

# Regional Source Control Program

## 2014 Annual Report

Capital Regional District | Environmental Partnerships



Prepared by:  
Regional Source Control Program  
Environmental Partnerships Division

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### Capital Regional District

625 Fisgard Street, Victoria, BC V8W 1R7  
T: 250.360.3256 F: 250.360.3079  
[www.crd.bc.ca](http://www.crd.bc.ca)



## **REGIONAL SOURCE CONTROL PROGRAM 2014 ANNUAL REPORT**

### **EXECUTIVE SUMMARY**

#### **Introduction**

The purpose of the Capital Regional District (CRD) Regional Source Control Program (RSCP) is to protect sewage collection and treatment facilities, public health and safety, and the marine receiving environment by reducing the amount of contaminants that industries, businesses, institutions and households discharge into the district's sanitary sewer systems. Source control is widely accepted as a cost-effective and essential first step in sewage treatment in all major urban areas throughout North America.

The CRD adopted a Sewer Use Bylaw in 1994 to regulate sanitary sewer discharges. Implementation of a region-wide program began in 1995 with regulation of larger industries under a permit system, followed by adoption of the first regulatory codes of practice (COP) for commercial sectors in 1999. By the end of 2005, COP were developed, adopted and implemented to regulate discharges from approximately 2,000 businesses within 11 sectors. The RSCP works to ensure that the bylaw and its associated policies and procedures are applied consistently within all CRD sewage collection areas.

As part of the Environmental Partnerships Division (Partnerships), the RSCP shares a mission to deliver collaborative and responsible environmental services that engage and inspire changes in behaviour for the stewardship, protection and well-being of our region.

#### **2014 Program Activities**

Efforts to share information and coordinate inspections within Partnerships (Cross Connection Control and Water Conservation), regulatory partners (Island Health and municipal inspectors) and other CRD divisions have been very successful, with 749 coordinated inspections being completed in 2014.

In 2014, the RSCP continued to apply the "sector-by-sector" approach to COP inspections, focusing on the carpet cleaning, automotive repair, laboratory, vehicle wash and food services sectors. Overall, full compliance rates for COP, permitted industrial facilities and facilities operating under authorizations remained high in 2014.

A statistical assessment of local wastewater trends over the period 1990-2011 was undertaken in 2012. Trend results confirmed findings of previous studies, indicating stronger evidence of stable or decreasing loads in a range of priority substances in wastewater discharged from the region's main sewage outfalls. These continuing decreasing trends and recent changes in loads are thought to be largely due to a combination of the success of source control efforts at regulating contaminants, increasing public and industry awareness regarding product selection, and use of proper waste treatment practices. The next wastewater trend assessment is scheduled for 2016.

In 2014, outreach and education efforts focused on developing and delivering integrated messaging with other CRD programs, including the delivery of two new "Green 365" themed residential campaigns, and providing continued support and resource development for high school educators and students. As a result of the Medication Return Program, nearly 12 tonnes of medications were returned for disposal in the CRD in 2014, the second highest medication return rate per capita amongst regional districts in the province.

The source control program continues to play an important role in achieving wastewater contaminant reductions and protecting sewage collection and treatment facilities throughout the region.

The 2014 annual report presents background information, a summary of program activities and accomplishments over the period January to December 2014, and a brief account of initiatives planned for 2015. The main activities and accomplishments of the program in 2014 are outlined below.

### **Industrial, Commercial and Institutional Liquid Waste Regulation**

- COP inspections continued to emphasize customer service in 2014 with a thorough, qualitative “sector-by-sector” approach, including increased customer support and often requiring repeat site visits.
- Inspections focused on the laboratory, automotive, vehicle wash, carpet cleaning and food services sectors in 2014, providing an opportunity to review each sector and prepare for a future amendment of each COP.
- The number of inspections conducted for codes of practice in 2014 (964) were higher than the average (823) for the past four years.
- A total of 603 food services operations were inspected in 2014, with an additional 223 follow-up visits for compliance and/or further support.
- In 2014 Phase II of the carpet cleaning inspections commenced, resulting in a significantly larger recognized sector.
- Thorough laboratory sector inspections were conducted in 2014 and a follow-up sector review is planned for 2015 to assess practical approaches for regulating high schools and veterinary clinics.
- Automotive and vehicle wash sectors were done together as a Phase I for priority inspections. These included visits to newly sewerer properties and facilities previously classified as “non- regulated”. Phase II inspections are planned for 2015, involving an intensive and large scale inspection effort and sector review.
- In 2014, staff invited two companies to present their compliance tracking software technologies for Food Services Establishments. The software could potentially increase inspection efficiencies in this sector. Staff also engaged three major grease waste hauling companies in the region to review the technologies available. All three companies were open to participating in a pilot project.
- All permit inspections scheduled at the beginning of 2014 were completed within the year. Permits discharging priority contaminants received at least one or two additional inspections.

### **Monitoring**

- The monitoring targets set for 2014 were achieved.
- On average, there were two scheduled audit monitoring events per permit in 2014.
- COP monitoring focused on the carpet cleaning and fermentation sectors in 2014,

### **Enforcement**

- Four tickets were issued under the CRD Ticket Information Authorization (TIA) Bylaw in 2014.
- No charges were laid under the Sewer Use Bylaw.

## **Contaminants Management**

- Completion of a Master's thesis regarding partitioning of pharmaceuticals and personal care products (PPCP's) in wastewater was completed by an RSCP staff member in 2014. Overall, the thesis affirmed that secondary wastewater treatment can have a positive impact on removal of specified PPCP's from municipal wastewater. It also supported the role of source control initiatives such as promotion of the Medications Return program and identified specific contaminants of concern such as Triclosan for potential risk management action.
- The RSCP co-sponsored a Royal Roads University "major project" study of industrial, commercial and institutional (ICI) sector operations using onsite wastewater treatment systems. The study produced a detailed inventory of all ICI facilities discharging to onsite systems located within Saanich, View Royal, Colwood and Langford. The inventory provided some indication of the range of contaminants that ICI facilities can contribute to the wastes processed at the CRD's septage disposal facility which discharges treated effluent to the sanitary sewer.

## **Contaminant Reductions**

- Wastewater trend assessment results for Macaulay and Clover points and Saanich Peninsula wastewater treatment plant (SPWWTP) influent and effluent monitoring over the period 1990-2011 confirmed findings of previous studies indicating stronger evidence of stable or decreasing loads in a range of priority substances in wastewater discharged from the region's main sewage outfalls.
- Loads of priority metals (those presenting the greatest concern regarding aquatic toxicity), including cadmium, chromium, copper, lead, mercury, manganese, nickel and zinc, exhibited significant decreases ranging from 1% to 19% per year in core area effluent.
- Organic compounds, including certain polynuclear aromatic hydrocarbons, 1,4-dichlorobenzene and tetrachloroethene, showed significant decreases in loads ranging from 2% to 16% per year in core area effluent.
- A significant decrease of 6% per year was also observed for total oil and grease at core area outfalls.
- The next full wastewater trend assessment for the Core Area and Saanich Peninsula is scheduled for 2016.
- For the sixth consecutive year, Ganges wastewater treatment plant mixed liquor results met the Class A criteria for all metals, including mercury. SPWWTP dewatered sludge monitoring, initiated in 2013, continued in 2014. All of these results also met the Class A criteria for metals.

## **Significant Incident Response**

- The "Significant Incident Reporting Procedure" was reviewed in 2013 and re-written in 2014.
- Training sessions for Core Area and SPWWTP operations staff regarding the new procedure were conducted by RSCP staff in January and February 2014. Further significant incident response training is scheduled for 2015.
- There were ten formal incidents: five involving fats, oils and grease (FOG) build-up, one involving drywall mud, one involving obstructive material, one involving hydrogen sulphide, one involving hydrocarbons, and one involving an industrial wastewater spill in 2014; all were investigated by RSCP staff.

## **Residential Outreach**

- Delivery of two new “Green 365” campaigns containing significant source control messaging and integration with other CRD program messaging. These themed campaigns, titled “In the Kitchen” and “Spring Cleaning” were launched in January and April 2014 respectively.
- Continued partnership with the BC Pharmacy Association and the Health Products Stewardship Association in distributing “point-of-sale” tools to 65 pharmacies to promote proper waste medication disposal for residents. Nearly 12 tonnes of medications were returned for disposal in the CRD in 2014, the second highest medication return rate per capita amongst regional districts in the province.
- A new “Slogan Master” social media campaign, promoting the proper disposal of fats oils and grease to residents, and in particular, multi-unit residential buildings, was completed in 2014.
- A residential survey to gauge attitudes, practices and barriers regarding source control behaviors was initiated in 2014, for implementation in early 2015.

## **Business Outreach**

- Inspectors continued to be the front line staff delivering RSCP outreach messaging to local businesses. Outreach included distribution of RSCP sector-based posters and guidebooks. Inspectors delivered messaging regarding cross connection protection, water use reduction, the regional kitchen scraps strategy and other CRD initiatives.
- Eight industry educational videos developed in 2013 were released for business use in 2014. This consisted of four videos each for the food services sector and the automotive repair sector.
- A revision of the Automotive Repair code of practice guidebook, to expand its application to many other types of mechanical repairs, was initiated in 2014.

