**
Nutrients					
Ammonia (N)	mg/L	1.5	1.3	1.3	0.01

RDL = Reportable Detection Limit

Maxxam

Success Through Science

Maxxam Job #: B1B6298
Report Date: 2011/12/06

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085 NEREIS 56-D #1399

Your P.O. #: 2-11-1085

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		CG3194	CG3195	CG3196	
Sampling Date		2011/11/30 09:30	2011/11/30 09:30	2011/11/30 09:30	
COC#		G047995	G047995	G047995	
	Units	**C100 OVERLY NEREIS**	**C101 OVERLY NEREIS**	**C102 OVERLY NEREIS**	**RDL**
Nutrients					
Ammonia (N)	mg/L	1.2	0.95	1.1	0.010

RDL = Reportable Detection Limit

Maxxam

Success Through Service

Maxxam Job #: B1C2949
Report Date: 2012/01/17

CAPITAL REGIONAL DISTRICT
Client Project #: BIOACCUMULATION (NEREIS)

Sampler Initials: TI

RESULTS OF CHEMICAL ANALYSES OF TISSUE

Maxxam ID		CH4411	CH4412		CH4413		CH4414		CH4415	CH4416	CH4417	CH4418		
Sampling Date		2011/09/01	2011/09/01		2011/09/01		2011/09/01		2011/09/01	2011/09/01	2011/09/01	2011/09/01		
	Units	**M1E T=0 (NEREIS)**	**M2E T=0 (NEREIS)**	**RDL**	**M8E T=0 (NEREIS)**	**RDL**	**M1E T=14 (NEREIS)**	**RDL**	**M2E T=14 (NEREIS)**	**M2E T=14 (NEREIS) DUP**	**M2E T=14 (NEREIS) TRIP**	**M8E T=14 (NEREIS)**	**RDL**	**QC Batch**
Metals														
Hex. Chromium (Cr 6+)	mg/kg	<5.0(1)	<5.0(1)	5.0	<6.0(1)	6.0	<5.0(1)	5.0	<7.0(1)	<7.0(1)	<7.0(1)	<7.0(1)	7.0	5483942
Parameter														
Lipid Content	%	15.8	15.1	0.1	15.4	0.1	19.0	0.1	18.6	14.5	16.8	9.1	0.1	5487368

Maxxam ID		CH4419		CH4420		CH4421	CH4422	CK5491	CK5492		
Sampling Date		2011/09/01		2011/09/01		2011/09/01	2011/09/01	2011/09/01	2011/09/01		
	Units	**M1E T=28 (NEREIS)**	**RDL**	**M2E T=28 (NEREIS)**	**RDL**	**M8E T=28 (NEREIS)**	**M1E T=56 (NEREIS)**	**M2E T=56 (NEREIS)**	**M8E T=56 (NEREIS)**	**RDL**	**QC Batch**
Metals											
Hex. Chromium (Cr 6+)	mg/kg	<6.0(2)	6.0	<4.0(1)	4.0	<5.0(1)	<5.0(1)	<5.0(1)	<5.0(1)	5.0	5483942
Parameter											
Lipid Content	%	20.6	0.1	14.1	0.1	10.8	20.3	13.9	9.4	0.1	5487368

RDL = Reportable Detection Limit
(1) - Detection limits raised due to high moisture content.
(2) - Matrix spike exceeds acceptance limits due to matrix interference. Re-analysis yields similar results. Detection limits raised due to high moisture content.

Maxxam Job #: B1C2949
Report Date: 2012/01/17

CAPITAL REGIONAL DISTRICT
Client Project #: BIOACCUMULATION (NEREIS)

Sampler Initials: TI

ELEMENTS BY ATOMIC SPECTROSCOPY - DRY WT (TISSUE)

Maxxam ID		CH4411	CH4412	CH4413	CH4414	CH4415	CH4416	CH4417	CH4418	CH4419		
Sampling Date		2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01		
	Units	**M1E T=0 (NEREIS)**	**M2E T=0 (NEREIS)**	**M8E T=0 (NEREIS)**	**M1E T=14 (NEREIS)**	**M2E T=14 (NEREIS)**	**M2E T=14 (NEREIS) DUP**	**M2E T=14 (NEREIS) TRIP**	**M8E T=14 (NEREIS)**	**M1E T=28 (NEREIS)**	**RDL**	**QC Batch**
Total Metals by ICPMS												
Total Aluminum (Al)	mg/kg	29	28	21	251	31	32	36	77	27	5	5467447
Total Antimony (Sb)	mg/kg	0.019	0.019	0.019	0.070	0.040	0.034	0.036	0.020	0.049	0.005	5467447
Total Arsenic (As)	mg/kg	20.1	19.0	18.2	17.7	17.1	16.5	17.9	17.0	14.8	0.05	5467447
Total Beryllium (Be)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	5467447
Total Cadmium (Cd)	mg/kg	0.36	0.37	0.34	0.43	0.41	0.39	0.41	0.49	0.41	0.01	5467447
Total Chromium (Cr)	mg/kg	1.3	1.0	0.8	1.7	<0.5	<0.5	<0.5	1.0	0.7	0.5	5467447
Total Copper (Cu)	mg/kg	6.90	6.01	6.02	8.04	6.75	6.43	6.84	6.94	6.82	0.05	5467447
Total Iron (Fe)	mg/kg	313	356	321	849	389	373	432	456	364	10	5467447
Total Lead (Pb)	mg/kg	0.75	0.65	0.65	2.17	0.87	0.84	0.90	1.01	0.86	0.03	5467447
Total Magnesium (Mg)	mg/kg	4200	3790	3900	4900	4840	4730	5200	4800	4690	10	5467447
Total Manganese (Mn)	mg/kg	2.4	2.2	2.1	6.0	2.5	2.7	2.9	2.9	3.2	0.3	5467447
Total Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	0.05	5467447
Total Nickel (Ni)	mg/kg	1.7	1.6	1.6	2.9	1.4	1.4	1.5	1.6	2.4	0.5	5467447
Total Selenium (Se)	mg/kg	1.78	1.63	1.96	2.03	1.81	1.93	2.01	1.88	1.83	0.05	5467447
Total Silver (Ag)	mg/kg	0.09	0.08	0.08	0.11	0.10	0.09	0.11	0.10	0.09	0.02	5467447
Total Thallium (Tl)	mg/kg	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	5467447
Total Zinc (Zn)	mg/kg	55.1	56.1	53.0	151	59.0	55.4	60.8	56.8	50.6	0.5	5467447

RDL = Reportable Detection Limit

Maxxam Job #: B1C2949
Report Date: 2012/01/17

CAPITAL REGIONAL DISTRICT
Client Project #: BIOACCUMULATION (NEREIS)

Sampler Initials: TI

ELEMENTS BY ATOMIC SPECTROSCOPY - DRY WT (TISSUE)

Maxxam ID		CH4420	CH4421	CH4422		CK5491	CK5492		
Sampling Date		2011/09/01	2011/09/01	2011/09/01		2011/09/01	2011/09/01		
	Units	**M2E T=28 (NEREIS)**	**M8E T=28 (NEREIS)**	**M1E T=56 (NEREIS)**	**QC Batch**	**M2E T=56 (NEREIS)**	**M8E T=56 (NEREIS)**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	21	97	85	5467447	49	9	5	5473483
Total Antimony (Sb)	mg/kg	0.028	0.023	0.045	5467447	0.035	0.023	0.005	5473483
Total Arsenic (As)	mg/kg	15.8	16.5	12.6	5467447	13.4	16.8	0.05	5473483
Total Beryllium (Be)	mg/kg	<0.1	<0.1	<0.1	5467447	<0.1	<0.1	0.1	5473483
Total Cadmium (Cd)	mg/kg	0.38	0.53	0.44	5467447	0.40	0.47	0.01	5473483
Total Chromium (Cr)	mg/kg	1.3	1.0	0.7	5467447	1.4	<0.5	0.5	5473483
Total Copper (Cu)	mg/kg	7.52	8.82	8.62	5467447	8.87	8.96	0.05	5473483
Total Iron (Fe)	mg/kg	342	485	490	5467447	407	369	10	5473483
Total Lead (Pb)	mg/kg	0.77	1.11	1.00	5467447	1.05	0.82	0.03	5473483
Total Magnesium (Mg)	mg/kg	4980	5340	5070	5467447	4740	5560	10	5473483
Total Manganese (Mn)	mg/kg	2.7	3.3	3.8	5467447	2.8	1.8	0.3	5473483
Total Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	5467447	<0.05	<0.05	0.05	5473483
Total Nickel (Ni)	mg/kg	2.1	1.5	2.1	5467447	2.2	1.4	0.5	5473483
Total Selenium (Se)	mg/kg	1.74	1.87	1.80	5467447	1.92	1.92	0.05	5473483
Total Silver (Ag)	mg/kg	0.09	0.13	0.10	5467447	0.12	0.11	0.02	5473483
Total Thallium (Tl)	mg/kg	<0.002	<0.002	<0.002	5467447	<0.002	<0.002	0.002	5473483
Total Zinc (Zn)	mg/kg	56.3	63.3	71.8	5467447	52.2	75.4	0.5	5473483

RDL = Reportable Detection Limit

Maxxam Job #: B1C2949
Report Date: 2012/01/17

CAPITAL REGIONAL DISTRICT
Client Project #: BIOACCUMULATION (NEREIS)

Sampler Initials: TI

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		CH4411	CH4412	CH4413	CH4414	CH4415	CH4416	CH4417	CH4418		
Sampling Date		2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01		
	Units	**M1E T=0 (NEREIS)**	**M2E T=0 (NEREIS)**	**M8E T=0 (NEREIS)**	**M1E T=14 (NEREIS)**	**M2E T=14 (NEREIS)**	**M2E T=14 (NEREIS) DUP**	**M2E T=14 (NEREIS) TRIP**	**M8E T=14 (NEREIS)**	**RDL**	**QC Batch**
Total Metals by ICPMS											
Total Aluminum (Al)	mg/kg	4	4	3	32	4	4	5	10	1	5472051
Total Antimony (Sb)	mg/kg	0.003	0.003	0.003	0.009	0.005	0.005	0.005	0.003	0.001	5472051
Total Arsenic (As)	mg/kg	2.93	2.77	2.61	2.25	2.23	2.24	2.26	2.19	0.01	5472051
Total Beryllium (Be)	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	5472051
Total Cadmium (Cd)	mg/kg	0.052	0.055	0.050	0.055	0.053	0.054	0.051	0.063	0.002	5472051
Total Chromium (Cr)	mg/kg	0.2	0.1	0.1	0.2	<0.1	<0.1	<0.1	0.1	0.1	5472051
Total Copper (Cu)	mg/kg	1.01	0.88	0.87	1.02	0.88	0.87	0.86	0.89	0.01	5472051
Total Iron (Fe)	mg/kg	46	52	46	108	51	51	54	59	2	5472051
Total Lead (Pb)	mg/kg	0.109	0.094	0.094	0.276	0.113	0.114	0.114	0.130	0.006	5472051
Total Magnesium (Mg)	mg/kg	613	553	562	622	629	644	656	620	2	5472051
Total Manganese (Mn)	mg/kg	0.34	0.32	0.30	0.77	0.33	0.36	0.37	0.37	0.05	5472051
Total Mercury (Hg)	mg/kg	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	0.010	<0.009	0.009	5472051
Total Nickel (Ni)	mg/kg	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.2	0.1	5472051
Total Selenium (Se)	mg/kg	0.26	0.24	0.28	0.26	0.24	0.26	0.25	0.24	0.01	5472051
Total Silver (Ag)	mg/kg	0.013	0.012	0.012	0.014	0.013	0.012	0.013	0.012	0.004	5472051
Total Thallium (Tl)	mg/kg	<0.0004	<0.0004	<0.0004	0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0004	5472051
Total Zinc (Zn)	mg/kg	8.1	8.2	7.6	19.1	7.7	7.5	7.7	7.3	0.1	5472051

RDL = Reportable Detection Limit

Maxxam Job #: B1C2949
Report Date: 2012/01/17

CAPITAL REGIONAL DISTRICT
Client Project #: BIOACCUMULATION (NEREIS)

Sampler Initials: TI

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		CH4419	CH4420	CH4421	CH4422	CK5491	CK5492		
Sampling Date		2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01		
	Units	**M1E T=28 (NEREIS)**	**M2E T=28 (NEREIS)**	**M8E T=28 (NEREIS)**	**M1E T=56 (NEREIS)**	**M2E T=56 (NEREIS)**	**M8E T=56 (NEREIS)**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	4	3	13	12	7	1	1	5472051
Total Antimony (Sb)	mg/kg	0.007	0.004	0.003	0.006	0.005	0.003	0.001	5472051
Total Arsenic (As)	mg/kg	2.24	2.32	2.28	1.77	2.04	2.39	0.01	5472051
Total Beryllium (Be)	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	5472051
Total Cadmium (Cd)	mg/kg	0.062	0.056	0.073	0.062	0.062	0.067	0.002	5472051
Total Chromium (Cr)	mg/kg	0.1	0.2	0.1	0.1	0.2	<0.1	0.1	5472051
Total Copper (Cu)	mg/kg	1.03	1.11	1.22	1.21	1.36	1.27	0.01	5472051
Total Iron (Fe)	mg/kg	55	50	67	69	62	52	2	5472051
Total Lead (Pb)	mg/kg	0.129	0.113	0.153	0.141	0.161	0.117	0.006	5472051
Total Magnesium (Mg)	mg/kg	708	732	736	710	725	789	2	5472051
Total Manganese (Mn)	mg/kg	0.48	0.39	0.46	0.53	0.43	0.26	0.05	5472051
Total Mercury (Hg)	mg/kg	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	0.009	5472051
Total Nickel (Ni)	mg/kg	0.4	0.3	0.2	0.3	0.3	0.2	0.1	5472051
Total Selenium (Se)	mg/kg	0.28	0.26	0.26	0.25	0.29	0.27	0.01	5472051
Total Silver (Ag)	mg/kg	0.014	0.014	0.018	0.014	0.018	0.016	0.004	5472051
Total Thallium (Tl)	mg/kg	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0004	5472051
Total Zinc (Zn)	mg/kg	7.6	8.3	8.7	10.1	8.0	10.7	0.1	5472051

PHYSICAL TESTING (TISSUE)

Maxxam ID		CH4411	CH4412	CH4413	CH4414	CH4415	CH4416	CH4417	CH4418	CH4419		
Sampling Date		2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01	2011/09/01		
	Units	**M1E T=0 (NEREIS)**	**M2E T=0 (NEREIS)**	**M8E T=0 (NEREIS)**	**M1E T=14 (NEREIS)**	**M2E T=14 (NEREIS)**	**M2E T=14 (NEREIS) DUP**	**M2E T=14 (NEREIS) TRIP**	**M8E T=14 (NEREIS)**	**M1E T=28 (NEREIS)**	**RDL**	**QC Batch**
Physical Properties												
Moisture	%	85	85	86	87	87	86	87	87	85	0.3	5482827

RDL = Reportable Detection Limit

Maxxam Job #: B1C2949
Report Date: 2012/01/17

CAPITAL REGIONAL DISTRICT
Client Project #: BIOACCUMULATION (NEREIS)

Sampler Initials: TI

PHYSICAL TESTING (TISSUE)

Maxxam ID		CH4420	CH4421	CH4422		CK5491	CK5492		
Sampling Date		2011/09/01	2011/09/01	2011/09/01		2011/09/01	2011/09/01		
	Units	**M2E T=28 (NEREIS)**	**M8E T=28 (NEREIS)**	**M1E T=56 (NEREIS)**	**QC Batch**	**M2E T=56 (NEREIS)**	**M8E T=56 (NEREIS)**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	85	86	86	5482827	85	86	0.3	5482830

RDL = Reportable Detection Limit

56 DAY *MACOMA NASUTA* BIOACCUMULATION TEST

Test Summary

Raw Data

Supporting Test Data

Acclimation and Holding Conditions

Overlying Water Chemistry

Tissue Chemistry Results

56-d Clam Bioaccumulation Test Summary

Client Name/Location	Capital Regional District/ Victoria, B.C.
Testing Lab/Location	Maxxam Analytics / Burnaby, BC
Sample Information	
Sample Names	M1E, M2E, M8E
Type of Sample	Field collected sediments
Method of Collection	See Chain of Custody form
Sample Collector	See Chain of Custody form
Sample Volume	99 L
Sample Containers	11-L white food grade plastic buckets
Sample Collection Date	2011 Sep 21; 2011 Sept 22
Sample Temperature upon Arrival	Not measured on arrival
Date & Time of Sample Receipt	2011 Sep 28 @ 14:50
Storage Conditions	From receipt to test initiation, the samples were stored in a temperature controlled cold room at 4 ± 2°C
Sediment and Pore Water Characterisation	See Sediment Sample Descriptions sheet and analytical chemistry reports
Sample Preparation	
Homogenisation	Samples were individually mixed until homogenised at ambient laboratory temperature; if necessary, large debris and indigenous macro-organisms were removed during homogenisation (see Sediment Sample Descriptions sheet)
Date of Homogenisation	2011 Oct 03; Nov 01
Sediment – Physical Analyses	TOC, moisture content and grain size were measured in each sediment prior to toxicity test initiation. The results of these analyses are not included in this report.
Sediment Porewater – Chemical Analyses	Samples of homogenised sediment were centrifuged for 30 minutes, at 5000 rpm, to produce porewater. The porewater was then analysed for dissolved organic carbon, ammonia, sulphides, and hardness. The results are available in the Sample Information section of this report.
Test Organisms	
Species	*Macoma Nasuta*
Source	Aquatic Research Organisms; Hampton, NH
Age and size at Start of Test	Aged 2-4 years; shell length (umbo to distal) of 28-45mm
Date of Organism Arrival	2011 Sept 29
Holding and Acclimation Conditions	See Acclimation and Holding Conditions sheets