## **Education**

- Two new resource packages “Food Lessons and Resources” and “Automotive Lessons and Resources” were designed and developed with teachers in 2014. Both link local waste management and pollution prevention practices to BC learning outcomes. Resources developed included videos, maps, lessons and activities which are available online, in pre-loaded USB and in print format.
- The “My Green High School Plan” challenge continued, in partnership with BC Hydro, in 2014. This initiative prompted students in the region to propose ways to reduce their school's eco-footprint, raise student awareness about environmental issues and promote change toward sustainable behaviour. Six high schools and one elementary school received funds ranging from \$250 - \$1500 to implement their green plans. Over 4000 students were engaged at participating schools.
- “Spring Break workshops” held at the Shaw Ocean Discovery Centre incorporated CRD lessons, activities and resources about local drinking water, watersheds, pollution prevention, waste management and “cleaning green”. The Centre’s staff were trained and supported to deliver the workshops which reached over 900 participants.
- RSCP key messaging and information was included in several educator and program coordinator training sessions, three youth and community engagement events and thirty Environmental Partnerships community outreach events held throughout 2014.

## **Regional Source Control Program Website**

- The CRD launched a new corporate website in December 2013. RSCP webpages were transitioned to the new platform and RSCP information was highlighted in the outreach and education section of the website in addition to the services section. The new platform also provided an opportunity to redesign and reorganize source control information.
- RSCP website activity in 2014 could not be directly compared to 2013 due to the redesigned platform, however, all web page activity in 2014 showed a significant drop from 2013 levels. This was thought to be due to changes in key links within the corporate website. Staff will develop new strategies to promote the website and provide improved access in 2015.

## **Partnerships Initiatives**

- In total, an estimated 749 coordinated inspections were conducted in 2014. These inspections included:
  - Providing access, information and/or services for two other programs within the division (Cross Connection Control and Demand Management).
  - Representation of other CRD programs and initiatives to customers (e.g., Regional Kitchen Scraps Strategy)
  - Collaboration with municipal or Island Health staff (including combined on-site inspections) to resolve sewer incidents, share discharge information and enhance reporting procedures.
- Partnerships with external agencies in 2014 included: Metro Vancouver, Island Health, Royal Roads University, Camosun College, School District 61, British Columbia Pharmacy Association, Health Products Stewardship Association, Shaw Ocean Discovery Centre, City of Victoria stormwater management program, Victoria Airport Authority and various federal agencies.
- In 2014 the RSCP continued to integrate Demand Management Program (DM) water audits as an expanded inspection service. A major complex audit was completed on a large transit facility.
- Staff retained a consultant to increase efficiencies in auditing simpler facilities through the development of the 2 Hour Water Audit (2HWA) tool. The 2HWA process was piloted on three facilities (one office/lab, one restaurant and one pub/restaurant) in 2014 and is scheduled for further development and piloting in 2015.
- RSCP staff met with Onsite Wastewater Management Program (OWMP) staff on a bi-weekly basis to exchange information and identify synergies for sharing messaging and efforts to maximize efficiencies. Both programs collaborated on a study of ICI facilities discharging to onsite septic systems.
- In 2014, RSCP staff collaborated with staff from CRD Environmental Protection, City of Victoria, and Victoria Airport Authority (VAA) to test inspection protocols for the pending Saanich Peninsula Stormwater Source Control Bylaw on nine volunteering businesses.
- RSCP worked with CRD Integrated Watershed Management Program staff and View Royal staff to sample, strategize and collaborate in addressing pollution coming from a car dealership site and contaminating a nearby stream.
- In 2014 RSCP staff met with Metro Van staff to discuss Automatic Grease Recovery Device technologies, operational challenges with “flushable” wipes, grease Interceptor compliance monitoring software, and regulatory issues with a growing mobile food services and microbrewery sector.

## **Data Management**

- In 2014, the RSCP borrowed and enhanced data integrity reports initially developed by the CRD Cross Connection Control Program.
- A new infrastructure layer displaying the lateral connections from buildings to sewer, was developed in 2014. This layer will assist RSCP staff in tracking pollutant sources (e.g., grease blockages) faster, resulting in quicker responses to significant incidents.

## **Program Planning and Development**

- The RSCP continued to meet the commitments outlined in the Core Area and Saanich Peninsula LWMPs in 2014.
- The RSCP annual report for 2013 was presented to the Core Area Liquid Waste Management Committee as part of a consolidated annual report, for all Liquid Waste Management Plan programs, on October 8, 2014. Copies of the annual report were subsequently sent to the Ministry of Environment.
- The 2014 RSCP work plan was developed in January 2014 and was updated throughout the year. This plan assisted in setting project timelines and defining responsibilities for activities and projects within the overall context of the five-year plan for the period 2011-2015.
- In July 2014, a consultant was selected to undertake the next five-year independent review of the program. The findings of this review will assist in the development of a new plan for the period 2016-2019 to align program activities with the next CRD budget cycle.

## **Performance Measures**

- The performance measure “percentage of regulated businesses with proper waste treatment” was modified in 2014 to “Overall Compliance”, a better indicator of effective contaminants diversion. The percentage of businesses with “overall compliance” was 95%.
- For the fifth consecutive year, the percentage of mixed liquor and dewatered sludge samples that meet Class A standards for metals was 100%.
- Percentage of priority contaminants showing no increase in loads to the core area environment was 95% – based on the trend assessment for 1990-2011 core area wastewater data.

## **Next Steps - 2015**

The main areas of program development in 2015 include:

- Final implementation of the RSCP five-year plan for 2011-2015.
- COP inspections, monitoring and sector investigations will focus on the automotive repair, vehicle wash, laboratory and food service sectors in 2015.
- Collaboration with internal and external partners to develop the division’s “one-window approach” to customer service for businesses.
- Continued research regarding priority and emerging contaminants.
- Phase II of the automatic grease recovery device pilot project completed in 2015.
- Initiation of a review of the Sewer Use Bylaw to identify required updates and amendments.
- Completion of a five-year review of the RSCP in 2015, covering the period 2009–2013.
- Development and adoption of a new implementation plan to align program activities with the next CRD budget cycle, 2016 - 2019
- Development of a business case for trialing compliance tracking technologies with industry haulers, specific for the food services COP.



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## **CAPITAL REGIONAL DISTRICT REGIONAL SOURCE CONTROL PROGRAM ANNUAL REPORT 2014**

### **1.0 INTRODUCTION**

Source control is a waste management strategy that is aimed at reducing the amount of contaminants that industries, businesses, institutions and households discharge to sewers. The need for a Source Control Program within the Capital Regional District (CRD) was assessed during the period 1990-1992 and a commitment to develop a program followed in 1993.

Following discussions with municipal representatives in 1993, it was agreed that the CRD would assume full responsibility for regulating the quality of wastewater entering its trunk sewers and sewage treatment facilities by applying for designation as a sewage control area. In 1993, the CRD also committed to the development and implementation of a region-wide Source Control Program and adoption of a Sewer Use Bylaw under the *BC Environmental Management Act*. This bylaw was designed to serve as the main regulatory instrument for source control in sanitary sewer systems, creating a level playing field for businesses and institutions throughout the district.

The first phase of implementation of the Regional Source Control Program (RSCP) began in 1995, following adoption of the Sewer Use Bylaw in August 1994. This early phase (1995-1998) focused on identifying, inspecting, assessing and permitting larger industrial facilities operating within the CRD. In 1998, the focus of the program shifted toward development, adoption and implementation of codes of practice (COP) to regulate discharges from a large number of smaller commercial and institutional facilities. The first of these COP were adopted in 1999 and development and implementation of a total of 11 COP was achieved by early 2005.

A five-year internal review of the program was completed in 1999 and annual reporting on the achievements of the program was initiated the following year as one of the commitments in the Core Area Liquid Waste Management Plan (LWMP). The first independent five-year review of the RSCP was completed in 2005. The main recommendations from this review were incorporated into a five-year plan for the period 2006-2010. A comprehensive internal program review, with a focus on reducing priority contaminants, was undertaken in 2008. This led to the development of a revised work plan for 2009-2010, updating the five-year plan and including efforts to increase program efficiency. A second independent review of the program was completed in 2010. The findings of this review, covering the period 2004-2008, was used to develop a new five-year plan for 2011-2015 (see Table 13).

The goals and objectives of the RSCP are documented in the 1996 Saanich Peninsula LWMP and the Core Area LWMP (July 2000). The program goals, which were reviewed in 2008, are as follows:

- protect the marine receiving environment adjacent to the CRD's sewage outfalls
- protect sewage facilities belonging to the CRD and its member municipalities
- protect the health and safety of sewage workers and the general public
- protect the quality of sewage sludge and biosolids
- protect treatment plants against upsets
- consistently apply the program for all users of CRD sewage facilities

The Core Area and Saanich Peninsula LWMPs contain commitments to prepare an annual report on the RSCP for submission to the CRD Board and the BC Ministry of Environment (MOE). This annual report presents a summary of program activities and accomplishments over the period January-December 2014 and provides a brief account of initiatives planned for 2015.