Laboratory Control Information	
Overlying Water	Seawater collected at the Vancouver Aquarium, from Burrard Inlet, 40-45' deep inlet, gravity sand filter with sand mesh size 22, filtered through 5 µm filter and passed through UV Sterilizer
Type and Quantity of Chemicals Added to Water	None
Pre-treatment of Overlying Water	The seawater was UV sterilized, filtered through a 1 um filter, warmed to 12±2°C, and was continuously aerated prior to use.
Reference Site Sediment	N/A
Baseline Control (T=0)	T=0 clams were collected on Day 0, alongside worms to be used in the bioaccumulation test. They were purged for ≈24 hours in clean seawater, rinsed with deionised water, patted dry and placed in clean glass sample jars. They were submitted for analysis alongside the clams extracted from the test sediments.
Test Conditions & Facilities	
Test Method and References	USEPA 1993, Guidance Manual: Bedded Sediment Bioaccumulation Tests (EPA/600R-93/183); ASTM 2000, Standard Guide for Determination of the Bioaccumulation of Sediment-Associated Contaminants by Benthic Invertebrates (E1688-00a); USACE 2010, Determining Steady-state Tissue Residues for Invertebrates in Contaminated Sediment, ERDC/EL TR-10-2, Kennedy et al.
Test Type / Duration	56-d whole sediment bioaccumulation test. Static-renewal. Clams removed on Day 0, 14, 28, and 56.
Test Temperature	12°C ± 2°C. See the Test Conditions and Survival Data sheets.
Light levels and Photoperiod	16:8hr light: dark cycle. Laboratory light levels 500-1000 lux.
Aeration	Continuous and minimal in each test vessel; checked 3 times daily. Compressed oil-free air delivered through glass Pasteur pipettes
Test Start Date	2011 Oct 04
Test Completion Date	2011 Oct 18 (T=14), 2011 Nov 01(T=28), 2011 Nov 29(T=56)
Test Vessels	20L glass aquaria.
Sediment Mass at Test Initiation	3.6 kg (≈ 3-4 cm depth).
Volume of Test Water	10L
Analysts	M. Grey, M. Brassil, D. Greschner, C. Tra, L. Takahashi, E. Chen, P. Howes, A. Rakhmangulova, N. Shergill, D. Lee, D. Lai
Water Renewal	50% water renewal twice weekly, after recording water quality (See Test Conditions Page).
# Organisms and average biomass/ Vessel	5 clams per vessel, the initial estimated biomass per replicate ranged from 27.9-25.7g.
Number of Replicates	4
Sediment Addition	Sediment completely renewed on Day 28.

Observations & Measurements	
Dissolved Oxygen (DO), Temperature, pH and Salinity	Twice weekly, directly before water renewals. See Test Conditions and Survival Data sheets
Sediment Appearance During Test	See Aeration Checks, Test Conditions and Survival Data sheets
Test Observations	Organism behaviour during the test, visible mortalities and/or abnormal behaviour was recorded on Test Conditions and Survival Data sheets
Survival	All live clams recovered from each test vessel were counted. See Test Conditions Data sheet
Overlying Water – Chemical Analyses	Samples of the overlying water were analysed for Ammonia on Day 0, 14, 28 and 56 of the test. See chemical analysis reports.
Anything Unusual about the Test, Deviation from Test Method, other Problems	The aeration checks for day 18 were missed. The following day, however, all tanks were aerating, so this error is unlikely to have impacted the test.
Results	
Endpoints	Moisture, Lipids and Metals Concentration in Clam Tissue; was measured on a composite of each sample at the following time points: Day 0, Day 14, Day 28, and Day 56.
Endpoint Results	The bioaccumulation of select analytes was measured in Nereis tissue, after purging the worms for 24 hours in clean seawater. See Chemistry Results in the "56 day *Macoma nasuta* Bioaccumulation Test" section.
Number of surviving organisms in each test vessel	See Test Conditions and Survival Data sheet
QA/QC	
Test Validity Criteria • Mean survival in the test sediments must be ≥90% • Initial sediment mass should exceed 2800g (2 times the estimated mass of sediment processed during the test by *Nereis virens*) • Initial sediment depth must be greater than 2 cm.	• Lowest mean survival in the test sediments was ≥95% • Initial sediment mass was 3600g per replicate. The processing rate for this species is 2g wet sediment/ 1g wet worm tissue/day. • Sediment depth was ≈3-4 cm

Maxxam Analytics

Macoma nasuta 56- d Test
Summary of Survival

Client # & Name: #1399 CRD

Start Date and Time: 2011 Oct 04 @20:40

Project # 2-11-1085

End Date: Various

Maxxam Group #: B192421

Organism Lot #: AR110929MN

Analyst(s): C. Tra, E. Chen, M. Grey, P. Howes, D. Lai, M. Brassil, D. Lee, A. Rakhmangulova

Sample ID	Time Point	Rep	Initial # Seeded	Final # Recovered	Mean survival (%)	Mean survival sample (%)	SD
M1E	14	A	10	10	100	95	6
	14	B	10	10	100		
	14	C	10	9	90		
	14	D	10	9	90		
	28	A	10	9	90	98	5
	28	B	10	10	100		
	28	C	10	10	100		
	28	D	10	10	100		
	56	A	10	10	100	95	6
	56	B	10	9	90		
	56	C	10	9	90		
	56	D	10	10	100		
M2E	14	A	10	10	100	100	0
	14	B	10	10	100		
	14	C	10	10	100		
	14	D	10	10	100		
	28	A	10	10	100	100	0
	28	B	10	10	100		
	28	C	10	10	100		
	28	D	10	10	100		
	56	A	10	10	100	98	5
	56	B	10	10	100		
	56	C	10	10	100		
	56	D	10	9	90		
M8E	14	A	10	10	100	100	0
	14	B	10	10	100		
	14	C	10	10	100		
	14	D	10	10	100		
	28	A	10	10	100	98	5
	28	B	10	10	100		
	28	C	10	9	90		
	28	D	10	10	100		
	56	A	10	10	100	95	6
	56	B	10	10	100		
	56	C	10	9	90		
	56	D	10	9	90		

JP 2012 Jan 30

Maxxam Analytics

Macoma nasuta Inital Weights

Customer Name/#: 1399 CRD

Test Start Date and Time: 2011 Oct 04 @ 20:40

Balance ID: BBY2-0015

Project Number: 2-11-1085

Analysts: P. Howes, M. Grey

Group Number	Individual Macoma Weights (g)										Total Clam Weight with shell(g)	Estimated* Tissue Weight (g)
	1	2	3	4	5	6	7	8	9	10		
1	12.1	11.4	13.1	14.7	9.0	10.3	11.7	15.7	8.6	16.8	123.4	26.8
2	13.5	13.2	11.2	14.7	9.0	9.2	8.7	21.9	9.3	10.6	121.3	26.3
3	12.7	11.8	12.5	14.7	9.2	9.2	10.6	20.5	11.5	10.1	122.8	26.6
4	12.5	13.1	11.7	14.6	9.3	11.4	10.4	16.9	8.9	13.7	122.5	26.6
5	11.4	11.7	12.1	14.8	10.5	8.2	11.4	18.6	9.7	16.0	124.4	27.0
6	12.7	12.7	11.8	15.0	10.0	9.4	10.1	19.3	10.9	10.3	122.2	26.5
7	12.9	13.5	12.0	14.3	11.6	9.7	9.5	16.2	13.9	9.8	123.4	26.8
8	12.7	12.0	11.6	14.7	9.2	10.3	11.9	17.6	16.2	8.9	125.1	27.1
9	12.4	13.5	12.9	14.6	10.1	10.3	11.6	16.3	9.6	14.3	125.6	27.3
10	11.7	12.8	12.2	13.8	9.5	11.3	11.2	19.2	9.3	15.3	126.3	27.4
11	13.6	12.0	12.4	14.2	10.0	8.7	10.9	18.6	15.2	10.6	126.2	27.4
12	12.6	11.6	11.7	15.0	9.2	11.4	10.2	19.8	9.9	14.4	125.8	27.3
13	12.3	13.1	12.8	16.0	10.6	9.6	10.3	16.3	7.7	15.8	124.5	27.0
14	12.2	11.7	11.6	14.2	10.1	9.4	10.5	23.6	8.3	11.7	123.3	26.8
15	12.7	12.8	12.3	14.4	8.1	10.6	11.4	19.8	14.4	10.6	127.1	27.6
16	12.1	12.4	13.0	15.8	10.8	10.4	10.7	17.1	15.5	8.2	126	27.3
17	13.3	13.1	12.9	15.4	9.1	10.8	9.8	16.9	10.5	15.4	127.2	27.6
18	11.8	12.3	12.9	15.1	9.8	8.5	10.4	20.2	13.4	10.0	124.4	27.0
19	12.5	13.8	12.5	15.4	8.1	10.2	11.3	18.0	11.6	11.5	124.9	27.1
20	12.5	13.5	12.7	14.2	9.6	8.8	11.4	18.5	11.0	10.3	122.5	26.6
21	13.0	13.3	13.2	13.9	8.4	11.1	10.4	19.8	8.9	10.8	122.8	26.6
22	11.5	13.0	12.3	14.4	11.6	10.9	10.3	16.0	13.8	8.9	122.7	26.6
23	12.4	12.6	11.7	13.9	11.3	10.1	10.1	18.8	8.2	16.7	125.8	27.3
24	12.5	11.5	11.6	15.5	10.4	11.5	10.9	16.9	13.8	10.1	124.7	27.1
25	11.5	12.6	12.2	14.8	11.6	10.8	10.3	16.0	9.7	16.0	125.5	27.2
26	12.6	11.8	11.9	14.8	11.1	9.6	11.5	16.2	8.1	17.1	124.7	27.1
27	11.8	11.8	12.8	13.9	9.7	10.4	11.3	19.3	16.2	7.6	124.8	27.1
28	12.1	12.6	11.8	15.6	9.7	9.9	10.5	17.1	16.4	10.5	126.2	27.4
29	13.4	11.6	11.4	14.8	11.6	11.7	10.5	17.1	10.8	10.2	123.1	26.7
30	13.1	12.6	13.1	13.6	10.6	11.0	11.6	16.7	11.0	10.6	123.9	26.9
31	12.8	13.1	12.0	13.8	9.8	11.2	11.9	16.1	10.2	11.3	122.2	26.5
32	12.8	11.7	12.8	15.3	9.0	9.4	10.7	18.5	7.1	11.9	119.2	25.9
33	13.0	13.1	11.8	13.9	8.7	10.5	10.4	18.6	11.3	8.9	120.2	26.1
34	12.8	12.2	12.4	14.8	9.3	8.5	11.0	21.7	8.4	8.8	119.9	26.0
35	12.5	13.2	13.0	15.2	9.2	8.8	10.9	17.7	9.9	11.1	121.5	26.4
36	12.3	11.9	11.9	14.0	8.8	9.4	10.9	20.2	7.4	21.8	128.6	27.9

JP 2012 Jan 30

Macoma nasuta Inital Weights

Customer Name/#: 1399 CRD

Test Start Date and Time: 2011 Oct 04 @ 20:40

Balance ID: BBY2-0015

Project Number: 2-11-1085

Analysts: P. Howes, M. Grey

Group Number	Individual Macoma Weights (g)										Total Clam Weight with shell(g)	Estimated* Tissue Weight (g)
	1	2	3	4	5	6	7	8	9	10		
37	12.7	13.0	13.3	14.6	8.7	9.6	9.8	18.6	9.7	9.2	119.2	25.9
38	13.3	12.2	12.4	15.4	9.1	8.9	10.3	18.5	8.9	10.9	119.9	26.0
39	12.8	12.0	12.3	13.5	8.9	8.9	11.0	21.7	8.6	10.0	119.7	26.0
40	11.8	12.0	13.1	14.9	10.6	10.4	10.6	15.8	10.9	8.5	118.6	25.7
41	12.5	12.3	13.5	14.4	10.7	10.5	11.5	16.2	8.7	8.9	119.2	25.9
42	11.7	12.1	11.6	14.0	10.9	11.0	10.9	15.4	17.5	6.9	122	26.5
43	12.4	13.2	12.4	14.1	9.6	10.6	11.4	21.0	8.9	7.9	121.5	26.4
44	12.0	12.4	12.9	14.0	8.8	10.2	9.9	24.7	7.6	7.2	119.7	26.0
45	11.9	12.5	12.1	15.3	11.7	11.1	11.1	16.1	9.4	8.5	119.7	26.0
46	11.9	11.8	12.0	14.2	8.4	8.4	11.8	24.3	8.3	8.4	119.5	25.9
47	12.4	13.2	13.9	14.6	11.3	11.8	11.4	16.8	7.1	8.6	121.1	26.3
48	12.0	12.5	13.7	15.0	9.5	10.0	10.9	16.2	9.9	8.7	118.4	25.7

*Estimated tissue weight based upon a whole clam to tissue conversion factor of 0.217. This is the calculated conversion factor for organism batch AR110929MN based on measurments from 5 representative clams. The target tissue weight per replicate is 25g, therefore the target whole clam weight is: 25g ÷ 0.217 ~120± 5g. Literature values estimate the whole clam to tissue conversion factor to be 0.18[1].

[1] Kennedy AJ, Lotufo GR, Steevens JA, and TS Bridges. May 2010. United States Army Corp of Engineers. Dredging Operations and Environmental Research Program. ERDC/EL TR-10-2. Vicksburg, MS.

JP 2012Jan30

Maxxam Analytics

Macoma nasuta Inital Weights

Customer Name/#: 1399-CRD
Test Start Date and Time: 2011 Oct 04 @ 20:40
Balance ID: BBY2-0015
Project Number: 2-11-1085
Analysts: D.Howes, M.Gray

Group Number	Individual Macoma Weights (g) 1	2	3	4	5	6	7	8	9	10	Total Clam Weight with shell(g)	Estimated* Tissue Weight (g)
1	12.1	11.4	13.1	14.7	9.0	10.3	11.7	15.7	8.6	16.8		
2	13.5	13.2	11.2	14.7	9.0	9.2	8.7	21.9	9.3	10.6		
3	12.7	11.8	12.5	14.7	9.2	9.2	10.6	20.5	11.5	10.1		
4	12.5	13.1	11.7	14.6	9.3	11.4	10.4	16.9	8.9	13.7		
5	11.4	11.7	12.1	14.8	10.5	8.7	11.4	18.6	9.7	16.0		
6	12.7	12.7	11.8	15.0	10.0	9.4	10.1	19.3	10.9	10.3		
7	12.9	13.5	12.0	14.3	11.6	9.7	9.5	16.2	13.9	9.8		
8	12.7	12.0	11.6	14.7	9.2	10.3	11.9	17.6	16.2	8.9		
9	12.4	13.5	12.9	14.6	10.1	10.3	11.6	16.3	9.6	14.3		
10	11.7	12.8	12.2	13.8	9.5	11.3	11.2	19.2	9.3	15.3		
11	13.6	12.0	12.4	14.2	10.0	8.7	10.9	18.6	15.2	10.6		
12	12.6	11.6	11.7	15.0	9.2	11.4	10.2	19.8	9.9	14.4		
13	12.3	13.1	12.8	16.0	10.6	9.6	10.3	16.3	7.7	15.8		
14	12.2	11.7	11.6	14.2	10.1	9.4	10.5	23.6	8.3	11.7		
15	12.7	12.8	12.3	14.4	8.1	10.6	11.4	19.8	14.4	10.6		
16	12.1	12.4	13.0	15.8	10.8	10.4	10.7	17.1	15.5	8.2		
17	13.3	13.1	12.9	15.4	9.1	10.8	9.8	16.9	10.5	15.4		
18	11.8	12.3	12.9	15.1	9.8	8.5	10.4	20.2	13.4	10.0		
19	12.5	13.8	12.5	15.4	8.1	10.2	11.3	18.0	11.6	11.5		
20	(A) 13.125	13.5	12.7	14.2	9.6	8.8	11.4	18.5	11.0	10.3		
21	13.6	13.3	13.2	13.9	8.4	11.1	10.4	19.8	8.9	10.8		
22	11.5	13.0	12.3	14.4	11.6	10.9	10.3	16.0	13.8	8.9		
23	12.4	12.6	11.7	13.9	11.3	10.1	10.1	18.8	8.2	16.7		
24	12.5	11.5	11.6	15.5	10.4	11.5	10.9	16.9	13.8	10.1		
25	11.5	12.6	12.2	14.8	(A) 11.6	10.8	10.3	16.0	9.7	16.0		
26	12.6	11.8	11.9	14.8	11.1	9.6	11.5	16.2	8.1	17.1		
27	11.8	11.8	12.8	13.9	9.7	10.4	11.3	19.3	16.2	7.6		
28	12.1	12.6	11.8	15.6	9.7	9.9	10.5	17.1	16.4	10.5		
29	13.4	11.6	11.4	14.8	11.6	11.7	10.5	17.1	10.8	10.2		
30	13.1	12.6	13.1	13.6	10.6	11.0	11.6	16.7	(A) 11.0	10.6		
31	12.8	13.1	12.0	13.8	9.8	11.2	11.9	16.1	10.2	11.3		
32	12.8	11.7	12.8	15.3	9.0	9.4	10.7	18.5	7.1	11.9		
33	13.0	13.1	11.8	13.9	8.7	10.5	10.4	18.6	11.3	8.9		
34	12.8	12.2	12.4	14.8	9.3	8.5	11.0	21.7	8.4	8.8		
35	12.5	13.2	13.0	15.2	9.2	8.8	10.9	17.7	9.9	11.1		
36	12.3	11.9	11.9	14.0	8.8	9.4	10.9	20.2	7.4	21.8		