The RSCP is a key component of effective wastewater treatment and will form an integral part of the core area wastewater treatment strategy. The current program meets or exceeds Canadian best practices for source control and the CRD is a nationally recognized leader in this field.

## **2.0 BACKGROUND**

### **2.1 Program Components**

The activities undertaken by RSCP staff in 2014 have been categorized under the following component headings:

- inspections
- monitoring
- enforcement
- outreach
- partnerships initiatives
- contaminants management
- data management
- planning and development

### **2.2 Policies and Procedures**

The following policies and procedures are used to provide guidance and ensure fair and consistent application of the CRD Sewer Use Bylaw and associated enforcement, cost recovery and monitoring activities.

#### Policies Approved by the CRD Board

- Regional Source Control Program Enforcement Policy
- Regional Source Control Program Fees and Charges Policy
- Sewer Use Bylaw Process of Review
- Regional Source Control Program Code of Practice Management Policy—Food Services

#### Operating Procedures

- Sampling and Analysis Procedure Manual
- Analytical Result Reporting Procedure
- Non-domestic Waste Discharge Reporting Procedure
- Significant Incident Reporting Procedure
- Procedure for Managing Contaminated Water Produced During Firefighting Operations in the CRD

The policies and procedures are periodically updated to reflect changes within the program. The “Significant Incident Reporting Procedure” was reviewed in 2013 and re-written in 2014. In 2014 a procedure was established for approving specific grease interceptors with equivalent flow rate testing standards not recognized in the current Food Services Code of Practice.

### **2.3 Sewage Collection Areas and Sewage Facilities**

The CRD Sewer Use Bylaw applies to any discharge of non-domestic waste into a sewer that is connected to a sewage facility operated by the CRD. The RSCP is designed to ensure that the bylaw and its associated policies and procedures are applied consistently within the separate collection areas for these sewage facilities.

The CRD owns and operates eight wastewater treatment plants, as shown in Table 1. Four of these plants—Macaulay Point, Clover Point, Saanich Peninsula and Ganges—receive significant industrial, commercial or institutional wastewater flows, while the remaining four are small plants receiving mostly residential flows.

The sewage flows into each treatment plant are reported in the annual compliance monitoring reports for CRD sewage outfalls.

The ten CRD municipalities, three electoral areas and six other participating areas with sanitary sewers were regulated under the RSCP in 2014. Estimated annual sewage flows contributed by each participating area, over the period 1 October 2013 to 30 September 2014, are listed in Table 2. The annual sewage flows are used to calculate the municipal requisition for the RSCP (see Section 3.9).

**Table 1: CRD Treatment Plants and Sewage Collection Areas–2014**

<b>CRD Sewage Treatment Plant</b>	<b>Sewage Collection Areas</b>
Macaulay Point	Victoria (west), Esquimalt, Saanich (west), View Royal, Colwood, Langford, Department of National Defence, Esquimalt First Nation, Songhees First Nation
Clover Point	Victoria (east), Oak Bay, Saanich (east)
Saanich Peninsula	Sidney, Central Saanich, North Saanich, Pauquachin First Nation, Tseycum First Nation, Institute of Ocean Sciences
Ganges	Township of Ganges (Salt Spring Island Electoral Area)
Maliview	Maliview area (Salt Spring Island Electoral Area)
Schooner Way	Buck Lake area (Southern Gulf Islands Electoral Area)
Canon Crescent	Magic Lake Estates (Southern Gulf Islands Electoral Area)
Port Renfrew	Port Renfrew (Juan de Fuca Electoral Area)

**Table 2: Annual Sewage Flows 2013-2014**

<b>Participant</b>	<b>Estimated Annual Flow (m<sup>3</sup>/year)*</b>	<b>Percentage of Total Flows</b>
Saanich	9,709,039	27.79
Oak Bay	2,944,015	8.43
Victoria	12,670,444	36.27
Esquimalt	2,302,893	6.59
View Royal	608,760	1.74
Colwood	995,273	2.85
Langford	2,034,946	5.83
Sidney	1,250,009	3.58
Central Saanich	1,337,985	3.83
North Saanich	433,774	1.24
Esquimalt First Nation	6,540	0.02
Songhees First Nation	205,903	0.59
Pauquachin First Nation	31,634	0.09
Tseycum First Nation	11,328	0.03
Institute of Ocean Sciences	8,375	0.02
Department of National Defence	95,438	0.27
Ganges Sewer	156,873	0.45
Maliview Sewer	19,313	0.06
Magic Lakes Estates Sewer	89,412	0.26
Port Renfrew Sewer	20,935	0.06
<b>Total Flow</b>	<b>34,932,889</b>	<b>100%</b>

**Note:** \*Yearly flows cover the period 1 October 2013 to 30 September 2014

### **3.0 REGIONAL SOURCE CONTROL ACTIVITIES AND ACCOMPLISHMENTS–2014**

Regional source control activities and accomplishments in 2014 are discussed under the following broad groups of activities:

- industrial, commercial and institutional liquid waste regulation
- enforcement
- contaminants management
- contaminant reductions
- significant incident reporting
- outreach
- partnerships initiatives
- data management
- revenue and expenditures
- planning and development
- performance measures

#### **3.1 Industrial, Commercial and Institutional Liquid Waste Regulation**

##### **3.1.1 Regulatory Background**

The Sewer Use Bylaw serves as the main regulatory instrument for source control within CRD sanitary sewer systems. The bylaw specifies the various regulatory conditions under which facilities must operate if they discharge non-domestic waste into a sanitary sewer. The regulatory conditions for businesses include operation under waste discharge permits, authorizations or sector-specific COP.

Following adoption of the Sewer Use Bylaw in August 1994, the RSCP focused primarily on identifying, inspecting, assessing and permitting larger industrial facilities and preparing authorizations for smaller commercial and institutional dischargers operating within the district. This process was largely completed over the period 1995-1998. Waste discharge permits require ongoing management, inspection and periodic amendment to accommodate changes in site-specific processes, practices and discharge conditions. New businesses continue to be assessed for operation under permits or authorizations each year.

In 1998, the focus of the program shifted toward development, adoption and implementation of COP to regulate discharges from larger numbers of smaller commercial and institutional facilities operating in the district. The first regulatory COP, considered to be unique in North America, were adopted in 1999 and inspections and enforcement for these codes commenced the following year. By the end of 2003, 11 COP had been adopted under the Sewer Use Bylaw. All codes were developed using extensive stakeholder involvement to help ensure their practicality and acceptance within each sector. For further information on COP, see Section 3.1.4.

The Sewer Use Bylaw and its associated policies and procedures have been amended periodically during the first 12 years of the program—largely to accommodate adoption of COP, but also to add new restricted waste limits and a structure for cost recovery.

##### **3.1.2 Waste Discharge Permits**

Waste discharge permits are site-specific regulatory documents, issued to businesses or institutions under the CRD Sewer Use Bylaw, that outline requirements for wastewater pre-treatment, effluent quality, monitoring and reporting. Waste discharge permits are issued to facilities or operations that discharge significant non-domestic wastewater flows (greater than 10 m<sup>3</sup>/day) or wastewater containing high loads of restricted wastes or specified chemical contaminants into the sanitary sewer. Table 3 provides a summary of waste discharge permit activity in 2014.

**Table 3: Summary of Waste Discharge Permit Activity in 2014**

<b>Waste Discharge Permit Activity</b>	<b>2014</b>
Permits active (at year end)	31
New permits issued	2
Permits closed	4
Permits amended	5
Permit site inspections (including evaluations for new permits)	63

At the end of 2014, there were 31 active waste discharge permits being managed by RSCP staff. The majority of these permits were ongoing, with no expiry date. Two new permits were issued, one for short-term discharges of seawater from a Department of National Defense (DND) ship-repair caisson and another for wastewater barged from a naval vessel to a discharge point in the City of Victoria. Both permits had set expiry dates.

Permit management activity includes reviewing discharger self-monitoring reports on a monthly or quarterly basis, preparation of compliance letters, meetings and regular phone contact with permittees and site inspections. Permit managers are also responsible for comparing CRD audit sampling data to permittee self-monitoring data and submitting permit fee billing information to CRD Finance and Technology Department, Financial Services Division.

All permit inspections scheduled at the beginning of 2014 were completed within the year. During 2015, inspection staff will continue to conduct investigations into potential new non-domestic waste discharge permits or authorizations in known “hot spots” within the region e.g., industrial parks, or those identified through municipal engineering or business licensing staff.

### **3.1.3 Authorizations**

Letters of authorization are issued under the Sewer Use Bylaw in cases where overall contaminant loads to sanitary sewer are low or where discharges are predicted to have a minimal impact on collection and treatment systems and/or the receiving environment. Authorizations contain site-specific discharge requirements and best management practices (BMP) designed to decrease the impact of the discharge or limit the potential for illegal discharges. They are normally issued without expiry dates. Some authorizations have self-monitoring and/or reporting requirements.