see sheet M.Gray 2012 Jan 4

(A) PH wc 2011 Oct 4

Maxxam Analytics

***Macoma nasuta* Inital Weights**

Customer Name/#: 1399-CRD

Test Start Date and Time: 2011 Oct 4 @ 20:40

Balance ID: BBY2-9015

Project Number: 2-11-1085

Analysts: P. Hawes / M. Gray

Group Number	Individual Macoma Weights (g)										Total Clam Weight with shell(g)	Estimated* Tissue Weight (g)
	1	2	3	4	5	6	7	8	9	10		
37	12.7	13.0	13.3	14.6	8.7	9.6	9.8	18.6	9.7	9.2		
38	13.3	12.2	12.4	15.4	9.1	8.9	10.3	18.5	8.9	10.9		
39	12.8	12.0	12.3	13.5	8.9	8.9	11.0	21.7	8.6	(A) 10.0		
40	11.8	12.0	13.1	14.9	10.6	10.4	10.6	15.8	10.9	8.5		
41	12.5	12.3	13.5	14.4	10.7	10.5	11.5	16.2	8.7	8.9		
42	11.7	12.1	11.6	14.0	10.9	11.0	10.9	15.4	17.5	6.9, 4 (A)		
43	12.4	13.2	12.4	14.1	9.6	10.6	11.4	21.0	8.9	7.9		
44	12.0	12.4	12.9	14.0	8.8	10.2	9.9	24.7	7.6	7.2		
45	11.9	12.5	12.1	15.3	11.7	11.1	11.1	16.1	9.4	8.5		
46	11.9	11.8	12.0	14.2	8.4	8.4	11.8	24.3	8.3	8.4		
47	12.4	13.2	13.9	14.6	11.3	11.8	11.4	16.8	7.1	8.6		
48	12.0	12.5	13.7	15.0	9.5	10.0	10.9	16.2	9.9	8.7		

*Estimated tissue weight based upon a whole clam to tissue conversion factor of 0.18[1]. Target Tissue weight per replicate is 25 ±1 g, therefore The Target Whole Clam Weight is: 25g ÷ 0.18 ~140g.

[1] Kennedy AJ, Lotufo GR, Steevens JA, and TS Bridges. May 2010. United States Army Corp of Engineers. Dredging Operations and Environmental Research Program. ERDC/EL TR-10-2. Vicksburg, MS.

(A) PH we 2011 Oct 4

Maxxam Analytics

Macoma nasuta
Bioaccumulation Test Inital Wet Tissue Weights

Client # & Name: 1299 CRD **Test Date:** 2011 Oct 04

Balance ID: BBY2-0015 **Project #:** 2-11-1085

Test Species: M. nasuta (AR110923MN) **% Biomass as tissue:** ~21.7%

Analysts: [illegible] / M.Gy

Clam #	Clam size (mm)	Whole Clam Weight (g)	Tissue Weight (g)
1	31	10.5	2.23
2	39	22.6	5.39
3	33	13.2	3.20
4	40	22.9	4.61
5	36	16.7	3.24
6	CRD MG	CRD MG	CRD
7			
8	M.Gy 2011Oct03		
9			
10			

Comments: Shell weight(g):-

1	5.09
2	11.78
3	6.60
4	12.68
5	8.26
	MB

Maxxam Analytics

56 day Macoma Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Start Date and Time: 2011 Oct 04 @ 20:40

Project #: 2-11-1085

End Date: 2011 Oct 18

Organism Lot #: AR110929~~NY~~ MN

Biomass per replicate(g): 25±1g

Job#: B192421

Organisms per replicate: 10

Analyst(s): [illegible], D. Greschner, E Chen, [illegible], CTRA

Sample ID: C100 T=14

Sample #: B28687-01

Date	2011 Oct 04	2011 Oct 08	2011 Oct 10	2011 Oct 13	2011 Oct 17
Replicate	A	B	C	D	A
Temp. (ºC)	13.6	13.2	12.7	12.9	12.1
D.O. (mg/L)	8.2	8.2	~~8.0~~ 8.1 (*)	8.7	8.2
pH	7.8	7.9	8.0	7.8	8.1
Salinity (‰)	30	30	30	29	29
Analyst	UB	DG	EC	CT	EC

Replicate	A	B	C	D
# Surviving	10	10	9 (B)	9
Analyst	tr	tr	tr	tr

Ammonia (mg/L)	
Day 0	Day 14
UB 1.7	2.8

(*) WE EC 2011 OCT 10

(B) ~~one missing~~

(B) WE tr 2011 Oct 18

Maxxam Analytics

56 day Macoma Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Start Date and Time: 2011 Oct 04 @

Project #: 2-11-1085

End Date: 2011 Oct 18

Organism Lot #: AR110929 NEW 2012 Jan 11 MN

Biomass per replicate(g) : 25±1 g

Job#: B192421

Organisms per replicate: 10

Analyst(s): D. Greschner NEW 2011 Oct 04 E. Chen ; Doug L. CTRA

Sample ID: C101 T=28/14

Sample #: B286586-01

Date	2011 Oct 04	Oct 08 2011	2011 Oct 10	2011 OCT 13	2011 Oct 17
Replicate	A	B	C	D	A
Temp. (ºC)	13.3	13.3	12.6	13.2	11.9
D.O. (mg/L)	8.3	8.1	8.2	8.4	8.7
pH	7.9	7.9	8.1	7.8	8.2
Salinity (‰)	30	30	31	29	29
Analyst	MB	AG	EC	CT	EC

Replicate	A	B	C	D
# Surviving	10	10	10	10
Analyst	tz	tz	tz	tz

Ammonia (mg/L)	
Day 0	Day 14
✓ MB	2.9

1.1

Maxxam Analytics

56 day Macoma Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Start Date and Time: 2011 Oct 04 @

Project #: 2-11-1085

End Date: 2011 Oct 18

Organism Lot #: AR110929MN (received 2011)

Biomass per replicate(g) : 25±1 g

Job#: B192421

Organisms per replicate: 10

Analyst(s): WBrassil, D. Greschner, EChen, Dang L, CTRA

Sample ID: 2011 Oct 04 TC102 T=14

Sample #: B208689-01

Date	2011 Oct 04	2011 Oct 08	2011 Oct 10	2011 Oct 13	2011 Oct 17
Replicate	A	B	C	D	A
Temp. (ºC)	13.3	13.2	13.3	12.9	12.1
D.O. (mg/L)	8.4	8.3	~~7.4~~ 7.7 (B)	8.4	8.8
pH	7.9	7.68 (A)	~~7.7~~ 7.4 (B)	7.9	8.2
Salinity (‰)	30	30	30	29	29
Analyst	WB	DG	EC	CT	EC

Replicate	A	B	C	D
# Surviving	10	10	10	10
Analyst	DG	DG	DG	DG

(A) WE DG 2011 Oct 08

(B) WE EC OCT 10 2011

Ammonia (mg/L)	
Day 0	Day 14
✓ WB	2.2

0.79

Maxxam Analytics

56 day Macoma Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD
Project #: 2-11-1085
Organism Lot #: AR110929~~NV~~ MN (NEWG 2012 Jan 11)
Job#: B192421
Analyst(s): A Brassil, D. Greschner, E Chen, CTRA
Sample ID: C100 T=28

Start Date and Time: 2011 Oct 04 @ 20:40
End Date: 2011 Nov ~~29~~ 01 (NEWG 2012 Jan 11)
Biomass per replicate(g): 25 ± 1 g
Organisms per replicate: 10
Sample #: BQ8687-01

Date	2011 Oct 04	2011 Oct 08	2011 Oct 10	2011 OCT 13	2011 Oct 17	2011 Oct 20	2011 Oct 24	2011 OCT 27	2011 Oct 31	2011 Nov 01	
Replicate	A	B	C (*)	D	A	B	C	D	A	B	C
Temp. (ºC)	13.6	13.1	13.9	13.0	12.1	13.1	12.6	12.9	12.8	12.0	
D.O. (mg/L)	8.5	8.6	8.2	8.4	8.4	8.5	8.7	8.0	8.4	8.8	
pH	7.8	7.9	7.9	8.0	8.2	8.1	8.1	8.0	7.9	7.9	
Salinity (‰)	30	30	30	29	29	28	28	28	29	29	
Analyst	AB	DG	AB	CT	EC	EC	EC	CT	EC	EC	

(Oct 10 column struck through, NEWG 2012 Jan 11; last column C struck through, NEWG 2012 Jan 11)

(*) WQ measurements for Oct 10 2011 by E.C. on C100 T=28 Rep C: pH = 8.2
Salinity = 30 ‰
DO = 8.1 mg/L
T = 13.5°C

Replicate	A	B	C	D
# Surviving	9	10	10	10
Analyst	AR	EC	AR	AR

Ammonia (mg/L)
Day 28
2.1

Maxxam Analytics

56 day Macoma Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Project #: 2-11-1085

Organism Lot #: AR110929MN

Job#: B192421

Analyst(s): V. Arassil, D. Greschner, E Chen, CT&A

Sample ID: C101 T=28

Start Date and Time: 2011 Oct 04 @ 20:40

End Date: 2011 Nov 01

Biomass per replicate(g) : 25±1g

Organisms per replicate: 10

Sample #: B28686-01

Date	2011 Oct 04	2011 Oct 08	2011 Oct 10	2011 Oct 13	2011 Oct 17	2011 Oct 20	2011 Oct 24	2011 Oct 27	2011 Oct 31	2011 Nov 01	
Replicate	A	B	C	D	A	B	C	D	A	B	C
Temp. (ºC)	13.7	13.3	13.0	13.3	12.7	13.2	12.6	13.0	12.8	11.9	MG 2011 Nov 11
D.O. (mg/L)	8.2	8.5	8.1	8.6	8.5	8.5	8.7	8.4	8.3	8.8	
pH	7.8	7.8	8.1	7.9	8.2	8.1	8.0	8.0	7.9	8.0	
Salinity (‰)	30	30	30	29	29	28	28	28	29	29	
Analyst	VB	DG	EC	CT	EC	EC	EC	CT	EC	EC	

Replicate	A	B	C	D
# Surviving	10	10	10	10
Analyst	AR	AR	EC	EC

Ammonia (mg/L)
Day 28
2.1

Maxxam Analytics

56 day Macoma Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Project #: 2-11-1085

Organism Lot #: AR110929MN

Job#: B192421

Analyst(s): [illegible], D. Greschner, E Chen, [illegible]

Start Date and Time: 2011 Oct 04 @ 20:40

End Date: 2011 Nov 01

Biomass per replicate(g) : 25±1g

Organisms per replicate: 10

Sample ID: C102 T=28

Sample #: B28689-01

Date	2011 Oct 04	2011 Oct 08	2011 Oct 10	2011 Oct 13	2011 Oct 17	2011 Oct 20	2011 Oct 24	2011 Oct 27	2011 Oct 31	2011 Nov 01	
Replicate	A	B	C	D	A	B	C	D	A	B	C
Temp. (ºC)	13.3	13.2	13.4	13.5	12.6	13.0	12.6	12.8	12.4	12.0	
D.O. (mg/L)	8.4	8.3	7.9	8.5	8.6	8.5	8.7	8.5	8.4	8.6	
pH	7.9	7.6	8.1	8.0	8.2	8.0	8.0	8.0	7.9	7.9	
Salinity (‰)	30	30	30	29	29	28	28	28	29	29	
Analyst	[illegible]	[illegible]	EC	CT	EC	EC	EC	CT	EC	EC	MG 2012 Jan

Replicate	A	B	C	D
# Surviving	10	10	9	10
Analyst	/EC	EC	AR / MG	AR

Ammonia (mg/L)
Day 28
2.0

Maxxam Analytics

56 day Macoma Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD
Start Date and Time: 2011 Oct 04 @ 20:40
Project #: 2-11-1085
End Date: 2011 Nov 29
Organism Lot #: AR110929MN
Biomass per replicate(g) : 25 ± 1 g
Job#: B192421
Organisms per replicate: 10
Analyst(s): Brassil, D. Gaeschner, EChen, CRA
Sample ID: C100 T=56
Sample #: B28687-01

Date	2011 Oct04	2011 Oct08	2011 OCT10	2011 OCT 13	2011 Oct17	2011 Oct20	2011 Oct24	2011 OCT 27	2011 Oct31	2011 NOV 03	2011 NOV 07	2011 NOV 10
Replicate	A	B	C	D	A	B	C	D	A	B	C	D
Temp. (ºC)	13.2	13.2	13.2	13.1	12.5	13.2	12.7	12.8	12.4	11.9	12.6	13.0
D.O. (mg/L)	8.4	8.4	8.0	8.5	8.6	8.4	8.6	8.5	8.6	8.6	8.7	7.9
pH	7.9	7.8	8.1	~~8.1~~ 8.0 @	8.2	8.1	8.0	8.1	8.0	8.0	8.0	7.9
Salinity (‰)	30	30	31	~~29~~ 30 @	29	28	28	28	29	30	29	29
Analyst	CB	CB	EC	MG for CT	EC	EC	EC	CT	EC	EC	CT	EC

@ WE 2011 OCT 13 CT

Date	2011 NOV 14	2011 NOV 17	2011 NOV 21	2011 NOV 24	2011 NOV 28	2011 NOV 29
Replicate	A	B	C	D	A	B
Temp. (ºC)	11.7	11.7	12.6	12.8	13.1	12.5
D.O. (mg/L)	8.8	8.6	8.4	8.1	8.3	8.7
pH	7.9	7.8	7.9	8.0	7.7	7.5
Salinity (‰)	30	29	28	29	28	29
Analyst	EC	CT	CT	CT	CT	CT

Replicate	A	B	C	D
# Surviving	~~5~~ 10 @	9	9	10
Analyst	EC	EC	CT	CT

@ WE EC NOV 29 2011

Ammonia (mg/L)
Day 56
2.2

Maxxam Analytics

56 day Macoma Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Start Date and Time: 2011 Oct 04 @ 20:40

Project #: 2-11-1085

End Date: 2011 Nov 29

Organism Lot #: AR110929MN

Biomass per replicate(g) : 25 ± 1 g

Job#: BP2421

Organisms per replicate: 10

Analyst(s): C. Brassil, D. Greschner, ECHen, ORA

Sample ID: C101 T=56

Sample #: B28686-01

Date	2011 Oct 04	2011 Oct 08	2011 Oct 10	2011 OCT 13	2011 Oct 17	2011 Oct 20	2011 Oct 24	2011 OCT 27	2011 Oct 31	2011 NOV 03	2011 NOV 07	2011 NOV 10
Replicate	A	B	C	D	A	B	C	D	A	B	C	D
Temp. (ºC)	13.5	13.5	13.3	13.1	12.3	13.2	12.6	12.9	12.8	12.0	12.5	12.8
D.O. (mg/L)	8.4	8.4	8.1	8.4	8.6	8.5	8.4	8.4	8.3	8.5	8.6	8.5
pH	7.8	7.8	8.1	7.9	8.2	8.1	8.1	8.0	7.9	7.8	8.0	7.9
Salinity (‰)	30	30	30	29	29	28	28	28	29	30	30	29
Analyst	CB	[illegible]	EC	CT	EC	EC	EC	CT	EC	EC	CT	EC

Date	2011 NOV 14	2011 NOV 17	2011 NOV 21	2011 NOV 24	2011 NOV 28	2011 NOV 29
Replicate	A	B	C	D	A	B
Temp. (ºC)	11.9	11.2	12.0	12.7	13.6	12.7
D.O. (mg/L)	8.9	8.8	8.8	8.1	8.0	8.8
pH	7.8	7.8	8.0	8.0	7.8	7.7
Salinity (‰)	30	29	29	29	28	28
Analyst	EC	CT	CT	CT	CT	CT

Replicate	A	B	C	D
# Surviving	5 (2)	10	10	9
Analyst	CT	CT	EC	CT

(2) ING 2011 NOV 29 CT

Ammonia (mg/L)
Day 56
1.4

Maxxam Analytics

56 day Macoma Bioaccumulation Test
Conditions and Survival Data

Client # & Name: 1399 CRD

Start Date and Time: 2011 Oct 04 @ 20:40

Project #: 2?1-1085

End Date: 20

Organism Lot #: AR110929MN

Biomass per replicate(g) : 25±1g

Job#: B192421

Organisms per replicate: 10

Analyst(s): [illegible], D. Greschner, E. Chen, CTRA

Sample ID: C102 T=56

Sample #: B28689-01

Date	2011 Oct 04	2011 Oct 08	2011 Oct 10	2011 Oct 13	2011 Oct 17	2011 Oct 20	2011 Oct 24	2011 Oct 27	2011 Oct 31	2011 Nov 03	2011 Nov 07	2011 Nov 10
Replicate	A	B	C	D	A	B	C	D	A	B	C	D
Temp. (ºC)	13.6	13.1	13.0	13.3	12.5	13.0	12.5	12.9	12.6	12.0	12.1	13.0
D.O. (mg/L)	8.2	8.6	8.2	8.4	8.6	8.6	8.8	8.3	8.4	8.4	8.8	8.4
pH	7.8	7.8	8.1	8.0	8.2	8.1	8.1	8.1	7.9	~~7.7~~	8.0	7.9
Salinity (‰)	30	31	31	29	29	28	28	28	29	30	30	30
Analyst	[illegible]	DG	EC	CT	EC	EC	EC	CT	EC	EC	CT	EC

Date	2011 Nov 14	2011 Nov 17	2011 Nov 21	2011 Nov 24	2011 Nov 28	2011 Nov 29
Replicate	A	B	C	D	A	B
Temp. (ºC)	11.9	11.8	12.7	12.4	13.8	12.4
D.O. (mg/L)	8.9	8.8	8.6	8.4	8.1	8.8
pH	7.8	7.8	8.0	8.1	7.9	7.8
Salinity (‰)	29	29	28	29	28	28
Analyst	EC	CT	CT	CT	CT	CT

Replicate	A	B	C	D
# Surviving	10 ~~5~~ (A)	10	9	9
Analyst	CT	EC	CT	EC

(A) WE 2011 NOV 29 CT

Ammonia (mg/L)
Day 56
1.5

Macoma Test Observations

Date: 2011 Oct 04 Sample ID's: Various

Client # & Name: 1391 CRD Project No. 2-11-1085

2011 Oct04 - Some macoma immediately burrowing into sediment after MG test seeding @ 20:40. Some small (2mm diameter) sea snails present in sample C102. T=0 replicates set to purge in seawater only @ ~15:30. 2011 Oct04 MG

2011 Oct 05 - One macoma not buried, but alive in reps: MG
C100 T=56 rep A
C100 T=56 rep B (2 clams)
C100 T=28 Rep B
C100 T=56 rep C
C101 T=56 rep B
C100 T=28 rep D (3 clams) - one clam may be deceased.
C102 T=14 rep C
C100 T=14 rep C (2 clams) 2011 Oct05 MG

20110ct06 - One macoma not buried in C100 T=56 Rep B.
- One macoma not buried in C100 T=28 Rep D, not deceased, fungal growth present.
- Possible fungal growth present in C102 T=28 Rep B.
20110ct06 JB

20110ct07 ~~- Same as yesterday for macoma in C100 T=28 Rep D~~ WE LT20110407
- Same as yesterday for one macoma in C100 T=28 Rep D
- macoma in C100 T=56 Rep B is now buried
- don't see fungal growth in C102 T=28 Rep B
- C100 T=14 Rep C one macoma above sand
20110ct07

2011 OCT 10 C100 Rep B T=56, one Macoma not in sand EC
2011 Oct 11 C100 Rep B T=56, macoma half buried CT
2011 Oct 12 C100 Rep C T=14, 1 unburied macoma CT
" C101 Rep B T=28, 1 macoma half buried CT
2011 Oct 12 C100 Rep A, 1 Macoma not in sand (T=28) EC
2011 Oct 12 C102 Rep C (T=28), 1 macoma open fully & not in sand EC

Macoma Test Observations

Date: 2011 Oct 04 Sample ID's: various

Client # & Name: 1399 CRD Project No. 2-11-1085

2011 Oct 12 C101 Rep B (T=28), 1 macoma not in sand EC
2011 Oct 12 C100 Rep C (T=28), white film patch present in tank EC
- also in C100 Rep D T=56 & C100 T=28 Rep D, C100 Rep B T=28 (CT) & EC
2011 OCT 13 C100 T=28 Rep A, 1 Dead Macoma discarded CT
2011 OCT 14 C100 T=14 Rep C, 1 Dead Macoma discarded CT
C102 T=28, Rep C, 1 Dead Macoma discarded CT
2011 Oct 15 all clams burried in sediment. MG
2011 Oct 17 - C102 T=56 Rep A very murky compared to other C102 T=56 Reps } EC
- C100 T=56 Rep C has one clam not buried in sed
- C100 T=14 Rep C has one clam not buried in sed
2011 OCT 18 - C100 T=14 Rep D 1 clam open, unburied & alive CT
C100 T=14 Rep C, 1 Macoma closed & unburied CT
C100 T=56 Rep C, 1 Macoma closed & unburied CT
2011 Oct 18 final WQ for T=14 samples: (rep B) tk
C100: T=12.8°C; pH=~~7.8~~ 7.6; DO(mg/L) = 8.5; sal(ppt) = ~~28~~ 27.9
C101: T=12.1°C; pH=7.8; DO(mg/L) = ~~8.0~~ 8.2; sal (ppt) = 28.3
C102: T=12.6°C; pH=9.8; DO(mg/L) = 8.4; sal (ppt) = 27.8
~~WQ~~ 2011 Oct 18
C100 T=14 ⇒ Rep D, 1 dead and discarded tk
2011 Oct 19 - Macoma T=14 purge process completed. All organisms rinsed off w DI H_2O. Adductor muscle cut, then rinsed tissues w DI H_2O. Blotted dry w Kimwipe tissue and transfered to pre-weighed AG 1L jars. wet weights as follows: M1E - 390g; M2E - 416g; M8E - 414g; Freezer 352g WB.
2011 Oct 20 → C100 T=28 Rep A shows similar red-orange film at sed surface but all macoma buried well in that tank EC
→ C100 T=56 one clam not buried EC
2011 OCT 21 C100 T=56 Rep C 1 Macoma unburied CT
C101 T=56 Rep C 2 Macomas unburied CT
2011 Oct 23 all Macoma buried - EC
→ except one (didn't see) for tank C101 T=56 Rep A, still alive EC

2011 OCT 25 C102 T=28, Rep A, one Macoma closed on surface CT
2011 OCT 27 C101 T=56 1 Macoma dead discarded CT

backpg!

2011 oct 28 – one Macoma not buried C100 T=56 Rep c (EC)

2011 oct 31 – one Macoma not buried in C100 T=56 Rep c

(EC) – one Macoma not buried in C100 T=56 Rep D

– one Macoma not buried + opened in C101 T=28 Rep C

– non-responsive to gentle prodding

– flesh almost disintegrated upon movement; removed from tank

M.Coy 2011 Dec 15

Macoma Test Observations

Date: 2011 Nov 02 Sample ID's: Various

Client # & Name: _____ Project No. 2-11-1085

2011 Nov 02 - Macoma T = 28D purge process completed. All organisms rinsed w DI H_2O. Adductor muscles were cut w a new disposable scalpel. Shells were prized partially open - internal tissues rinsed w DI H_2O. Blotted dry on Kim Wipes. Transferred to pre weighed 1L AG jars. Wet weights as follows: M1E - 387.2g; M2E - 386.5g; M3E - 394.2g. Freezer 3521 LLB.

~~2011 NOV02 → C102 Rep A one Nereis not buried EC~~ WE EC NOV05 2011

2011 NOV 04 → C102 Rep B 56-D, 3 macomas unburied CT

2011 NOV 05 → C102 Rep D one Macoma not buried & slightly opened EC

→ C102 Rep B one Macoma shell opened but appendage still moving from it EC

2011 NOV 10 → T=56 C102 Rep B one dead Macoma removed EC

↳ C102 Rep D one Macoma open but appendage still moving; T=56 low response to gentle prodding EC

2011 NOV 14 - C102 Rep D one Macoma removed + one greenfly removed EC
T56 (dead) (dead)

- C100 Rep B one dead Macoma removed

2011 NOV 15 - C101 Rep B T56, one Macoma unburied EC

- All C102 Reps T56 for Macoma Bioaccum. are cloudy whereas C102 tanks for Nereis look relatively clear EC

2011 NOV 17 - C102 T56 Rep C one dead Macoma removed EC

2011 NOV 21 - C100 Rep C T56, one dead Macoma removed CT

2011 NOV 30 - Macoma T=56 purge process completed. All organisms rinsed with DI, adductor muscle cut & rinsed tissue with DI. Macomas blotted dry with kimwipe & transferred to pre-weighed 1L jars. Wet weights: C100 = 365g, C101 = 388g, C102 = 380g CT placed in freezer 3521

Maxxam Analytics

Macoma nasuta 56 Day Bioaccumulation Test
Aeration Checks

Client # & Name: 1399 CRD

Start Date & Time: 2011 Oct 04 @ 20:40

Initial when aeration is checked. If air is off record DO and note which replicate(s) in comments section.

	Day -1	0	1	2	3	4	5	6	7	8
Date	2011 Oct 03	2011 Oct 04	2011 Oct 05	2011 Oct 06	2011 Oct 07	2011 Oct 08	2011 Oct 09	2011 Oct 10	2011 OCT 11	2011 Oct 12
Early AM		MG	NS	NS	NS	[illegible]	[illegible]	EC	CT	CT
Mid-day		MG	EC	AR	MG	[illegible]	[illegible]	EC	CT	EC
Late PM	MG	MG	CT	AR	MG	[illegible]	[illegible]	EC	CT	EC

	Day 9	10	11	12	13	14	15	16	17	18
Date	2011 OCT 13	2011 OCT 14	2011 Oct 15	2011 Oct	2011 OCT 17	2011 OCT 18	2011 Oct 19	2011 Oct 20	2011 OCT 21	N/A
Early AM	CT	CT	MG	DML	EC	CT	MG	EC	CT	N/A
Mid-day	CT	CT	MG	DML	EC	MG	MG	EC	CT	N/A
Late PM	CT	CT	MG	DML	EC	MG	MG	CT	CT	N/A

	Day 19	20	21	22	23	24	25	26	27	28
Date	2011 Oct 23	2011 Oct 24	2011 Oct 25	2011 Oct 26	2011 Oct 27	2011 OCT 28	2011 Oct 29	2011 Oct 30	2011 Oct 31	2011 NOV 01
Early AM	EC	LT	EC	CT	CT	CT	CT	DML	EC	CT
Mid-day	EC	EC	EC	NA	CT	EC	CT	DML	EC	CT
Late PM	EC	EC	CT	EC	CT	CT	CT	DML	EC	CT

Comments:

N/A 2012 Jan 11

Maxxam Analytics

Macoma nasuta 56 Day Bioaccumulation Test
Aeration Checks

Client # & Name: 1399 CRD

Start Date & Time: 2011 Oct 04 @ 20:40

Initial when aeration is checked. If air is off record DO and note which replicate(s) in comments section.

	Day 29	30	31	32	33	34	35	36	37	38
Date	2011 NOV 02	2011 NOV 03	2011 NOV 04	2011 NOV 05		2011 NOV 07	2011 NOV 08	2011 NOV 09	2011 NOV 10	2011 NOV 11
Early AM		CT	EC	EC		LT	AR	CT	EC	NS
Mid-day		EC	EC	CT		CT	AR	CT	EC	NS
Late PM	EC	EC	CT	CT		CT	AR	CT	EC	NS

	Day 39	40	41	42	43	44	45	46	47	48
Date	2011 NOV 12	2011 NOV 13	2011 NOV 14	2011 NOV 15	2011 NOV 16	2011 NOV 17	2011 NOV 18	2011 NOV 19	2011 NOV 20	2011 NOV 21
Early AM			EC	EC	EC	EC	EC	DML		CT
Mid-day	NS		EC	EC	EC	EC	CT	DML		CT
Late PM	N/A		EC	EC	EC	EC	EC	NS		CT

	Day 49	50	51	52	53	54	55	56
Date	2011 NOV 22	2011 NOV 23	2011 NOV 24	2011 NOV 25	2011 NOV 26	2011 NOV 27	2011 NOV 28	2011 NOV 29
Early AM	CT	CT	CT	CT	DML		CT	CT
Mid-day	CT	CT	CT	CT	DML		CT	
Late PM	CT	CT	LT	EC	DML		EC	

Comments:

C102 Rep D. - 1 dead macoma - shell wide open and on surface of sediment LT 2011 NOV 07

C102 Rep B - looks very cloudy LT 2011 NOV 07 compared to others in C102.

M.Lay 2012 Jan 11

Maxxam Analytics **Randomization Chart for Macoma Seeding**

Client Name and #: 1399 CRD
Project #: 2-11-1085
Maxxam Job #: B192421

Test Type: 56-d Bioaccumulation
Test Species: M. nasuta
Test Start Date: 2011 Oct 04

Group #	Treatment	Replicate	Group #	Treatment	Replicate
27	C100 T=0	A	19	C101 T=56	A
7	C100 T=0	B	48	C101 T=56	B
35	C100 T=0	C	6	C101 T=56	C
40	C100 T=0	D	46	C101 T=56	D
12	C100 T=14	A	9	C102 T=0	A
23	C100 T=14	B	33	C102 T=0	B
37	C100 T=14	C	5	C102 T=0	C
43	C100 T=14	D	25	C102 T=0	D
8	C100 T=28	A	11	C102 T=14	A
34	C100 T=28	B	2	C102 T=14	B
4	C100 T=28	C	20	C102 T=14	C
47	C100 T=28	D	13	C102 T=14	D
21	C100 T=56	A	41	C102 T=28	A
17	C100 T=56	B	36	C102 T=28	B
3	C100 T=56	C	26	C102 T=28	C
42	C100 T=56	D	38	C102 T=28	D
45	C101 T=0	A	15	C102 T=56	A
1	C101 T=0	B	14	C102 T=56	B
39	C101 T=0	C	32	C102 T=56	C
22	C101 T=0	D	16	C102 T=56	D
24	C101 T=14	A			
29	C101 T=14	B			
30	C101 T=14	C			
31	C101 T=14	D			
44	C101 T=28	A			
18	C101 T=28	B			
28	C101 T=28	C			
10	C101 T=28	D			

Note: Group number corresponds to the group of 10 macoma seeded into each replicate.

(Bioaccumulation Tests)

Client Name and #: 1399 CRD

Project #: 21-1085

Maxxam Job #: B192421

Test Type: 56-d Macoma

Test Species: Macoma nasuta

Test Start Date: 2011 Oct 05

Instructions: please follow the position map below when placing vessels on the test bench.

Back Wall

5	10	↑			
4	9				
3	8	13			
2	7	12			
1	6	11	→	→	→

Left — Front of Counter — Right

Position #	Treatment	Replicate	Colour
5	C100 (T=14)	A	Red
7	C100 (T=14)	B	Red
9	C100 (T=14)	C	Red
10	C100 (T=14)	D	Red
6	C101 (T=14)	A	Orange
1	C101 (T=14)	B	Orange
12	C101 (T=14)	C	Orange
4	C101 (T=14)	D	Orange
8	C102 (T=14)	A	Yellow
2	C102 (T=14)	B	Yellow
3	C102 (T=14)	C	Yellow
11	C102 (T=14)	D	Yellow

Client Name and #: #1399 CRD

Project #: 2-11-1085

Maxxam Job #: B192421

Test Type: (Bioaccumulation Test) 56-day Macoma

Test Species: Macoma nasuta

Test Start Date: 2011 Oct 05

Instructions: please follow the position map below when placing vessels on the test bench.