Authorizations are commonly issued to regulate unusual discharges or discharges from small groups of similar operations, such as ship and boat waste facilities, laundromats and sani-dumps. They can also be issued to businesses where a COP is either planned or under development or where requirements differ from those specified in a code.

Inspections are carried out on a periodic basis by source control staff with an emphasis on those authorizations which had previously been regulated under permits or those which include operations discharging priority contaminants. Table 4 summarizes authorization activity in 2014.

**Table 4: Summary of Authorization Activity in 2014**

<b>Authorization Activity</b>	<b>2014</b>
Authorizations active (at year end)	91
New authorizations issued	5
Authorizations closed or transferred to codes or permits	3
Authorizations amended	3
Authorization site inspections (including evaluations for new authorizations)	45

Regular inspections were originally scheduled for 43 existing high priority authorizations in 2014 and, overall, 45 inspections were completed by December 2014 – including those for 5 new authorizations.

### 3.1.4 Codes of Practice

#### Background

The CRD has made commitments in the Core Area and Saanich Peninsula LWMPs to the development and implementation of COP to regulate non-domestic waste discharges from commercial and institutional sectors to the district's sanitary sewers. The RSCP defines COP as "regulatory documents containing mandatory sanitary sewer discharge standards for specific industrial, institutional or commercial sectors."

RSCP staff began developing COP in 1996, following consultants' recommendations that this approach would be well-suited to the CRD's existing blend of small industrial facilities, commercial businesses and institutions. COP development and adoption became one of the main focal points of program activities over the period 1998-2003. Stakeholder task forces were formed for each code sector to guide the development process and to help ensure the practicality and effectiveness of the final product. By December 2003, the development and adoption process for COP had been completed on schedule. All codes had been fully implemented by January 2005. The adoption, amendment and effective dates of the 11 codes are summarized in Table 5.

**Table 5: Summary of RSCP Codes of Practice Adoption and Effective Dates (Bylaw No. 2922)**

Code of Practice	Adoption Date	Initial Effective Date (New Operations <sup>1</sup> )	Final Effective Date (Existing Operations <sup>2</sup> )
Food Services Operations	24 November 1999 <sup>3</sup>	1 January 2000	1 January 2003
Dry Cleaning Operations	24 November 1999 <sup>4</sup>	1 January 2000	1 July 2004 <sup>4,6</sup>
Photographic Imaging Operations	24 November 1999	1 June 2000	1 June 2000
Dental Operations	22 November 2000	1 January 2001	1 July 2001
Automotive Repair Operations	12 December 2001 <sup>4</sup>	1 January 2002	1 January 2004
Vehicle Wash Operations	12 December 2001 <sup>4</sup>	1 January 2002	1 January 2005
Carpet Cleaning Operations	11 December 2002	1 July 2003	1 July 2003
Fermentation Operations	11 December 2002	1 January 2003	1 July 2003 <sup>5</sup>
Printing Operations	11 December 2002	1 January 2003	1 January 2005
Laboratory Operations	10 December 2003	1 January 2004	1 July 2004 <sup>6</sup>
Recreation Facility Operations	10 December 2003	1 January 2004	1 January 2005 <sup>7</sup>

**Notes Table 5:**

<sup>1</sup> Businesses or institutions that commence operation within a specific code sector on or after the code's initial effective date.

<sup>2</sup> Businesses or institutions that were operating within a specific code sector before the code's initial effective date.

<sup>3</sup> Code amended December 2001 and March 2003.

<sup>4</sup> Code amended December 2003.

<sup>5</sup> For fermentation operations producing waste containing yeast.

<sup>6</sup> Spill response plans required.

<sup>7</sup> Monitoring point installation required.

In general, COP include mandatory requirements for waste treatment, inspection, maintenance and record keeping for businesses and institutions discharging non-domestic wastes to sanitary sewer. They are believed to be among the first of their type to be adopted in North America. RSCP staff have prepared plain language guidebooks for each code sector explaining the applicable regulations and providing BMP to help businesses achieve compliance and improve environmental performance. These guidebooks are also accessible through the program's webpage.



## **Code of Practice Inspection Summary–2014**

In 2014, RSCP continued to emphasize customer service and support as part of COP inspections, in addition to ensuring compliance with the COP requirements. This involves making every effort to educate regulated operations, provide guidance, and in some cases feedback through lab analysis of effluent quality, sometimes at the cost of multiple visits to the same establishment.

Five inspectors conduct all of the COP inspections, in addition to managing the RSCP permits and authorizations. During front-line interactions with businesses, the inspectors can provide auditing and reporting services for other CRD programs, technical services for other Parks and Environmental Services projects or programs as required, and participate in the development and implementation of outreach initiatives.

Efforts to inform businesses about other CRD programs, coordinate inspections with other regulators, and provide augmented services such as water audits have been successful. Regional Source Control Program inspectors have provided customers with literature and contacts for Cross Connection Control, Trucked Liquid Waste, the Regional Kitchen Scraps Strategy and the Onsite Wastewater Management Program.

Table 6 provides a summary of COP inspection activity in 2014. The sector estimates shown in the table are the numbers of active operations estimated within each sector at the beginning of each year. The total number of site inspections includes first (or primary) inspections within an inspection cycle and repeat (or follow-up) inspections to confirm compliance status. The overall inspection levels in 2014 (964) were higher than the average (823) for the previous four years.

**Table 6: Summary of Code of Practice Activity in 2014**

<b>Code of Practice</b>	<b>Est. Sector Size (2014)</b>	<b># Site Inspections (2014)</b>
Automotive Repair	134	48
Carpet Cleaning	47	62
Dental	113	1
Dry Cleaning	13	2
Fermentation	28	1
Food Services	1176	796
Laboratory	31	29
Photographic Imaging	90	10
Printing	20	3
Recreation Facility	13	1
Vehicle Wash	34	11
<b>Total COP Operations</b>	<b>1699</b>	
<b>Total COP Site Inspections</b>		<b>964</b>

**Note:** \* Includes both primary and repeat inspections. Some inspections were conducted on facilities that were deemed, through the inspection to have "no regulated waste". In that case, the facility would not be included in the sector size estimate, but the inspection would be counted.

As part of the customer service focus, inspection targets for selected sectors were set and thoroughly reviewed. The "sector-by-sector" review process includes inspecting all the businesses due for an inspection in each sector for baseline compliance, reviewing the COP for any necessary amendments or updates, and updating data for new and/or newly sewered facilities. Sectors of focus in 2014 were automotive repair, vehicle wash, carpet cleaning, laboratory, photographic imaging and food services. Other sectors were visited only for "follow-up" inspections.

Automotive and vehicle wash sectors were inspected together as part of a Phase I review to cover priority inspections coupled with visits to newly sewered properties and facilities previously classified as "non-regulated". It is more efficient to do these two sectors together as many facilities in the region operate both; e.g., automotive dealerships and garages often also wash vehicles as part of their service. Phase II

inspections are planned for 2015, involving an intensive and large-scale inspection effort and sector review.

A stakeholder engagement process (Phase I) with the carpet cleaning sector, which included a telephone survey, was conducted in 2013 to help better direct and solicit industry cooperation for a thorough inspection schedule. In 2014, Phase II of the carpet cleaning inspections commenced, resulting in a significantly larger recognized sector. The face-to-face interactions helped to re-establish regulatory requirements for this mobile (and consequently sometimes difficult to inspect) sector for both new and established operators. Although treatment requirements are light (mesh screening), the biggest value in regulating and dialoguing with this sector is reminding operators that they are supposed to discharge their screened effluent directly to sewer (e.g., a toilet), as there have been misunderstandings in the past resulting in illegal dumps to storm drains and streams.

Thorough laboratory sector inspections were conducted in 2014 and a follow-up sector review is planned for 2015 to assess practical approaches for regulating high schools and veterinary clinics. Past partnering and inspection efforts indicate that high schools should be inspected as a “whole” facility with considerations for timing around classes, potential low loadings, and review of “Zero down the drain” policies that many schools have in place now. Veterinary clinics often present negligible environmental impacts (tissue stains, blood and urine samples) and may be better served through development of a Best Management Practices document.

Some work with the photographic imaging sector was done in 2014, primarily targeting facilities that have transitioned to mainly digital photography.

Rigorous food service inspections are a constant every year, given the high volume of restaurants in the region. Of the 796 inspections conducted, 223 were repeat inspections; the majority of those repeat inspections focusing on assisting the facility to comply with regulatory requirements such as proper maintenance of existing grease interceptors.

In 2014, staff invited two companies to present their compliance tracking software technologies for grease interceptors. The technologies can be applied to any treatment works maintenance scheduling, but there is particular interest internally in finding efficiencies for prioritizing food services inspections for facilities which are missing their required maintenance schedules. In the past, food services inspections planning would assign a three-year cycle for compliant inspections. Some of the limiting factors to this approach are frequent staff and owner changes, restaurant closures, and facilities purposely cancelling maintenance service. The technology is designed to operate on a hauler’s device, which uploads to cloud-based storage accessible instantly by RSCP inspectors. Staff also engaged representatives from the three major grease waste hauling companies in the region to review the technologies available. All three companies were open to participating in a pilot project to assess the effectiveness of the technology.