Back Wall

5	10	↑			
4	9				
3	8	13			
2	7	12			
1	6	11	→	→	→

Left — Front of Counter — Right

Position #	Treatment	Replicate	Colour	Position #	Treatment	Replicate	Colour
1	C100 (T=28)	A	Red	22	C102 (T=56)	A	Purple
7	C100 (T=28)	B	Red	6	C102 (T=56)	B	Purple
17	C100 (T=28)	C	Red	18	C102 (T=56)	C	Purple
24	C100 (T=28)	D	Red	14	C102 (T=56)	D	Purple
3	C100 (T=56)	A	Orange				
8	C100 (T=56)	B	Orange				
13	C100 (T=56)	C	Orange				
20	C100 (T=56)	D	Orange				
16	C101 (T=28)	A	Yellow				
12	C101 (T=28)	B	Yellow				
19	C101 (T=28)	C	Yellow				
11	C101 (T=28)	D	Yellow				
23	C101(T=56)	A	Green				
15	C101(T=56)	B	Green				
9	C101(T=56)	C	Green				
21	C101(T=56)	D	Green				
2	C102 (T=28)	A	Blue				
4	C102 (T=28)	B	Blue				
10	C102 (T=28)	C	Blue				
5	C102 (T=28)	D	Blue				

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

MaxXam

Organism: Macoma nasuta
Organism Lot #: AR110929MN
Supplier: ARO
Customer #: 1399

Arrival Date & Time: 2011 Sept 29 @ 11:00
Age upon Arrival: adult
Ordered: ~900
Study/Project # : 2-11-1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
1,2	0	5	n/a*	n/a*	n/a*	n/a*	none	MC

Container ID: Tank A

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
2011 Sep 30	0	0	31	13.6	7.8	8.3		MC
2011 Oct 01	0	0	29.6	13.8	7.7	8.4		MC
2011 Oct 02	0	0	30.0	13.5	7.9	8.4		MC
2011 Oct 03	0	0	30	13.8	7.9	8.3		MC
			M.C. 04 2011 Oct 05					

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
* clams shipped in 2 net bags on ice. 5 clams were discarded with cracked shells. Clams were placed in Mackenzie beach sand w ~55L of aerated, seawater.	MC	2011 Sept 29
80% H2O Δ @ ~10:30	MC	2011 Sept 30
50% H2O Δ @ 11:30	MC	2011 Oct 03
M.C. 04 2011 Oct 05		

Revision: 01
Revision Date: March 25, 2010
Document Control Number: 80-F-089-01

Form approved by: Janet Pickard
Effective date: Apr 01, 2010

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

MaxXam

Organism: Macoma nasuta
Organism Lot #: 110929MN
Supplier: ARO
Customer #: 1399

Arrival Date & Time: 2011 Sept 29 @ 11:00
Age upon Arrival: adult
Ordered: ~900
Study/Project # : 2-11-1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
1,2	0	5	n/a*	n/a*	n/a*	n/a*	no	MG

Container ID: Tank B

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
2011Sept30	0	0	31	13.4	7.8	8.3		CB
2011Oct01	0	0	29.5	13.8	7.7	8.4		CB
2011Oct02	0	0	30.0	13.4	7.9	8.3		CB
2011Oct03	0	0	30	13.7	7.9	8.4		CB

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
* clams shipped on ice in two net bags. 5 clams discarded w/ shell damage. Healthy clams placed in Mackenzie beach sand w/ 55 L of overlying seawater	MG	2011 Sept 29
80% H2O Δ @ ~ 10:30	CB	2011 Sept 30
50% H2O @ 11:30	CB	2011 Oct 03

Revision: 01
Revision Date: March 25, 2010
Document Control Number: 80-F-089-01

Form approved by: Janet Rickard
Effective date: Apr 01, 2010

ECOTOXICOLOGY
ACCLIMATION AND HOLDING CONDITIONS

MaxXam

Organism: Macoma Nasuta
Organism Lot #: 110929MN
Supplier: ARO
Customer #: 1399

Arrival Date & Time: 2011 Sept 29 @ 11:00
Age upon Arrival: adult
Ordered: ~900
Study/Project # : 2-11-1085

Arrival Conditions

Bag ID	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
L,2	0	5	n/a *	n/a *	n/a *	n/a *	no	MG

Container ID: Tank C

Daily Conditions During Holding/Acclimation

	Observations		Water Quality					
Date	# Dead	# Inactive	Salinity (‰) OR Conductivity (µS/cm)	Temperature (°C)	pH	DO (mg/L)	Feeding	Analyst
2011 Sept 30	0	0	31	13.4	7.9	8.5		CB
2011 Oct 01	0	0	29.6	13.2	7.7	8.6		CB
2011 Oct 02	0	0	29.9	12.8	8.0	8.7		CB
2011 Oct 03	0	0	30	13.2	8.0	8.4		CB

Comments (e.g., feeding times and quantities, behaviour, acclimation conditions):	Analyst	Date
* Clams shipped in two net bags on ice. 5 clams discarded as cracked shells. Healthy clams placed in tank w Mackenzie Beach sand.	MG	29 Sept 11
	MG	29 Sept 11
	MG	29 Sept 11
80% H2O @ ~10:30	CB	2011 Sept 30
50% H2O @ 11:30	CB	2011 Oct 03

Revision: 01
Revision Date: March 25, 2010
Document Control Number: 80-F-089-01

Form approved by: Janet Pickard
Effective date: Apr 01, 2010

Maxxam

Success Through Science

Maxxam Job #: B194704
Report Date: 2011/10/07

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085 MACOAIA DAY 0
Site Location: ECOTOX
Sampler Initials: MB

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BS4888	BS4889		BS4890	
Sampling Date		2011/10/04 16:00	2011/10/04 16:00		2011/10/04 16:00	
COC#		G047253	G047253		G047253	
	Units	**C100 T=0**	**C101 T=0**	**RDL**	**C102 T=0**	**RDL**
Nutrients						
Ammonia (N)	mg/L	1.7	1.1	0.01	0.79	0.005

RDL = Reportable Detection Limit

Maxxam Job #: B1A1754
Report Date: 2011/10/27

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085 BIOACCUMULATION SED
Site Location: NA

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		BX0045	BX0046		BX0047		BX0048		BX0049	BX0050	
Sampling Date		2011/10/18 11:45	2011/10/18 11:45		2011/10/18 11:45		2011/10/19		2011/10/19	2011/10/19	
COC#		G047284	G047284		G047284		G047284		G047284	G047284	
	Units	**C101 OVERLY MACOMA**	**C100 OVERLY MACOMA**	**RDL**	**C102 OVERLY MACOMA**	**RDL**	**C100 OVERLY NEREIS**	**RDL**	**C101 OVERLY NEREIS**	**C102 OVERLY NEREIS**	**RDL**
Nutrients											
Ammonia (N)	mg/L	2.9	2.8	0.05	2.2	0.03	2.4	0.05	2.8	2.0	0.03

RDL = Reportable Detection Limit

Maxxam

Success Through Science

Maxxam Job #: B1A7066
Report Date: 2011/11/10

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085 CRD

Your P.O. #: 2-11-1085

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		CA6280	CA6281	CA6282	
Sampling Date		2011/11/01 09:40	2011/11/01 09:40	2011/11/01 09:40	
COC#		G047727	G047727	G047727	
	Units	**C100 OVERLY MACOMA**	**C101 OVERLY MACOMA**	**C102 OVERLY MACOMA**	**RDL**
Nutrients					
Ammonia (N)	mg/L	2.1	2.1	2.0	0.03

RDL = Reportable Detection Limit

Maxxam Job #: B1B6295
Report Date: 2011/12/06

Maxxam Analytics (TOX Internal)
Client Project #: 2-11-1085 MACOMA 56-D #1399

Your P.O. #: 2-11-1085

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		CG3171		CG3172	CG3173	
Sampling Date		2011/11/29 14:45		2011/11/29 14:45	2011/11/29 14:45	
COC#		G047993		G047993	G047993	
	Units	**C100 OVERLY MACOMA**	**RDL**	**C101 OVERLY MACOMA**	**C102 OVERLY MACOMA**	**RDL**
Nutrients						
Ammonia (N)	mg/L	2.2	0.025	1.4	1.5	0.010

RDL = Reportable Detection Limit

Maxxam

Success Through Science

Maxxam Job #: B1C2946
Report Date: 2012/01/17

CAPITAL REGIONAL DISTRICT
Client Project #: BIOACCUMULATION (MACOMA)

Sampler Initials: TI

RESULTS OF CHEMICAL ANALYSES OF TISSUE

Maxxam ID		CH4399		CH4400		CH4401	CH4402	CH4403	CH4404		CH4405		
Sampling Date		2011/12/01		2011/12/01		2011/12/01	2011/12/01	2011/12/01	2011/12/01		2011/12/01		
	Units	**M1E T=0 (MACOMA)**	**RDL**	**M2E T=0 (MACOMA)**	**RDL**	**M8E T=0 (MACOMA)**	**M1E T=14 (MACOMA)**	**M1E T=14 (MACOMA) DUP**	**M1E T=14 (MACOMA) TRIP**	**RDL**	**M2E T=14 (MACOMA)**	**RDL**	**QC Batch**
Metals													
Hex. Chromium (Cr 6+)	mg/kg	<4.0(1)	4.0	<5.0(1)	5.0	<4.0(2)	<4.0(1)	<4.0(1)	<4.0(1)	4.0	<5.0(1)	5.0	5483942
Parameter													
Lipid Content	%	7.6	0.1	7.7	0.1	20.0	6.5	7.3	6.1	0.1	5.6	0.1	5485924

Maxxam ID		CH4406	CH4407		CH4408	CH4409		CH4410		CK5530	CK5531		
Sampling Date		2011/12/01	2011/12/01		2011/12/01	2011/12/01		2011/12/01		2011/12/01	2011/12/01		
	Units	**M8E T=14 (MACOMA)**	**M1E T=28 (MACOMA)**	**RDL**	**M2E T=28 (MACOMA)**	**M8E T=28 (MACOMA)**	**RDL**	**M1E T=56 (MACOMA)**	**RDL**	**M2E T=56 (MACOMA)**	**M8E T=56 (MACOMA)**	**RDL**	**QC Batch**
Metals													
Hex. Chromium (Cr 6+)	mg/kg	<4.0(1)	<4.0(1)	4.0	<5.0(1)	<5.0(1)	5.0	<4.0(1)	4.0	<6.0(2)	<6.0(1)	6.0	5483942
Parameter													
Lipid Content	%	8.5	9.9	0.1	5.4	10.3	0.1	6.0	0.1	6.4	9.0	0.1	5485924

RDL = Reportable Detection Limit
(1) - Detection limits raised due to high moisture content.
(2) - Matrix spike exceeds acceptance limits due to matrix interference. Re-analysis yields similar results. Detection limits raised due to high moisture content.

Maxxam

Success Through Science

Maxxam Job #: B1C2946
Report Date: 2012/01/17

CAPITAL REGIONAL DISTRICT
Client Project #: BIOACCUMULATION (MACOMA)

Sampler Initials: TI

ELEMENTS BY ATOMIC SPECTROSCOPY - DRY WT (TISSUE)

Maxxam ID		CH4399	CH4400	CH4401	CH4402	CH4403	CH4404	CH4405	CH4406	CH4407		
Sampling Date		2011/12/01	2011/12/01	2011/12/01	2011/12/01	2011/12/01	2011/12/01	2011/12/01	2011/12/01	2011/12/01		
	Units	**M1E T=0 (MACOMA)**	**M2E T=0 (MACOMA)**	**M8E T=0 (MACOMA)**	**M1E T=14 (MACOMA)**	**M1E T=14 (MACOMA) DUP**	**M1E T=14 (MACOMA) TRIP**	**M2E T=14 (MACOMA)**	**M8E T=14 (MACOMA)**	**M1E T=28 (MACOMA)**	**RDL**	**QC Batch**
Total Metals by ICPMS												
Total Aluminum (Al)	mg/kg	148	194	142	707	644	731	835	827	736	5	5467447
Total Antimony (Sb)	mg/kg	0.075	0.073	0.072	0.129	0.125	0.131	0.100	0.089	0.129	0.005	5467447
Total Arsenic (As)	mg/kg	17.5	19.6	18.5	19.7	19.3	20.0	18.8	17.4	20.8	0.05	5467447
Total Beryllium (Be)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	5467447
Total Cadmium (Cd)	mg/kg	0.35	0.32	0.33	0.32	0.32	0.35	0.33	0.29	0.36	0.01	5467447
Total Chromium (Cr)	mg/kg	1.2	1.6	0.8	2.1	2.2	2.3	3.2	2.7	3.6	0.5	5467447
Total Copper (Cu)	mg/kg	16.8	15.4	14.3	17.4	16.7	19.2	16.6	14.9	18.2	0.05	5467447
Total Iron (Fe)	mg/kg	770	803	732	1940	1810	2100	1910	1820	2080	10	5467447
Total Lead (Pb)	mg/kg	1.21	1.12	1.03	5.18	5.65	5.08	3.64	9.73	5.60	0.03	5467447
Total Magnesium (Mg)	mg/kg	3950	4340	3750	3740	3730	3810	3900	3680	4090	10	5467447
Total Manganese (Mn)	mg/kg	6.2	7.0	5.6	11.8	11.9	12.8	14.0	14.7	13.9	0.3	5467447
Total Mercury (Hg)	mg/kg	0.12	0.11	0.11	0.11	0.10	0.11	0.12	0.11	0.12	0.05	5467447
Total Nickel (Ni)	mg/kg	2.5	2.5	2.4	4.2	4.3	4.3	4.2	3.4	5.8	0.5	5467447
Total Selenium (Se)	mg/kg	1.90	1.90	1.90	1.85	1.81	1.91	1.83	1.77	1.97	0.05	5467447
Total Silver (Ag)	mg/kg	0.21	0.19	0.15	0.19	0.18	0.20	0.19	0.17	0.20	0.02	5467447
Total Thallium (Tl)	mg/kg	0.008	0.007	0.008	0.010	0.010	0.011	0.010	0.009	0.012	0.002	5467447
Total Zinc (Zn)	mg/kg	86.1	78.1	75.6	78.3	78.8	81.6	84.0	73.5	87.9	0.5	5467447

RDL = Reportable Detection Limit

Maxxam

Success Through Science

Maxxam Job #: B1C2946
Report Date: 2012/01/17

CAPITAL REGIONAL DISTRICT
Client Project #: BIOACCUMULATION (MACOMA)

Sampler Initials: TI

ELEMENTS BY ATOMIC SPECTROSCOPY - DRY WT (TISSUE)

Maxxam ID		CH4408	CH4409	CH4410		CK5530	CK5531		
Sampling Date		2011/12/01	2011/12/01	2011/12/01		2011/12/01	2011/12/01		
	Units	**M2E T=28 (MACOMA)**	**M8E T=28 (MACOMA)**	**M1E T=56 (MACOMA)**	**QC Batch**	**M2E T=56 (MACOMA)**	**M8E T=56 (MACOMA)**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	987	1030	1050	5467447	943	1200	5	5473483
Total Antimony (Sb)	mg/kg	0.107	0.103	0.163	5467447	0.163	0.115	0.005	5473483
Total Arsenic (As)	mg/kg	18.6	18.5	23.2	5467447	20.6	24.3	0.05	5473483
Total Beryllium (Be)	mg/kg	<0.1	<0.1	<0.1	5467447	<0.1	<0.1	0.1	5473483
Total Cadmium (Cd)	mg/kg	0.35	0.31	0.30	5467447	0.39	0.36	0.01	5473483
Total Chromium (Cr)	mg/kg	2.9	2.6	3.1	5467447	2.7	4.3	0.5	5473483
Total Copper (Cu)	mg/kg	17.3	17.3	20.2	5467447	19.0	18.7	0.05	5473483
Total Iron (Fe)	mg/kg	2130	2100	2370	5467447	2150	2420	10	5473483
Total Lead (Pb)	mg/kg	4.81	2.64	6.84	5467447	5.11	3.40	0.03	5473483
Total Magnesium (Mg)	mg/kg	3730	4160	3630	5467447	4000	4840	10	5473483
Total Manganese (Mn)	mg/kg	14.9	16.3	13.0	5467447	14.6	17.2	0.3	5473483
Total Mercury (Hg)	mg/kg	0.14	0.12	0.12	5467447	0.13	0.15	0.05	5473483
Total Nickel (Ni)	mg/kg	4.1	4.0	5.4	5467447	4.8	5.5	0.5	5473483
Total Selenium (Se)	mg/kg	1.80	1.84	2.15	5467447	2.08	2.28	0.05	5473483
Total Silver (Ag)	mg/kg	0.20	0.20	0.20	5467447	0.23	0.24	0.02	5473483
Total Thallium (Tl)	mg/kg	0.011	0.009	0.011	5467447	0.010	0.009	0.002	5473483
Total Zinc (Zn)	mg/kg	79.5	83.6	83.6	5467447	95.9	85.1	0.5	5473483

RDL = Reportable Detection Limit

Maxxam Job #: B1C2946
Report Date: 2012/01/17

CAPITAL REGIONAL DISTRICT
Client Project #: BIOACCUMULATION (MACOMA)

Sampler Initials: TI

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		CH4399	CH4400	CH4401	CH4402	CH4403	CH4404	CH4405	CH4406		
Sampling Date		2011/12/01	2011/12/01	2011/12/01	2011/12/01	2011/12/01	2011/12/01	2011/12/01	2011/12/01		
	Units	**M1E T=0 (MACOMA)**	**M2E T=0 (MACOMA)**	**M8E T=0 (MACOMA)**	**M1E T=14 (MACOMA)**	**M1E T=14 (MACOMA) DUP**	**M1E T=14 (MACOMA) TRIP**	**M2E T=14 (MACOMA)**	**M8E T=14 (MACOMA)**	**RDL**	**QC Batch**
Total Metals by ICPMS											
Total Aluminum (Al)	mg/kg	24	31	23	119	113	121	137	141	1	5472051
Total Antimony (Sb)	mg/kg	0.012	0.011	0.012	0.022	0.022	0.022	0.016	0.015	0.001	5472051
Total Arsenic (As)	mg/kg	2.88	3.07	3.01	3.31	3.38	3.30	3.08	2.97	0.01	5472051
Total Beryllium (Be)	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	5472051
Total Cadmium (Cd)	mg/kg	0.058	0.050	0.054	0.054	0.056	0.058	0.054	0.049	0.002	5472051
Total Chromium (Cr)	mg/kg	0.2	0.2	0.1	0.3	0.4	0.4	0.5	0.5	0.1	5472051
Total Copper (Cu)	mg/kg	2.76	2.41	2.32	2.93	2.93	3.16	2.73	2.56	0.01	5472051
Total Iron (Fe)	mg/kg	126	126	119	326	317	347	313	311	2	5472051
Total Lead (Pb)	mg/kg	0.198	0.176	0.167	0.871	0.989	0.838	0.596	1.66	0.006	5472051
Total Magnesium (Mg)	mg/kg	647	682	612	628	653	629	640	630	2	5472051
Total Manganese (Mn)	mg/kg	1.02	1.09	0.91	1.99	2.09	2.11	2.30	2.51	0.05	5472051
Total Mercury (Hg)	mg/kg	0.019	0.017	0.018	0.018	0.017	0.018	0.020	0.019	0.009	5472051
Total Nickel (Ni)	mg/kg	0.4	0.4	0.4	0.7	0.8	0.7	0.7	0.6	0.1	5472051
Total Selenium (Se)	mg/kg	0.31	0.30	0.31	0.31	0.32	0.31	0.30	0.30	0.01	5472051
Total Silver (Ag)	mg/kg	0.035	0.030	0.025	0.032	0.031	0.033	0.031	0.029	0.004	5472051
Total Thallium (Tl)	mg/kg	0.0014	0.0011	0.0012	0.0017	0.0018	0.0018	0.0016	0.0016	0.0004	5472051
Total Zinc (Zn)	mg/kg	14.1	12.3	12.3	13.2	13.8	13.5	13.8	12.6	0.1	5472051

RDL = Reportable Detection Limit

Maxxam Job #: B1C2946
Report Date: 2012/01/17

CAPITAL REGIONAL DISTRICT
Client Project #: BIOACCUMULATION (MACOMA)

Sampler Initials: TI

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		CH4407	CH4408	CH4409	CH4410	CK5530	CK5531		
Sampling Date		2011/12/01	2011/12/01	2011/12/01	2011/12/01	2011/12/01	2011/12/01		
	Units	M1E T=28 (MACOMA)	M2E T=28 (MACOMA)	M8E T=28 (MACOMA)	M1E T=56 (MACOMA)	M2E T=56 (MACOMA)	M8E T=56 (MACOMA)	RDL	QC Batch
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	124	171	174	179	152	172	1	5472051
Total Antimony (Sb)	mg/kg	0.022	0.019	0.017	0.028	0.026	0.017	0.001	5472051
Total Arsenic (As)	mg/kg	3.50	3.22	3.13	3.97	3.31	3.50	0.01	5472051
Total Beryllium (Be)	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	5472051
Total Cadmium (Cd)	mg/kg	0.061	0.061	0.053	0.052	0.063	0.051	0.002	5472051
Total Chromium (Cr)	mg/kg	0.6	0.5	0.4	0.5	0.4	0.6	0.1	5472051
Total Copper (Cu)	mg/kg	3.05	2.99	2.93	3.45	3.06	2.70	0.01	5472051
Total Iron (Fe)	mg/kg	349	369	354	405	346	349	2	5472051
Total Lead (Pb)	mg/kg	0.941	0.832(1)	0.446	1.17	0.823	0.490	0.006	5472051
Total Magnesium (Mg)	mg/kg	687	644	703	621	645	697	2	5472051
Total Manganese (Mn)	mg/kg	2.33	2.57	2.75	2.22	2.35	2.48	0.05	5472051
Total Mercury (Hg)	mg/kg	0.020	0.024	0.020	0.020	0.021	0.022	0.009	5472051
Total Nickel (Ni)	mg/kg	1.0	0.7	0.7	0.9	0.8	0.8	0.1	5472051
Total Selenium (Se)	mg/kg	0.33	0.31	0.31	0.37	0.33	0.33	0.01	5472051
Total Silver (Ag)	mg/kg	0.033	0.035	0.034	0.034	0.036	0.035	0.004	5472051
Total Thallium (Tl)	mg/kg	0.0020	0.0019	0.0015	0.0018	0.0016	0.0013	0.0004	5472051
Total Zinc (Zn)	mg/kg	14.8	13.8	14.1	14.3	15.4	12.2	0.1	5472051

PHYSICAL TESTING (TISSUE)

Maxxam ID		CH4399		CH4400	CH4401	CH4402	CH4403	CH4404		CH4405	CH4406		
Sampling Date		2011/12/01		2011/12/01	2011/12/01	2011/12/01	2011/12/01	2011/12/01		2011/12/01	2011/12/01		
	Units	M1E T=0 (MACOMA)	QC Batch	M2E T=0 (MACOMA)	M8E T=0 (MACOMA)	M1E T=14 (MACOMA)	M1E T=14 (MACOMA) DUP	M1E T=14 (MACOMA) TRIP	QC Batch	M2E T=14 (MACOMA)	M8E T=14 (MACOMA)	RDL	QC Batch
Physical Properties													
Moisture	%	84	5482830	84	84	83	83	84	5482827	84	83	0.3	5482830

RDL = Reportable Detection Limit
(1) - Duplicate RPD above control limit - (10% of analytes failure allowed).

Maxxam Job #: B1C2946
Report Date: 2012/01/17

CAPITAL REGIONAL DISTRICT
Client Project #: BIOACCUMULATION (MACOMA)

Sampler Initials: TI

PHYSICAL TESTING (TISSUE)

Maxxam ID		CH4407	CH4408		CH4409		CH4410		CK5530	CK5531		
Sampling Date		2011/12/01	2011/12/01		2011/12/01		2011/12/01		2011/12/01	2011/12/01		
	Units	**M1E T=28 (MACOMA)**	**M2E T=28 (MACOMA)**	**QC Batch**	**M8E T=28 (MACOMA)**	**QC Batch**	**M1E T=56 (MACOMA)**	**QC Batch**	**M2E T=56 (MACOMA)**	**M8E T=56 (MACOMA)**	**RDL**	**QC Batch**
Physical Properties												
Moisture	%	83	83	5482827	83	5482830	83	5482827	84	86	0.3	5482830

RDL = Reportable Detection Limit

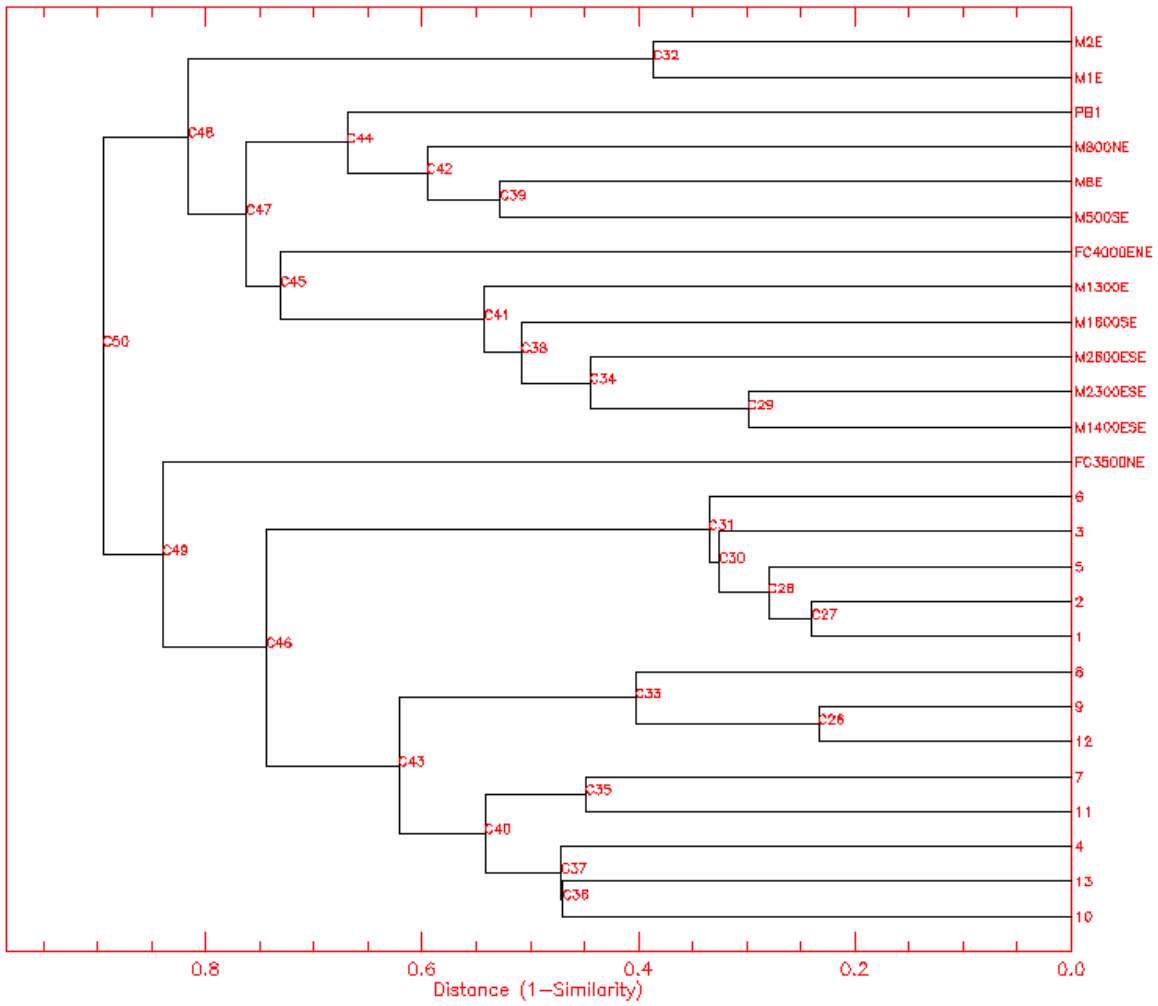
Appendix 6 Cluster and SIGTREE Analysis

Appendix 6A. Cluster and SIGTREE analysis for total (all sizes groups) faunal abundance for Albert Head (2010; stations 1-13) and CRD (2012; remaining) stations.

```
Transform applied to abundance data: none
Similarity method: Bray-Curtis Coeff.
Linkage method: UPGMA
Significance level (alpha): 0.0500000
Number of simulations: 200
Input file(s):
Read 4628 records from C:\Dendroboot\wpall.csv
 Number of sites:           26
 Number of taxa :          700
     Site         Number of Replicates
        1          3
       10          1
       11          1
       12          1
       13          1
        2          3
        3          2
        4          2
        5          1
        6          1
        7          1
        8          1
        9          1
 FC3500NE          3
FC4000ENE          3
   M1300E          3
 M1400ESE          3
  M1600SE          3
      M1E          3
 M2300ESE          3
 M2600ESE          1
      M2E          3
   M500SE          3
   M800NE          3
      M8E          3
      PB1          3
```

Linkage	C#	Clusters Linked		Similarity	Prob(H0)	Sim(alpha)	Alpha	
1	C26	12	9	0.76632	0.48500	0.76632	0.48500	1.00000
2	C27	1	2	0.76009	0.29000	0.68127	0.05500	0.33000
3	C28	C27	5	0.72009	0.68500	0.59090	0.05500	0.03500
4	C29	M1400ESE	M2300ESE	0.70127	0.17500	0.63231	0.05500	0.33000
5	C30	C28	3	0.67457	0.55000	0.59747	0.05500	0.11000
6	C31	C30	6	0.66508	0.67000	0.58030	0.05500	0.00500
7	C32	M1E	M2E	0.61350	0.05000	0.61830	0.05500	0.62500
8	C33	C26	8	0.59715	0.41500	0.56198	0.25500	0.25500
9	C34	C29	M2600ESE	0.55532	0.10500	0.54360	0.05500	0.30000
10	C35	11	7	0.55114	0.61000	0.55114	0.61000	1.00000
11	C36	10	13	0.53016	0.50500	0.53016	0.50500	1.00000
12	C37	C36	4	0.52859	0.32000	0.51325	0.07000	0.13000
13	C38	C34	M1600SE	0.49172	0.07500	0.47777	0.05500	0.41500
14	C39	M500SE	M8E	0.47236	0.05000	0.48469	0.05500	0.98500
15	C40	C37	C35	0.45811	0.19000	0.43594	0.05500	0.09000
16	C41	M1300E	C38	0.45753	0.07500	0.44783	0.05500	0.63000
17	C42	C39	M800NE	0.40448	0.03500	0.41693	0.05500	0.82000

18	C43	C40	C33	0.37845	0.29500	0.33965	0.05500	0.07500
19	C44	C42	PB1	0.33065	0.01000	0.39481	0.05500	0.99000
20	C45	FC4000ENE	C41	0.26906	0.03500	0.27481	0.05500	0.49500
21	C46	C31	C43	0.25603	0.34500	0.19863	0.05500	0.07000
22	C47	C45	C44	0.23757	0.09500	0.22182	0.05500	0.12500
23	C48	C47	C32	0.18357	0.01500	0.21656	0.05500	0.74500
24	C49	C46	FC3500NE	0.16023	0.28000	0.13153	0.05500	0.17000
25	C50	C49	C48	0.10522	0.10000	0.09650	0.05500	0.02000

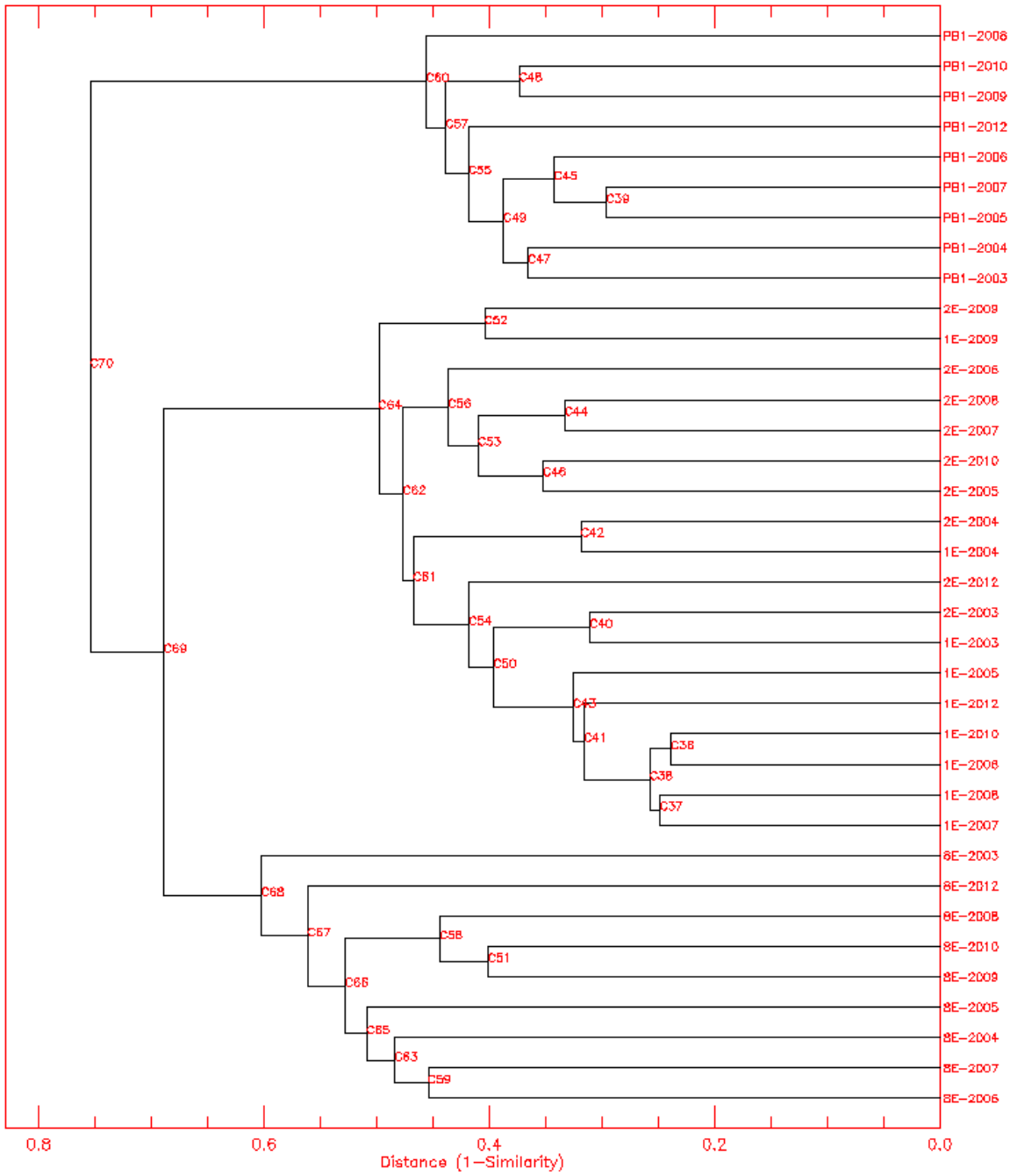

M2E
C32
M1E
PB1
C48
C44
M800NE
C42
MBE
C39
C47
M500SE
FC4000ENE
C45
M1300E
C41
M1600SE
C50
C38
M2600ESE
C34
M2300ESE
C29
M1400ESE
FC3500NE
6
C31
3
C49
C30
5
C28
2
C27
C46
1
8
C33
9
C26
12
C43
7
C35
11
C40
4
C37
13
C36
10
0.8
0.6
0.4
0.2
0.0
Distance (1−Similarity)