### **3.1.5 Coordinated Inspections**

A primary goal of the Environmental Partnerships Division is to provide superior customer service to businesses regulated by three CRD bylaws (Sewer Use Bylaw No. 2922, Water Conservation Bylaw No. 3061 and Cross Connection Control Bylaw No. 3516). The opportunity to provide better service in less time is achieved through a “water management” approach to business owners, combining wherever possible, services related to all three bylaws in fewer visits. Superior customer service is further achieved through collaboration with our external regulatory partners (e.g., Island Health and municipal inspectors) and other CRD divisions. Aligning with the Partnerships theme, other CRD Environmental Services programs have capitalized on the visibility and established relationships of RSCP inspectors with the business community. As such, inspectors have been called upon to represent a variety of programs with their inspections, helping customers to access information, services and grants or through provision of relevant information to customers on behalf of other CRD programs.

This approach required adoption of a “coordinated inspection” which was subsequently defined as:

*Working with all our partners, Environmental Partnerships provides augmented inspection services that achieve superior customer service and promote high environmental performance within businesses.*

From 2014 onward the number of coordinated inspections achieved within a year will be based on an assumption that every inspection is conducted with the *intention* to include coordinated services such as CRD program information or co-attendance with another regulator. However there are some conditions whereby a coordinated inspection would not occur such as:

- A repeat inspection within a year
- An inspection with a serious compliance issue
- An inspection where staff were not able to converse with management and/or owners.

Therefore, the method for estimating number of coordinated inspections is based on the following assumptions:

- Inspected facilities with a “compliant” or “step 1” compliance status are assumed to be a coordinated inspection.
- Inspected facilities with a “step 2” or higher compliance status are not considered to be a coordinated inspection.
- Repeat inspections within one year are not considered to be a coordinated inspection

In total, 749 coordinated inspections were completed in 2014. These inspections included:

- **Multi-jurisdiction combined inspections:** On several occasions, RSCP inspectors combined site visits with one or more additional regulators from either Island Health or a municipality to assess compliance with multiple bylaws and/or regulations.
- **Saanich Peninsula Storm Water Source Control Bylaw (SPSWSC) Inspections:** In 2014, RSCP staff collaborated with CRD Environmental Protection staff to test inspection protocols for the pending SPSWC bylaw on nine Victoria Airport Authority (VAA) tenant businesses. Regulators worked in partnership with VAA staff and the volunteering business to gather feedback from affected businesses, train RSCP inspectors, and identify gaps within the proposed bylaw for potential amendment. Once the SPSWSC bylaw is adopted, it is anticipated that a high percentage of future Saanich Peninsula RSCP inspections will be coordinated with a SPSWSC inspection undertaken.
- **City of Victoria Storm Bylaw Training:** On several occasions, RSCP inspectors worked with City of Victoria staff to share experience and knowledge in developing the best practices for trialing the SPSWSC Bylaw.
- **Colwood Restaurant FOG Inspections:** RSCP staff worked with CRD Integrated Watershed Management Program staff, Health Authority staff and Colwood Fire Department staff to resolve potential stormwater pollution and fire hazard resulting from leaking external grease traps operated by a RSCP-regulated facility in Colwood.
- **Automotive Pollution View Royal:** RSCP staff worked with CRD Integrated Watershed Management Program staff and View Royal staff to sample, strategize and collaborate in addressing pollution coming from a car dealership site contaminating a nearby stream.

In general, these practices also contribute to the RSCP inspector's ability to provide coordinated services during inspections:

- **Cross Connection Control (CCC) inspections – information sharing:** CCC inspectors attend RSCP bi-weekly meetings, as needed, for updates on targeted sectors. Both programs share

information relevant to improving and aligning inspection strategies such as related renovations occurring, opening of new businesses, changes in ownership, and compliance observations.

- **Island Health applications for food facility forms:** Island Health admin staff direct hundreds of new food facility applicant forms to the RSCP inspection team via email. The forms indicate either a change of ownership or a new business, both of which are a priority for inspectors to communicate bylaw requirements and services available via a site visit, phone call or email.
- **CRD programming and initiatives:** Inspectors helped their customers to stay informed on CRD programs and initiatives that are relevant to their business such as the Regional Kitchen Scraps strategy. RSCP inspectors distributed brochures, engaged in dialogue, and connected their customers with primary contacts for these programs.

### 3.1.6 Monitoring

RSCP staff carried out the following types of monitoring in 2014: permit compliance, authorization compliance, code of practice and key manhole monitoring. All wastewater samples collected in 2014 were analyzed by a contract laboratory using standard analytical procedures specified in the *RSCP Sampling and Analysis Procedure Manual*. Monitoring of dewatered sludge produced at the SPWWTP commenced in March 2013. Table 7 provides a summary of RSCP monitoring activity in 2014.

**Table 7: Summary of RSCP Monitoring Activity in 2014**

Monitoring Events	2014
Permit compliance	57
Authorization compliance	17
Code of practice	8
Key manhole	15
SPWWTP influent	8
SPWWTP dewatered sludge	14
Ganges influent	1
Ganges mixed liquor	14

#### Permit Compliance Monitoring

Businesses operating under waste discharge permits are required to carry out self-monitoring of their wastewater for a range of parameters on a specified regular basis. This data is normally submitted to RSCP staff on a monthly or quarterly basis for compliance assessment. An important component of the RSCP is the collection and analysis of audit samples from each permitted site twice per year. This is done to verify compliance and confirm that the self-monitoring data being submitted are representative of discharges from each permitted site. RSCP staff normally collects these samples throughout the year following a pre-arranged schedule. Additional sampling events are carried out, as necessary, on suspected problem discharges from permitted sites.

The average number of scheduled audit events per permit in 2014, was two. The goal of collecting audit samples from each permitted site twice per year was achieved at all but two permit sites. One sample was not collected due to a change of operations of the permit site. The other sample was not collected due to a change in sample collection configuration that was ongoing at the end of the year. One permit site was sampled three times to assess a new treatment system.

The environmental science officer (ESO) responsible for managing a specific permit reviews the data submitted by the permittee. If a significant difference is detected between permittee self-monitoring results and RSCP audit results, the permittee is contacted and an investigation into the discrepancy is initiated.

The majority of all audit results obtained in 2014 were not significantly different from self-monitoring results reported from the same site. This indicated that most of the self-monitoring results being

submitted by permittees had been collected and analyzed in an appropriate manner as required by each permit.

Since RSCP audit monitoring is carried out in accordance with strict quality assurance procedures, it provides reliable information when calculating characteristic contaminant levels or loads for a particular industry or business type. This information is useful for planning purposes in specified collection areas.

#### Authorization Compliance Monitoring

Monitoring was also carried out in 2014 at 17 businesses operating under authorizations with self-monitoring requirements. The RSCP monitoring provides, at minimum, an annual check on the quality of effluent being discharged by businesses known to have reported restricted waste generation or handling on site. The results of this monitoring indicated that discharges from authorizations in 2014 were generally in compliance with Sewer Use Bylaw restricted waste limits.

#### Code of Practice Monitoring

A new sector-focused approach to COP monitoring was chosen for implementation in January 2012. The new approach involves focusing on fewer sectors per year but sampling the entire sector, where possible, rather than a portion of it. This focused monitoring is coordinated with inspections in order to address any compliance issues which may influence monitoring results.

The new monitoring approach generates a comprehensive overview of the composition of the wastewater within each sector and provides information on the effectiveness of specified treatment works reducing contaminant loads. The data generated also assists businesses in meeting the restricted waste criteria defined in the CRD Sewer Use Bylaw (Bylaw No. 2922).

Businesses operating under codes are not required to sample their own wastewater and report results to the RSCP. Compliance with a code is usually achieved by installing the required properly sized treatment works, carrying out regular maintenance and keeping records.

In 2014, COP monitoring was carried out on two of the eleven regulated sectors; carpet cleaning and fermentation.

#### **Carpet Cleaning**

The carpet cleaning sector has a total of thirty-six operations in the region. In June 2014 12 samples were collected from 11 businesses during each site inspection. The samples included filtered effluent, unfiltered effluent, truck mount unit effluent, and portable unit effluent. Samples collected in 2014 were analysed for pH, chemical oxygen demand (COD), total suspended solids (TSS), and all metals included in Bylaw No. 2922.

TSS, COD, and metals have been identified as the primary parameters of concern in the carpet cleaning sector. Two of the operations had TSS exceedances over Schedule "O" limits of 1000 mg/L. There were three copper, three zinc, one iron, and one lead exceedances over bylaw limits of 1mg/L, 3mg/L, 50mg/L, 1mg/L respectively. Although this sector is exempt, there were ten COD exceedances over bylaw limits for restricted waste of 1000 mg/L.