Appendix 6B. Cluster and SIGTREE analysis of total faunal abundance for the 4 historical CRD stations (1E,2E,8E,PB1) for 2003 to 2012.

```
Transform applied to abundance data: none
Similarity method: Bray-Curtis Coeff.
Linkage method: UPGMA
Significance level (alpha): 0.0500000
Number of simulations: 200
Input file(s):
Read 7637 records from D:\Dendroboot\crd02_12.csv
 Number of sites:           36
 Number of taxa :          454
     Site          Number of Replicates
 1E-2003           3
 1E-2004           4
 1E-2005           3
 1E-2006           3
 1E-2007           3
 1E-2008           3
 1E-2009           3
 1E-2010           4
 1E-2012           3
 2E-2003           3
 2E-2004           3
 2E-2005           3
 2E-2006           3
 2E-2007           3
 2E-2008           3
 2E-2009           3
 2E-2010           4
 2E-2012           3
 8E-2003           3
 8E-2004           4
 8E-2005           3
 8E-2006           3
 8E-2007           4
 8E-2008           3
 8E-2009           3
 8E-2010           3
 8E-2012           3
PB1-2003           4
PB1-2004           3
PB1-2005           3
PB1-2006           3
PB1-2007           3
PB1-2008           3
PB1-2009           3
PB1-2010           3
PB1-2012           3

Linkage    C#   Clusters Linked    Similarity  Prob(H0)  Sim(alpha)  Alpha
    1      C36  1E-2006  1E-2010    0.76127     0.17500   0.71309   0.05500  0.36500
    2      C37  1E-2007  1E-2008    0.75145     0.09500   0.71639   0.05500  0.57500
    3      C38      C36      C37    0.74238     0.29000   0.70167   0.05500  0.22500
    4      C39 PB1-2005 PB1-2007    0.70395     0.08500   0.67864   0.05500  0.77000
    5      C40  1E-2003  2E-2003    0.68909     0.16000   0.63445   0.05500  0.45500
    6      C41      C38  1E-2012    0.68395     0.03500   0.69153   0.05500  0.69000
```

7	C42	1E-2004	2E-2004	0.68138	0.04000	0.69380	0.05500	0.89000
8	C43	1E-2005	C41	0.67428	0.01500	0.69004	0.05500	0.70000
9	C44	2E-2007	2E-2008	0.66694	0.07000	0.65550	0.05500	0.59500
10	C45	C39	PB1-2006	0.65759	0.09500	0.63921	0.05500	0.43000
11	C46	2E-2005	2E-2010	0.64765	0.03500	0.66698	0.05500	1.00000
12	C47	PB1-2003	PB1-2004	0.63430	0.06000	0.63281	0.05500	0.75000
13	C48	PB1-2009	PB1-2010	0.62651	0.05500	0.61782	0.05500	0.77500
14	C49	C47	C45	0.61259	0.02000	0.63612	0.05500	0.50500
15	C50	C40	C43	0.60368	0.01500	0.63566	0.05500	0.81000
16	C51	8E-2009	8E-2010	0.59879	0.07000	0.56752	0.05500	0.59000
17	C52	1E-2009	2E-2009	0.59577	0.05500	0.59244	0.05500	0.78500
18	C53	C46	C44	0.58995	0.01000	0.61906	0.05500	0.66500
19	C54	C50	2E-2012	0.58193	0.01000	0.61468	0.05500	0.66500
20	C55	C49	PB1-2012	0.58147	0.02500	0.61230	0.05500	0.84500
21	C56	C53	2E-2006	0.56337	0.01000	0.60785	0.05500	0.93000
22	C57	C55	C48	0.56129	0.02000	0.57909	0.05500	0.28500
23	C58	8E-2008	C51	0.55588	0.03000	0.57020	0.05500	0.97500
24	C59	8E-2006	8E-2007	0.54559	0.09000	0.52342	0.05500	0.69500
25	C60	C57	PB1-2008	0.54388	0.01000	0.57862	0.05500	0.85000
26	C61	C54	C42	0.53260	0.00500	0.59110	0.05500	0.92000
27	C62	C61	C56	0.52340	0.00500	0.58056	0.05500	0.72500
28	C63	8E-2004	C59	0.51569	0.06000	0.51206	0.05500	0.79500
29	C64	C62	C52	0.50172	0.00000	0.55848	0.05500	0.54500
30	C65	C63	8E-2005	0.49109	0.03000	0.51366	0.05500	0.94500
31	C66	C65	C58	0.47212	0.03500	0.49009	0.05500	0.53000
32	C67	C66	8E-2012	0.43865	0.01000	0.48984	0.05500	1.00000
33	C68	8E-2003	C67	0.39757	0.00000	0.48639	0.05500	1.00000
34	C69	C64	C68	0.31109	0.00000	0.37848	0.05500	0.90000
35	C70	C69	C60	0.24572	0.00000	0.35822	0.05500	1.00000


PB1-2008
PB1-2010
PB1-2009
PB1-2012
PB1-2006
PB1-2007
PB1-2005
PB1-2004
PB1-2003
2E-2009
1E-2009
2E-2006
2E-2008
2E-2007
2E-2010
2E-2005
2E-2004
1E-2004
2E-2012
2E-2003
1E-2003
1E-2005
1E-2012
1E-2010
1E-2006
1E-2008
1E-2007
8E-2003
8E-2012
8E-2008
8E-2010
8E-2009
8E-2005
8E-2004
8E-2007
8E-2006
C60
C48
C57
C55
C45
C39
C49
C47
C52
C70
C64
C56
C44
C53
C46
C62
C42
C61
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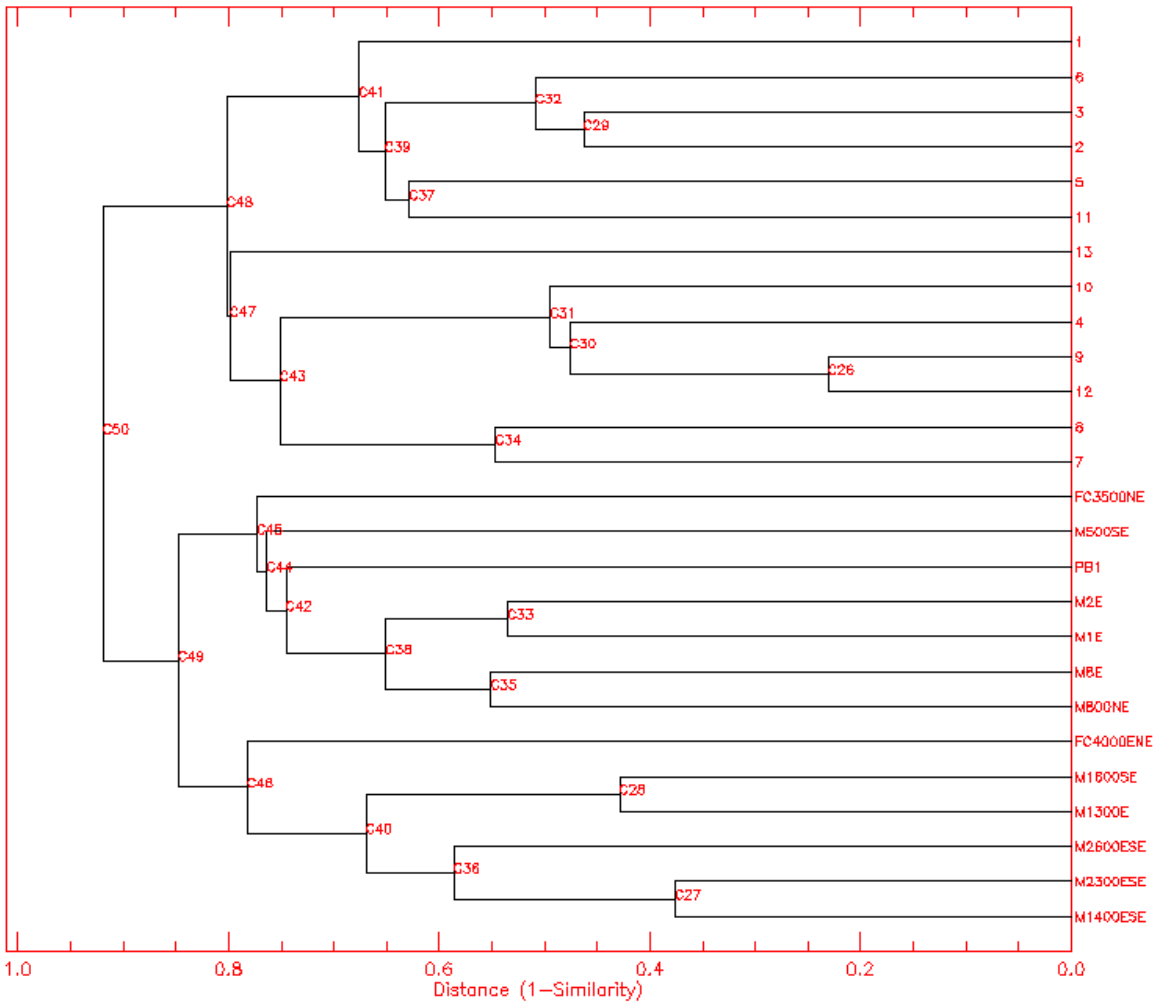
C69
C50
C43
C41
C38
C36
C37
C68
C67
C58
C51
C66
C65
C63
C59
0.8
0.6
0.4
0.2
0.0
Distance (1-Similarity)

Appendix 6C. Cluster and SIGTREE analysis for total organic biomass for Albert Head (2010; stations 1-13) and CRD (2012; remaining) stations.

```
Transform applied to abundance data: none
Similarity method: Bray-Curtis Coeff.
Linkage method: UPGMA
Significance level (alpha): 0.0500000
Number of simulations: 200
Input file(s):
Read 4628 records from D:\Dendroboot\wpall.csv
 Number of sites:           26
 Number of taxa :          700
     Site         Number of Replicates
        1          3
       10          1
       11          1
       12          1
       13          1
        2          3
        3          2
        4          2
        5          1
        6          1
        7          1
        8          1
        9          1
 FC3500NE          3
FC4000ENE          3
   M1300E          3
 M1400ESE          3
  M1600SE          3
      M1E          3
 M2300ESE          3
 M2600ESE          1
      M2E          3
   M500SE          3
   M800NE          3
      M8E          3
      PB1          3
```

Linkage	C#	Clusters Linked		Similarity	Prob(H0)	Sim(alpha)	Alpha	
1	C26	12	9	0.76918	0.48500	0.76918	0.48500	1.00000
2	C27	M1400ESE	M2300ESE	0.62386	0.19500	0.49302	0.05500	0.25000
3	C28	M1300E	M1600SE	0.57113	0.17500	0.49236	0.05500	0.33000
4	C29	2	3	0.53686	0.20500	0.46348	0.05500	0.32500
5	C30	C26	4	0.52398	0.46000	0.44346	0.07000	0.07500
6	C31	10	C30	0.50501	0.55000	0.42503	0.05500	0.11500
7	C32	C29	6	0.49133	0.45500	0.36282	0.05500	0.03000
8	C33	M1E	M2E	0.46475	0.07000	0.43432	0.05500	0.53500
9	C34	7	8	0.45320	0.45500	0.45320	0.45500	1.00000
10	C35	M800NE	M8E	0.44900	0.16500	0.33840	0.05500	0.28000
11	C36	C27	M2600ESE	0.41364	0.09000	0.38786	0.05500	0.28000
12	C37	11	5	0.37150	0.51500	0.37150	0.51500	1.00000
13	C38	C33	C35	0.34929	0.13000	0.30696	0.05500	0.49500
14	C39	C37	C32	0.34824	0.26500	0.30981	0.05500	0.07000
15	C40	C28	C36	0.33040	0.10000	0.29328	0.05500	0.46000
16	C41	1	C39	0.32351	0.37500	0.28025	0.05500	0.05500
17	C42	C38	PB1	0.25437	0.04000	0.27521	0.05500	0.82000

18	C43	C31	C34	0.24869	0.43000	0.13650	0.05500	0.06000
19	C44	C42	M500SE	0.23613	0.00500	0.27667	0.05500	0.89000
20	C45	FC3500NE	C44	0.22675	0.03000	0.26449	0.05500	0.93500
21	C46	FC4000ENE	C40	0.21760	0.03000	0.22997	0.05500	0.74000
22	C47	C43	13	0.20117	0.45000	0.13987	0.05500	0.05000
23	C48	C41	C47	0.19828	0.50500	0.15450	0.05500	0.07500
24	C49	C45	C46	0.15218	0.07000	0.14823	0.05500	0.15500
25	C50	C48	C49	0.08078	0.02000	0.08729	0.05500	0.13500

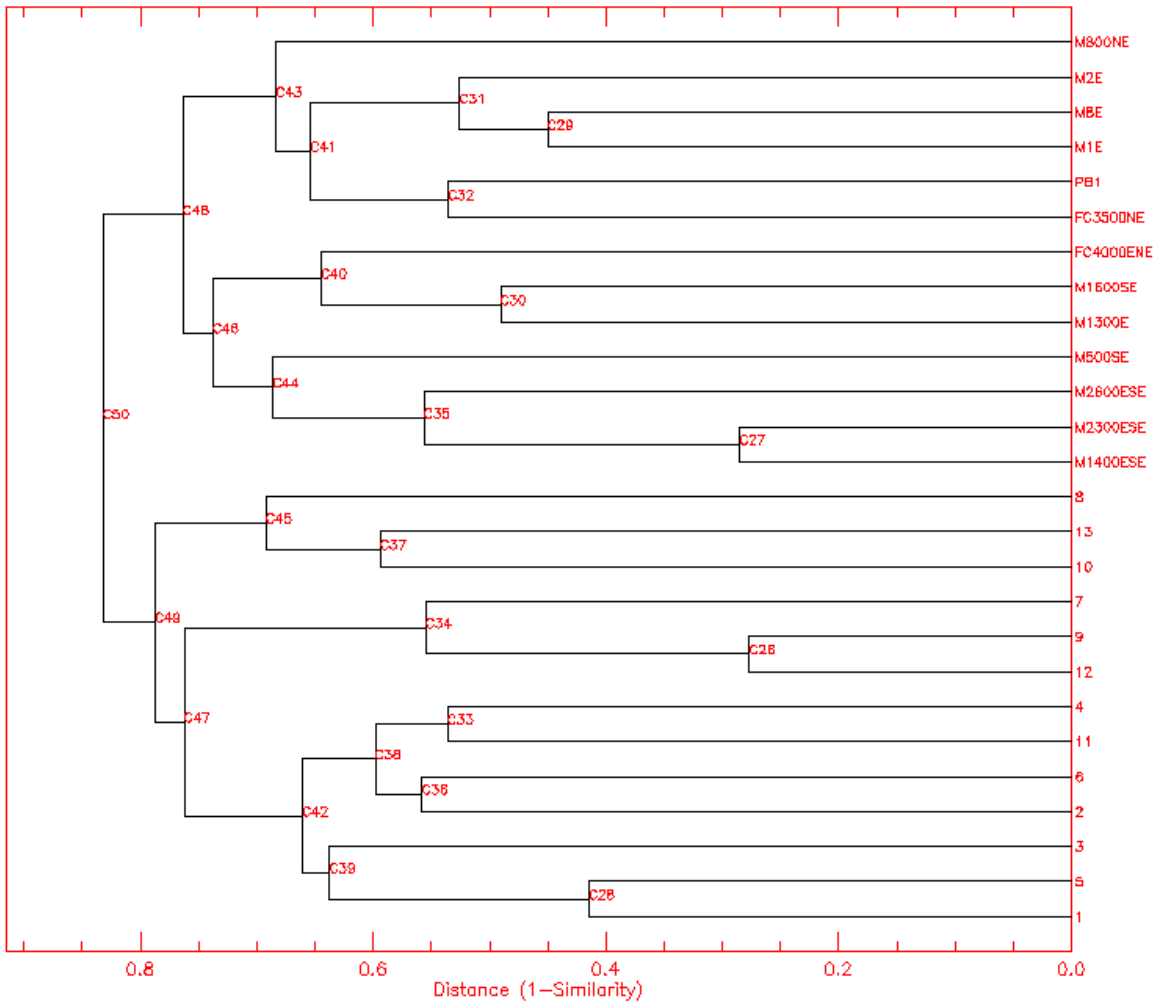

C41
C32
C29
C39
C37
C48
C47
C31
C30
C26
C43
C50
C34
C45
C44
C42
C33
C38
C49
C35
C46
C28
C40
C36
C27
1
6
3
2
5
11
13
10
4
9
12
8
7
FC3500NE
M500SE
PB1
M2E
M1E
MBE
MB00NE
FC4000ENE
M1600SE
M1300E
M2600ESE
M2300ESE
M1400ESE
1.0
0.8
0.6
0.4
0.2
0.0
Distance (1-Similarity)

Appendix 6D. Cluster and SIGTREE analysis for total faunal production (all size groups) for Albert Head (2010; stations 1-13) and CRD (2012; remaining) stations.

```
Transform applied to abundance data: none
Similarity method: Bray-Curtis Coeff.
Linkage method: WPGMA
Significance level (alpha): 0.0500000
Number of simulations: 200
Input file(s):
Read 4628 records from D:\Dendroboot\wpall.csv
 Number of sites:           26
 Number of taxa :          204
     Site         Number of Replicates
        1          3
       10          1
       11          1
       12          1
       13          1
        2          3
        3          2
        4          2
        5          1
        6          1
        7          1
        8          1
        9          1
 FC3500NE          3
FC4000ENE          3
   M1300E          3
 M1400ESE          3
  M1600SE          3
      M1E          3
 M2300ESE          3
 M2600ESE          1
      M2E          3
   M500SE          3
   M800NE          3
      M8E          3
      PB1          3
```