No correlation was found between contaminant exceedances in 0.25 mm filtered effluent and unfiltered effluent samples. No correlation was found between contaminant exceedances in portable unit effluent and truck mount unit effluent samples.

It is recommended that carpet cleaning sampling is continued during sector-wide inspections, according to the five-year cycle for low-priority sectors, in an effort to further characterize the waste stream.

## **Fermentation**

The fermentation sector has a total of seven small brewery sites in the region and each site was sampled at least once. Samples collected in 2014 were analysed for chemical oxygen demand (COD), total suspended solids (TSS), biochemical oxygen demand (BOD), pH, and temperature.

Five of the seven sites had the appropriate pre-treatment in place, and samples were taken prior to discharge to the sanitary sewer. Two of the sites were required to alter their pre-treatment configuration to meet the bylaw requirements (Schedule "P"), and samples are planned to be taken in early 2015. The findings from this monitoring will be included in the 2015 annual report.

## **Key Manhole Monitoring**

Key manhole monitoring is carried out to monitor for contaminants originating from sources within wide sanitary sewer collection areas. This includes monitoring at three residential sites and two DND sites within the Macaulay Point and Clover Point collection areas. It also includes one residential site and Victoria International Airport within the Saanich Peninsula wastewater treatment plant (SPWWTP) collection area.

## **Residential Sites**

Residential (or domestic) key manhole monitoring has been carried out by RSCP staff since 1996. This sampling has provided information on background levels of typical contaminants found in residential wastewater and the data have been used to predict contaminant loads from domestic sources for planning purposes.

The 2014 residential sampling program included sampling events at Dean Park (North Saanich), Harling Point pump station (Oak Bay) and Lang Cove pump station (Esquimalt) in January, July and October. The sampling event in April was not carried out due to a change in procedure for sample collection. All events included sampling and analysis for a wide range of parameters, including priority contaminants. No results were in exceedance of sewer use bylaw restricted waste limits at any of the sites sampled in 2014.

## **DND Sites**

In 2014, key manhole sampling was carried out at the Esquimalt pump station, serving the DND Dockyard area and at the DND Colwood pump station in May and October. No results were in exceedance of sewer use bylaw restricted waste limits at any of the sites.

## **SPWWTP Collection Area Sites**

Monitoring at the Airport #5 site was continued and samples were collected in April and October. No results were in exceedance of sewer use bylaw restricted waste limits.

## **SPWWTP Influent and Dewatered Sludge Monitoring**

Monthly grab samples (for metals analysis) and four composites (for metals and priority pollutant analysis) of SPWWTP influent were collected annually by RSCP staff in past years. Monthly grab sampling was discontinued in June 2007, following a consultant's review of the plant's influent/effluent sampling program. The monthly grab samples were replaced by quarterly triplicate composite sampling (on three consecutive days) beginning in April 2008. This triplicate composite sampling, conducted by Marine Programs staff on behalf of RSCP, was referred to as "quarterly plus" sampling.

Golder Associates Ltd., (2013), recommended that SPWWTP monitoring could be reduced to biannual triplicate 24-hour composite sampling (on three consecutive days) with single 24-hour composites taken in the remaining two quarters. As a result, there were two triplicate influent sampling events carried out by Marine Programs staff at SPWWTP in 2014 – those scheduled in January and July. Single composite samples were collected in April and October.

Fourteen composite dewatered sludge samples were collected by Operations staff at the SPWWTP for analysis in 2014. Daily samples were combined into weekly composites which were submitted for moisture, metals and cyanide (WAD) analysis on a monthly basis, with a field duplicate submitted in February and September.

#### GGWTP Influent and Mixed Liquor Monitoring

As in past years, a single (grab or composite) sample of influent was collected at the Ganges wastewater treatment plant (GGWTP). The sample collected in July 2014 was submitted for priority pollutant analysis.

Fourteen mixed liquor (treatment plant wastewater mixed with activated sludge) samples were collected by Operations staff at the GGWTP for analysis in 2014. Grab samples were generally collected on a monthly basis (with two samples in February and no sample in August), with a field replicate taken in October and November. Samples were submitted for moisture and metals analysis.

The influent, dewatered sludge and mixed liquor data are routinely entered into the Environmental Services Information System (ESIS) database by Environmental Protection staff. The data are used to identify contaminants of concern, provide ongoing information on contaminant variability, loads and trends at the treatment plants and provide input to planning initiatives.

### **3.2 Enforcement**

The district has adopted a stepwise approach to enforcement of the Sewer Use Bylaw as outlined in the *Regional Source Control Program Enforcement Policy*. This enforcement policy classifies offences, outlines enforcement steps and includes use of cooperative measures, such as increased communication, education and monitoring, to resolve issues of non-compliance. The policy was originally approved by the CRD Board in February 1997 and was last amended in November 2006.

The CRD Ticket Information Authorization (TIA) Bylaw contains fines (tickets) that have been set for specific offences under the Sewer Use Bylaw and its associated COP. This bylaw was last amended in December 2006.

Enforcement activities are directed at ensuring or restoring discharger compliance with the terms and conditions of the Sewer Use Bylaw, waste discharge permits, authorizations and COP. Enforcement action is applied in an escalating manner that is reasonable, fair, consistent and impartial. Warnings, tickets, orders and fines are issued, as necessary, in cases of continuing non-compliance.

The strategic direction and implementation approach outlined in the 2009 Service Delivery Review specified introduction of a more supportive, proactive and collaborative approach to enforcement within the Environmental Partnerships Division. This more collaborative approach has been applied by RSCP staff since 2010.

#### Operations Regulated By Waste Discharge Permit

Of the 31 active waste discharge permits in place at the end of 2014, 13 sites were in “full compliance” with their permits and the Sewer Use Bylaw. No sites were classified as dischargers under review (DUR). The remaining 18 sites were considered to be “in progress”, but still in compliance with their permits under the enforcement policy. The enforcement levels and numbers of permits at each level are summarized in Table 8.

**Table 8: Summary of Waste Discharge Permit Compliance (2014)**

Enforcement Level	Number of Permits
Full Compliance	13
Step 1	8
Step 2	2
Step 3	1
Staff Assessment	7
Discharger Under Review (non-compliant)	0

Above Step 3, a significant escalation of enforcement action occurs, including notification of compliance status by letter, increased inspection or monitoring frequency, staff assessment of treatment works or procedures and scheduling of meetings to discuss remedial actions. Commitments and requirements agreed to at these meetings are confirmed in a follow-up letter to the permittee. Further non-compliance incidents can result in elevation from staff assessment to DUR status. Dischargers at the DUR level or above are considered to be non-compliant with their permits.

Operations having DUR status must prepare and submit a detailed compliance plan for approval by the deputy sewage control manager (DSCM). A 90-day period is allowed for the preparation of this plan. This period of time allows for a discharger to hire a consultant to help determine appropriate actions to achieve compliance. Progress meetings are held with the discharger after 30 and 60 days to measure progress, fully communicate the intent of any requirements and clarify any outstanding issues. A compliance plan, once approved by the DSCM, becomes a compliance program that usually forms part of the discharger's waste discharge permit through an amendment.

If no acceptable compliance plan is received within the 90-day period, an order may be issued under the *Environmental Management Act* to set conditions for discharge, or a lawyer's letter is issued. Failure to comply with an order or a lawyer's letter will result in consideration of legal action.

Seven permit sites classified above Step 3 were subject to assessment by RSCP staff in 2014. These sites included:

- A septage disposal facility and an oily wastewater treatment facility remained under staff assessment for sulphide exceedances in 2014. The permits for these sites were amended in January 2014 and April 2014 respectively, to include sulphide reduction measures, however periodic exceedances of sulphide limits have continued at both facilities. Further enforcement steps, including meetings with facility operators, is planned for 2015.
- A municipal street waste treatment facility remained under staff assessment for exceedances of total suspended solids, chemical oxygen demand, total oil and grease and iron in 2014. A report regarding the circumstances potentially leading to the exceedances and possible solutions was submitted in July 2013. Some changes in operating procedures and maintenance of the treatment works were implemented, however frequent exceedances of permit limits continued in 2014. A meeting to help resolve the staff assessment is scheduled for 2015.
- A second municipal street waste facility was placed under staff assessment in September 2014 for exceeding its permit limit for mineral oil and grease (MOG). Some recent changes in operating procedures such as increased catch basin cleaning may have been a contributing factor, as well as a potentially higher concentration of oil, along with a lower than normal annual precipitation in the region. Continued staff assessment is planned for 2015.
- A regional transportation facility was placed under staff assessment in November 2014 for multiple exceedances of MOG limits. The staff assessment will continue in 2015 with a report on circumstances due in March 2015.



- A food processing plant was placed under staff assessment in September 2014 for exceeding its permit limits for total oil and grease (TOG). Potential explanations may be expanded operations to include fish processing. The facility was reviewing practices and treatment options into 2015.
- An industrial laundry was placed under staff assessment in December 2014 for exceeding its permit limits for TOG. A report regarding the circumstances potentially leading to the exceedances and possible solutions was submitted in January 2015. Installation of additional treatment is being considered by this facility.