Linkage	C#	Clusters Linked		Similarity	Prob(H0)	Sim(alpha)	Alpha	
1	C26	12	9	0.72334	0.48500	0.72334	0.48500	1.00000
2	C27	M1400ESE	M2300ESE	0.71494	0.35500	0.49990	0.05500	0.09500
3	C28	1	5	0.58540	0.47500	0.36968	0.05500	0.04000
4	C29	M1E	M8E	0.55009	0.20500	0.41518	0.05500	0.43500
5	C30	M1300E	M1600SE	0.50942	0.05000	0.51057	0.05500	0.96500
6	C31	C29	M2E	0.47429	0.19000	0.40397	0.05500	0.40500
7	C32	FC3500NE	PB1	0.46447	0.02500	0.48923	0.05500	1.00000
8	C33	11	4	0.46399	0.20500	0.42934	0.06500	0.24500
9	C34	C26	7	0.44521	0.48000	0.44050	0.23500	0.28500
10	C35	C27	M2600ESE	0.44364	0.14000	0.41460	0.05500	0.25500
11	C36	2	6	0.44204	0.39500	0.31837	0.06500	0.00000
12	C37	10	13	0.40618	0.61000	0.40618	0.61000	1.00000
13	C38	C33	C36	0.40177	0.42500	0.31030	0.05500	0.04500
14	C39	C28	3	0.36267	0.19500	0.31317	0.05500	0.35000
15	C40	FC4000ENE	C30	0.35524	0.02500	0.40201	0.05500	0.99500
16	C41	C32	C31	0.34634	0.05500	0.34031	0.05500	0.37500
17	C42	C39	C38	0.33921	0.48500	0.24151	0.05500	0.03000

18	C43	C41	M800NE	0.31664	0.08000	0.29821	0.05500	0.45000
19	C44	C35	M500SE	0.31372	0.15000	0.25994	0.05500	0.69000
20	C45	C37	8	0.30797	0.45500	0.28078	0.24500	0.27500
21	C46	C40	C44	0.26230	0.18000	0.21339	0.05500	0.08000
22	C47	C42	C34	0.23758	0.43000	0.15693	0.05500	0.08000
23	C48	C43	C46	0.23659	0.19500	0.17728	0.05500	0.02000
24	C49	C47	C45	0.21265	0.60500	0.12951	0.05500	0.06500
25	C50	C49	C48	0.16797	0.72000	0.10381	0.05500	0.01500


M800NE
M2E
M8E
M1E
PB1
FC3500NE
FC4000ENE
M1600SE
M1300E
M500SE
M2600ESE
M2300ESE
M1400ESE
8
13
10
7
9
12
4
11
6
2
3
5
1
C43
C31
C29
C41
C32
C48
C40
C30
C46
C44
C35
C27
C50
C45
C37
C49
C34
C28
C47
C33
C38
C36
C42
C39
C26
0.8
0.6
0.4
0.2
0.0
Distance (1-Similarity)

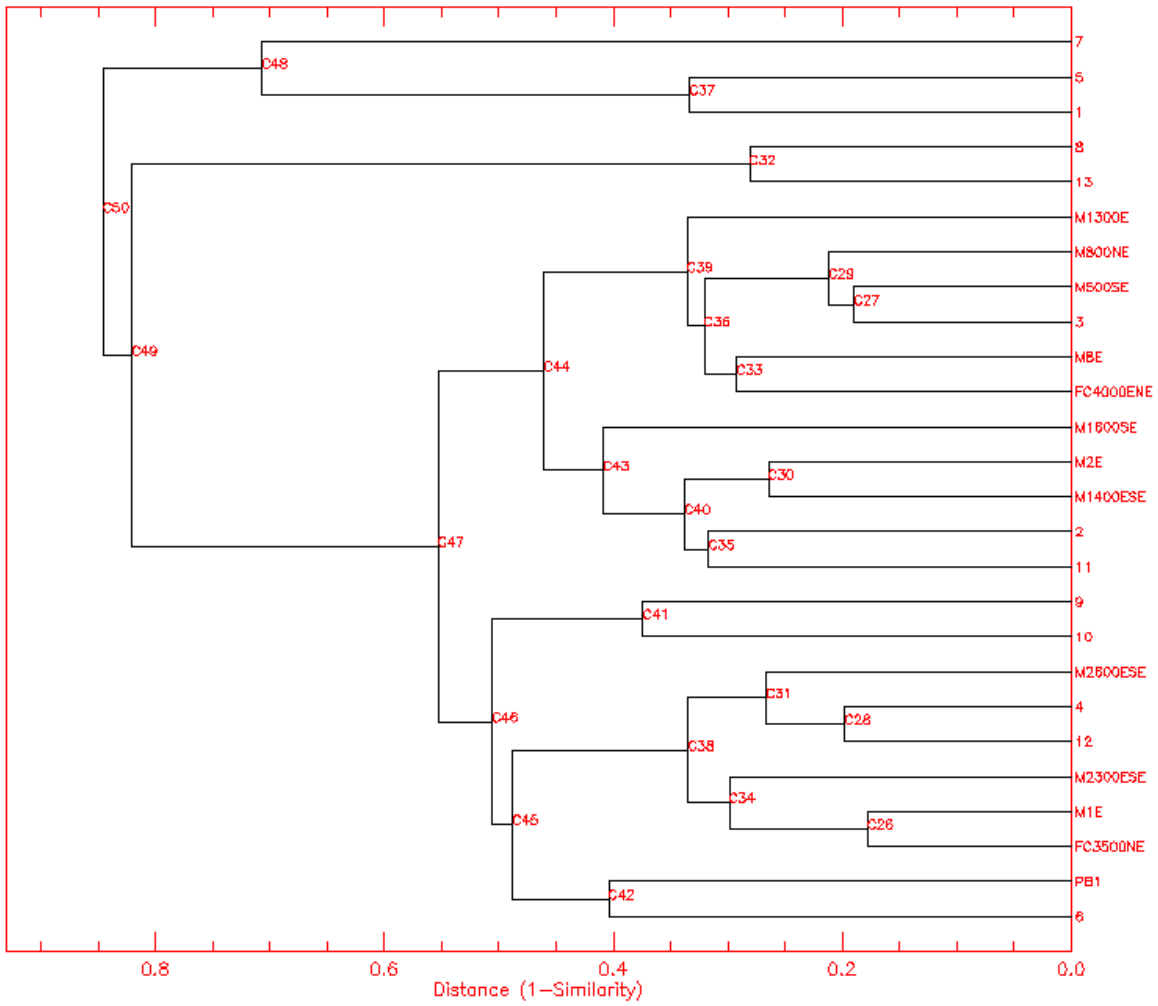
Appendix 6E. Cluster and SIGTREE analysis for proportional size class (log2) distributions for Albert Head (2010; stations 1-13) and CRD (2012; remaining) stations.

```
Transform applied to abundance data: Proportion of total in sample
Similarity method: Bray-Curtis Coeff.
Linkage method: UPGMA

Significance level (alpha): 0.0500000
Number of simulations: 200
Input file(s):
Read 4628 records from D:\Dendroboot\wpall.csv
 Number of sites:           26
 Number of taxa :           20
     Site         Number of Replicates
        1          3
       10          1
       11          1
       12          1
       13          1
        2          3
        3          2
        4          2
        5          1
        6          1
        7          1
        8          1
        9          1
 FC3500NE          3
FC4000ENE          3
   M1300E          3
 M1400ESE          3
  M1600SE          3
      M1E          3
 M2300ESE          3
 M2600ESE          1
      M2E          3
   M500SE          3
   M800NE          3
      M8E          3
      PB1          3

Linkage    C#     Clusters Linked    Similarity  Prob(H0)  Sim(alpha)  Alpha
    1      C26  FC3500NE       M1E    0.82208     0.80500   0.45839   0.05500  0.09500
    2      C27         3    M500SE    0.81014     0.37000   0.67708   0.05500  0.11000
    3      C28        12         4    0.80217     0.37000   0.64737   0.13500  0.24000
    4      C29       C27    M800NE    0.78793     0.72500   0.54328   0.05500  0.10000
    5      C30  M1400ESE       M2E    0.73538     0.36500   0.56917   0.06500  0.18500
    6      C31       C28  M2600ESE    0.73345     0.56000   0.63472   0.06500  0.12500
    7      C32        13         8    0.71907     0.52500   0.71907   0.52500  1.00000
    8      C33 FC4000ENE       M8E    0.70767     0.38500   0.46371   0.05500  0.06500
    9      C34       C26  M2300ESE    0.70117     0.76000   0.47294   0.05500  0.09000
   10      C35        11         2    0.68320     0.51500   0.31220   0.06500  0.00000
   11      C36       C29       C33    0.67944     0.59000   0.52693   0.05500  0.11000
   12      C37         1         5    0.66651     0.40500   0.17288   0.05500  0.04000
   13      C38       C31       C34    0.66549     0.94000   0.36209   0.05500  0.00000
   14      C39       C36    M1300E    0.66436     0.69000   0.49584   0.05500  0.15000
   15      C40       C35       C30    0.66216     0.82500   0.41140   0.05500  0.13000
   16      C41        10         9    0.62583     0.41000   0.62583   0.41000  1.00000
```

17	C42	6	PB1	0.59580	0.20500	0.51171	0.06500	0.10000
18	C43	C40	M1600SE	0.59107	0.79500	0.40202	0.05500	0.10500
19	C44	C43	C39	0.53951	0.65000	0.37103	0.05500	0.03500
20	C45	C38	C42	0.51198	0.65000	0.37009	0.05500	0.08000
21	C46	C41	C45	0.49400	0.77000	0.35053	0.05500	0.03000
22	C47	C46	C44	0.44687	0.78500	0.29871	0.05500	0.04500
23	C48	C37	7	0.29289	0.28500	0.15962	0.05500	0.27000
24	C49	C47	C32	0.17938	0.13000	0.11173	0.05500	0.25500
25	C50	C48	C49	0.15435	0.33500	0.08134	0.05500	0.08500


7
C48
5
C37
1
8
C32
13
C50
M1300E
M800NE
C39
C29
M500SE
C27
C36
3
C49
MBE
C44
C33
FC4000ENE
M1600SE
M2E
C43
C30
M1400ESE
C40
2
C47
C35
11
9
C41
10
M2600ESE
C31
4
C46
C28
12
C38
M2300ESE
C34
M1E
C45
C26
FC3500NE
PB1
C42
6
0.8
0.6
0.4
0.2
0.0
Distance (1−Similarity)

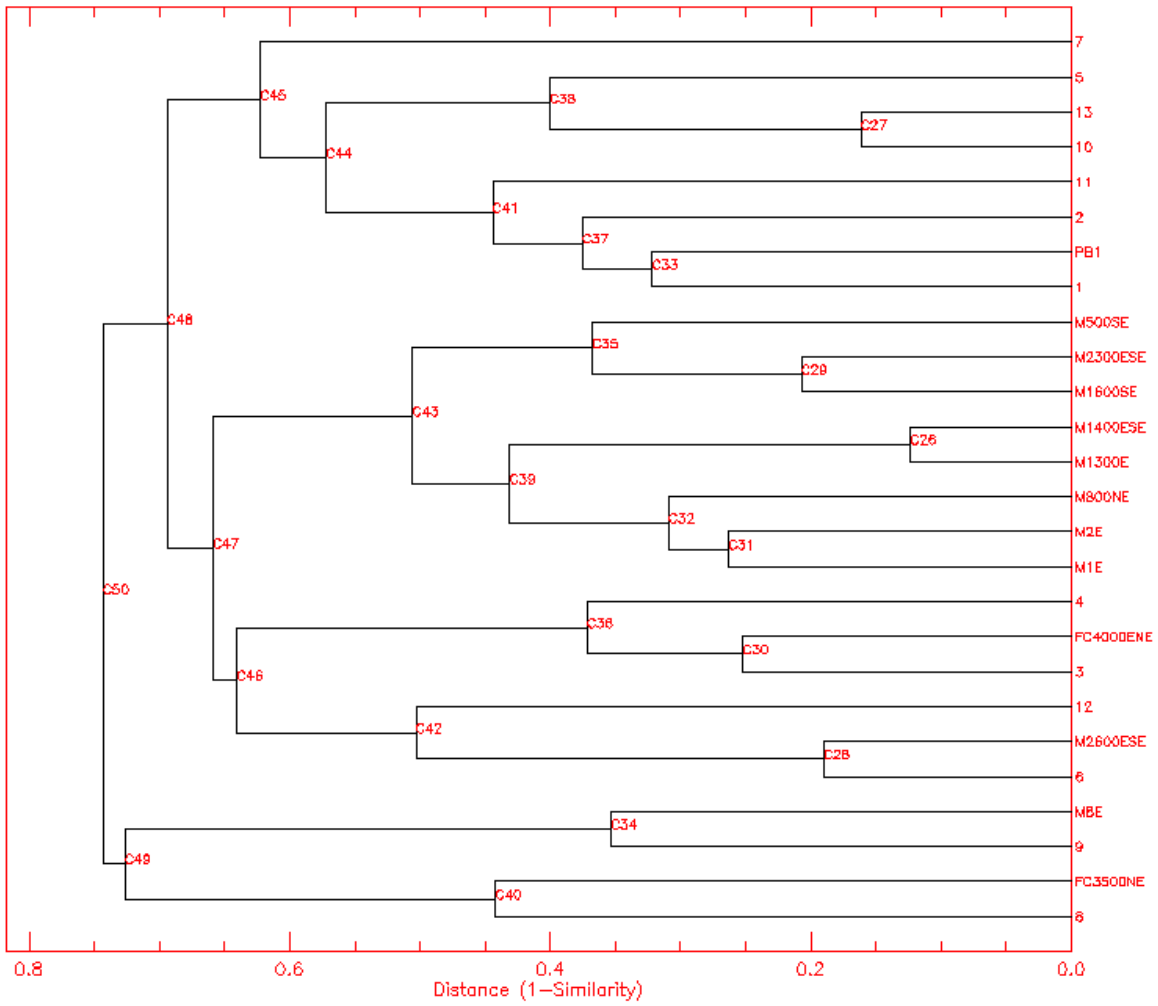
Appendix 6F. Cluster and SIGTREE analysis for proportional biomass trophic structure for Albert Head (2010; stations 1-13) and CRD (2012; remaining) stations.

```
Transform applied to abundance data: Proportion of total in sample
Similarity method: Bray-Curtis Coeff.
Linkage method: UPGMA

Significance level (alpha): 0.0500000
Number of simulations: 200
Input file(s):
Read 4628 records from D:\Dendroboot\wpall.csv
 Number of sites:           26
 Number of taxa :           10
     Site         Number of Replicates
        1          3
       10          1
       11          1
       12          1
       13          1
        2          3
        3          2
        4          2
        5          1
        6          1
        7          1
        8          1
        9          1
 FC3500NE          3
FC4000ENE          3
   M1300E          3
 M1400ESE          3
  M1600SE          3
      M1E          3
 M2300ESE          3
 M2600ESE          1
      M2E          3
   M500SE          3
   M800NE          3
      M8E          3
      PB1          3
```

Linkage	C#	Clusters Linked		Similarity	Prob(H0)	Sim(alpha)	Alpha	
1	C26	M1300E	M1400ESE	0.87652	0.67000	0.38464	0.05500	0.10500
2	C27	10	13	0.83868	0.45000	0.83868	0.45000	1.00000
3	C28	6	M2600ESE	0.81005	0.45000	0.81005	0.45000	1.00000
4	C29	M1600SE	M2300ESE	0.79292	0.70500	0.50372	0.05500	0.13500
5	C30	3	FC4000ENE	0.74794	0.46500	0.60350	0.06000	0.14500
6	C31	M1E	M2E	0.73684	0.66500	0.38802	0.05500	0.15000
7	C32	C31	M800NE	0.69094	0.87500	0.30978	0.05500	0.08000
8	C33	1	PB1	0.67835	0.38500	0.45448	0.05500	0.06000
9	C34	9	M8E	0.64673	0.51500	0.39153	0.08000	0.03000
10	C35	C29	M500SE	0.63227	0.46000	0.45719	0.05500	0.14500
11	C36	C30	4	0.62840	0.46500	0.38864	0.05500	0.20500
12	C37	C33	2	0.62474	0.50500	0.42416	0.05500	0.12500
13	C38	C27	5	0.59963	0.40500	0.55222	0.21500	0.25500
14	C39	C26	C32	0.56896	0.72500	0.35094	0.05500	0.16500
15	C40	8	FC3500NE	0.55810	0.17500	0.49028	0.06500	0.25500
16	C41	C37	11	0.55592	0.63000	0.32433	0.05500	0.00000

17	C42	12	C28	0.49706	0.47500	0.48951	0.27000	0.28000
18	C43	C39	C35	0.49447	0.57000	0.34522	0.05500	0.19500
19	C44	C41	C38	0.42811	0.66000	0.21958	0.05500	0.02000
20	C45	C44	7	0.37762	0.72000	0.19482	0.05500	0.06500
21	C46	C42	C36	0.35966	0.39000	0.19174	0.05500	0.06000
22	C47	C46	C43	0.34124	0.53500	0.21001	0.05500	0.07000
23	C48	C45	C47	0.30600	0.72500	0.19447	0.05500	0.04000
24	C49	C40	C34	0.27366	0.17000	0.23056	0.05500	0.47500
25	C50	C48	C49	0.25683	0.53500	0.18117	0.05500	0.08000


7
5
13
10
11
2
PB1
1
M500SE
M2300ESE
M1600SE
M1400ESE
M1300E
M800NE
M2E
M1E
4
FC4300ENE
3
12
M2600ESE
6
MBE
9
FC3500NE
8
C45
C38
C27
C44
C41
C37
C33
C48
C35
C29
C43
C26
C39
C32
C31
C47
C50
C36
C30
C46
C42
C28
C34
C49
C40
0.8
0.6
0.4
0.2
0.0
Distance (1−Similarity)