No charges were laid against waste discharge permit holders under the Sewer Use Bylaw during 2014. The overall waste discharge permit compliance level was 100% ("full compliance" or "in progress").

#### Operations Regulated by Authorization

A small group of the total number of authorizations issued is scheduled for inspection each year based on the types of contaminants regulated, the contaminant levels, discharge volumes and the overall impact of discharges from these operations. Discharges from authorizations are considered to have a relatively minor impact in comparison to discharges from permitted facilities.

Forty-five inspections were carried out at sites operating under authorizations in 2014. At the end of 2014, all but five of the inspected businesses were in full compliance with their authorizations. One authorization was classified as a discharger under review (DUR) at the end of 2014.

A federally-owned ship and boat waste facility was classified as a DUR in October 2013 as a result of a discharge of prohibited waste (Bunker "C" fuel oil) into the CRD sanitary sewer system at Lang Cove pump station in September 2013. A working group was formed in January 2015 to discuss measures that could be put in place to better control discharges from this facility in future.

The overall compliance level ("full compliance" or "in progress") for the total 91 authorizations active at the end of 2014 was 95%.

#### Operations Regulated by Codes of Practice

The stepwise approach to achieve compliance is applied to all COP sectors in a similar way to dischargers operating under permits or authorizations as outlined in the enforcement policy. Dischargers are classified as being in "full compliance" if they have been inspected and no unsatisfactory issues are identified. Dischargers having committed offences up to and including Step 3 are classified as being "in progress" and those at the DUR level and above are classified as being in "non-compliance" with the code. A summary of the COP enforcement results for inspections carried out from the implementation date of each code to 2014 is presented in Table 9.

**Table 9: Code of Practice Enforcement Summary—from implementation date to end of 2014**

<b>Code of Practice</b>	<b>% Full Compliance<sup>1</sup></b>	<b>% In Progress<sup>2</sup></b>	<b>% Non-Compliance<sup>3</sup> (DUR)</b>
Automotive Repair	92%	8%	0
Carpet Cleaning	96%	4%	0
Dental	90%	10%	0
Dry Cleaning	69%	31%	0
Fermentation	89%	11%	0
Food Services	91%	8.5%	0.5%
Laboratory	77%	23%	0
Photographic Imaging	99%	1%	0
Printing	80%	20%	0
Recreation Facility	100%	0	0
Vehicle Wash	85%	15%	0

**Notes:**

<sup>1</sup> Percentage of active operations, regulated within the sector and in compliance with all requirements of the code at the last inspection – including sites with required treatment works and those using offsite waste management.

<sup>2</sup> Percentage of active operations, regulated within the sector classified at Step 1, 2 or 3 of the enforcement policy at the last inspection date.

<sup>3</sup> Percentage of active operations, regulated within the sector classified as DUR at the last inspection date.

Most COP enforcement actions to date have been associated with implementation of the food services code, which regulates one of the largest business sectors in the district. This sector has been very cooperative during application of the escalating approach to enforcement, and approximately 8.5% of food services operations inspected were considered to be “in progress”, with 0.5% being classified as DUR. The main non-compliance issues continue to be failure to maintain grease interceptors and failure to install properly-sized grease interceptors.

There were four tickets issued under the CRD Ticket Information Authorization Bylaw to food services operations in 2014. Two of the four tickets issued have been paid and these files were closed. Staff are following up on the remaining two tickets, issued to a single food services operation in 2015.

The Dry Cleaning sector had 31% of the facilities “in progress”, which equates to four of the thirteen regulated facilities. Three were at step 1, and one was at step 2; all for minor PERC exceedences. In each case the facilities were set up with the prescribed treatment works, and staff continue to work with the businesses to make the adjustments necessary to achieve the restricted waste limits.

The laboratory sector had 23% of the facilities “in progress” in 2014, which equates to six of the thirty-one regulated facilities. Of the “in progress” facilities, five of the labs were located within the same large post-secondary institution, and all had step 1 infractions for either inadequate spill materials, absent spill response plans, or no secondary containment.

**Replacing “Proper Waste Treatment” with “Overall Compliance” as a Measure of Success**

Overall compliance by our definition includes facilities with either a “compliance” or “step 1” inspection status. A “step 1” compliance status is indicative of a “first infraction”, e.g., a late permit report, or failure to keep records as required. A single infraction does not have a significant impact on the program; any facility without proper treatment works would be given a “Step 2” (“first major infraction” or higher level of enforcement depending on the situation).

Historically, the RSCP has reported out on percentage of facilities with proper waste treatment as a measure of success. This was a significant marker of program influence in the developing years, as new Codes of Practice were being introduced to the region. Moving forward, a shift to “overall compliance” will provide a better indicator of effective contaminants diversion for the following reasons:

- **Consistent high compliance with proper treatment works installed:** Overall high compliance (>90%) for each sector has been standard since 2008. With no new codes implemented since 2005, ample time has passed for businesses to upgrade to compliant treatment works. As such, we can assume as a baseline that almost all regulated facilities are operating with proper waste treatment in place.
- **Treatment Works Maintenance:** The top enforcement issue amongst regulated facilities is proper maintenance of treatment works. All treatment work systems are rendered ineffective if they are not maintained, and consequently, as a compliance indicator, this is much more accurate in representing how well waste is being managed. Failure to properly maintain treatment works is considered a major infraction and such facilities are automatically raised to a step 2 enforcement level.
- **Working with facilities with inadequate or no treatment works:** On the rare occasion where a facility is found to have no treatment works on site, staff work swiftly with the business towards adopting an effective treatment or diversion program. When there is resistance to working proactively with staff, enforcement actions escalate quickly. When inspected treatment works are viewed as ineffective (e.g., under capacity, in poor repair, or not meeting a certified standard) the inspector will work with the business to improve treatment performance through either an upgraded system that meets CRD requirements, or assisting the business with modifying their practices to eliminate the need for onsite treatment works (e.g., an automotive shop disconnecting their floor drains and using off-site treatment services exclusively). Failure to install treatment works is considered a major infraction and such facilities are automatically raised to a step 2 enforcement level.

In 2014 **95%** of facilities regulated under RSCP Codes of Practice, Permits and Authorizations achieved **overall compliance**.

### 3.3 Contaminants Management

Contaminants management represents a new phase for the RSCP, building on the program's successful regulatory approach, but involving a shift in focus towards avoidance, elimination or substitution of polluting products, processes or materials in order to make reductions in specific priority contaminants that have proven difficult to control or treat. Two contaminants management projects undertaken in 2014 are outlined below.

#### Partitioning and Fate of Pharmaceuticals and Personal Care Products in Wastewater

A thesis titled "Assessing the Partitioning of Pharmaceuticals and Personal Care Products in Secondary Wastewater Treatment and Fate to the Receiving Environments" was completed in October 2014 by an RSCP staff member as part of a Master of Science degree in Environment and Management undertaken at Royal Roads University.

The thesis involved analysis of data associated with thirty pharmaceuticals and personal care products (PPCP's) detected in solid and liquid waste streams at the CRD's Saanich Peninsula Wastewater Treatment Plant (SPWWTP). Actual PPCP partition loadings were found to be significantly different than partition loadings predicted using an established estimation model.

In addition to the finding that the estimation model was ineffective for predicting PPCP partitioning at this treatment plant, the thesis confirmed that concentrations of the known PPCP's discharged in effluent and solids produced at the SPWWTP were below known, or estimated, toxicity levels for marine and terrestrial environments.

Overall, the thesis affirmed that secondary wastewater treatment can have a positive impact on removal of specified PPCP's from municipal wastewater. It also supports the role of source control initiatives such as promotion of the Medications Return Program and identifies specific contaminants of concern such as Triclosan for potential risk management action.

## ICI Sector Operations Using Onsite Wastewater Treatment

In 2014, the RSCP, in collaboration with the CRD's Onsite Wastewater Management Program (OWMP) sponsored a Royal Roads University "major project" study of ICI sector operations using onsite wastewater treatment systems. The study produced a detailed inventory of all ICI facilities located within Saanich, View Royal, Colwood and Langford. Facilities were separated into 23 categories and the types of onsite systems installed at each location were recorded. These facilities are currently not regulated by the CRD, however, their holding tank wastes are disposed of at the CRD's septage disposal facility which operates under a permit issued by the RSCP. It was anticipated that the inventory would provide some indication of the range of contaminants that ICI facilities can contribute to the wastes processed at the septage disposal facility, which discharges treated effluent to the sanitary sewer.

Information collected during this exercise was used in a risk assessment-based approach which identified four main facility categories for more in-depth study: child care, pet care, greenhouses/florists and hair salons and aesthetician facilities. An online literature review was conducted to determine the potential contaminants associated with each category along with available best practices to limit discharge of these contaminants. This information was supplemented by telephone interviews, research into additional treatment for onsite systems and a review of applicable bylaws and regulations in Canada and elsewhere.

The study presented a range of recommendations which were expected to help develop and improve the CRD's OWMP, reduce the frequency of failed onsite systems and reduce the amounts of contaminants discharged at the CRD's septage disposal facility.

### **3.4 Contaminant Reductions**

#### **3.4.1 Reduction Targets**

The Core Area LWMP contains a commitment to develop "contaminant reduction targets" for existing and future waste discharge permit holders and COP sectors. Since the RSCP's jurisdiction extends beyond the core area, staff has developed contaminant reduction targets that would be applicable in all participating sewage collection areas within the CRD.

#### Waste Discharge Permit Targets

The contaminant reduction targets established for waste discharge permit holders are considered to be the individual permit discharge concentration limits that are established either during the initial permitting process or during permit reassessment and amendment.

Many permit holders have consistently met their permit discharge concentration limits since their permit was issued through application of good operating procedures. Other sites have met their target concentration limits following installation of treatment works and/or adoption of good operating procedures or pollution prevention measures. At the end of 2014, 42% of permitted sites were meeting their target concentration limits and 58% were in progress toward meeting their targets. These estimates are based on the number of outstanding non-compliance issues due to permit limit exceedences for all permits in place at the end of 2014.

There have been significant contaminant load reductions over the years as a result of permitted sites implementing changes to meet their concentration limit targets, as documented in annual reports for previous years.

#### Code of Practice Targets

Contaminant reduction targets were prepared for each of the 11 existing COP using the year before the full implementation date as the "baseline" year. The general procedure for setting the targets and annual progress reports has been documented in previous annual reports. The degree of achievement of each COP target was assessed following the completion of the five-year inspection cycle following full implementation of each code.

In 2009, the end of the five-year inspection cycle was reached for the final three COP which were fully implemented in January 2005. By the end of 2011, all five-year reduction targets established for COP had been achieved.

### **3.4.2 Marine Outfall Contaminant Reductions**

One of the main objectives of the RSCP is protection of the marine receiving environment. A specific goal associated with this objective, included in both the Core Area and Saanich Peninsula LWMPs, is “to maintain or reduce effluent contaminant loadings to the receiving environment”.

#### Core Area Outfall Effluent

CRD Marine Programs staff regularly monitor effluent quality at the Macaulay and Clover point outfalls for a wide range of substances. Several trend analysis of the data collected through core area effluent monitoring have been carried out in the past (PLA, 2002; PLA, 2004; Golder Associates Ltd., 2006; Golder Associates Ltd., 2009a) and results have been summarized in previous RSCP annual reports.

The most recent effluent trend analysis was undertaken in 2012 (Golder Associates Ltd., 2013). This report provided a statistical assessment of wastewater trends at Clover and Macaulay point outfalls over the period 1990-2011 and wastewater and biosolids trends at the SPWWTP from 2000-2011. The findings of this report for Clover and Macaulay points over the 21-year period of record included the following:

- Overall, the trend results for priority substances evaluated in previous studies was confirmed in this latest assessment. Changes observed indicated more evidence of stable or decreasing loads of substances in the wastewater stream.
- Over the period 2009-2011 the detection frequency for several parameters has decreased dramatically. These parameters, now classified as “infrequently detected” (detected in less than 50% of samples analysed), include: mercury, hexavalent chromium, 1,4-dichlorobenzene, tetrachloroethene (PCE) and xylenes.
- Loads of priority metals (those presenting the greatest concern regarding aquatic toxicity) including cadmium, chromium, copper, lead, mercury, manganese, nickel and zinc exhibited significant decreases ranging from 1% to 19% per year.
- Cobalt loads showed a decrease of 7% at Clover Point and an increase of 3% at Macaulay Point.
- Loads of weak acid dissociable (WAD) cyanide showed a 6% increase at Clover Point; however, a trend for this parameter could not be determined at Macaulay Point.
- Organic compounds, including certain polynuclear aromatic hydrocarbons (PAHs), 1,4-dichlorobenzene and PCE showed significant decreases in loads, ranging from 2% to 16% per year.
- A significant decrease of 6% per year was also observed for oil and grease at both outfalls. Loads of mineral oil and grease decreased by approximately 4% per year.
- Several individual PAHs (e.g., fluorene, phenanthrene, 2-methylnaphthalene) displayed significant decreases in loads over time (2% to 10% per year).
- Phthalate esters did not exhibit significant trends in loads over time with the exception of an apparent decrease of 3% for diethyl phthalate.
- In general, interpretation of trends for PAHs and phthalates was confounded by elevated analytical detection limits in recent years.

- Non-priority substances showing increasing trends in loads at Macaulay Point included dimethyl ketone and trichloromethane. The result for trichloromethane may also have been influenced by elevated detection limits.

The continuing decreasing trends and recent changes in loads for most parameters are thought to be largely due to a combination of the success of source control efforts at regulating contaminants, increasing public and industry awareness regarding product selection and use of proper waste treatment practices. For example, the reported load reductions for PCE, a solvent commonly used in the dry cleaning industry, is probably linked to the adoption of an amended COP for dry cleaning operations in 2003.

The reported significant decreases in loads of mercury and silver are likely attributable to the implementation of the dental and photo imaging codes in the core area over the past few years. Significant decreases in loads of oil and grease at both outfalls are probably associated with the continued implementation of the food services COP and increasing compliance levels.

The continuing decreases in a range of metals, significant decreases in certain individual PAHs and mineral oil and grease are likely partly attributable to the full implementation of the automotive repair COP and vehicle wash COP in recent years.

The significant reductions in 1,4-dichlorobenzene may be due, in part, to the success of ongoing business and institutional outreach regarding the use of less harmful alternatives to urinal deodorizers which contain this chemical.

The slight increase in cobalt at Macaulay Point may be linked to an identified source which discontinued discharge to sewer in June 2010. This increasing trend is expected to reverse over the next few years.

The apparent increase in WAD cyanide at Clover Point over recent years is under investigation. Wastewater contaminant trends at Macaulay and Clover points will continue to be monitored over the next few years with the next full trend assessment scheduled for 2016.

Further information about core area effluent quality in 2014 can be found in the upcoming Macaulay and Clover Point Wastewater and Marine Environment Program (WMEP) annual report for 2014, to be completed in October 2015.

#### Saanich Peninsula Wastewater Treatment Plant Influent and Effluent

Influent and effluent data has been collected at the SPWWTP since the plant commenced operation in 2000. The first summary of trends in these data was reported in Hatfield Consultants Ltd, 2005. Golder Associates Ltd., 2009a included a statistical assessment of wastewater influent and effluent trends at the SPWWTP over the period 2000-2008. Golder Associates Ltd., 2013 provided an update of trends to 2011. The findings of this report over the 11-year period of record at the SPWWTP included the following:

- Trends in influent and effluent contaminants were similar to those described in Golder Associates Ltd., 2009a in terms of direction and significance.
- A higher number of significant trends were observed than in the previous study due to an increase in statistical power through the addition of three years of sampling data.
- Reductions in detection frequency for several parameters have occurred since the previous report. Hexavalent chromium, 1,4-dichlorobenzene and total low molecular weight PAHs are now classified as "infrequently detected" (detected in less than 50% of samples analysed) in both influent and effluent.

- Priority metals generally showed significant decreases in influent loads. The largest decreases were observed for total arsenic, cadmium, chromium, lead, mercury, nickel and silver (ranging from 4% to 26% per year).
- There were significant increases reported in influent loads for total manganese, molybdenum and zinc (2%, 3% and 1% per year respectively).
- Other priority contaminants such as oil and grease and strong acid dissociable (SAD) cyanide showed significant decreases in influent loads of 6% and 7% per year respectively. Conversely, influent loads of WAD cyanide increased by 9% per year.
- In general, there were no significant trends in influent loads of PAHs and phthalate esters; however, one phthalate (bis(2-ethylhexyl)phthalate) demonstrated a significant decrease (4% per year) in influent loads over the study period.
- Assessment of trends for PAHs and phthalates were confounded by elevated detection limits for some samples from recent years. The report noted that trend results for these parameters should be interpreted with caution.

Source control initiatives appear to have yielded benefits in terms of concentrations and loads of priority contaminants in both influent and effluent at the SPWWTP. Influent loads of several of the key metals of interest (arsenic, cadmium, lead, mercury, nickel and silver) exhibited significant decreasing trends over the study period. The large decreases in total mercury and silver loads in influent are likely associated with the implementation of the dental and photo imaging COP. In addition, significant decreases in loads of oil and grease in influent are probably associated with the continued implementation of the food services COP and increasing compliance levels within that sector.

Observed increases in molybdenum loads could be associated with the continued use of molybdate corrosion inhibitors in heating and cooling systems, as identified in earlier annual reports.

The apparent increase in WAD cyanide, despite decreasing levels of SAD cyanide, will require further investigation by RSCP staff. In addition to continuing WAD cyanide analysis in influent and effluent, WAD cyanide analysis was added to dewatered sludge analysis in March 2013 in order to monitor temporal trends for this parameter. Further investigation of potential WAD cyanide sources, including two permitted electroplating operations located on the peninsula, is scheduled for 2015.

Wastewater contaminant trends at SPWWTP will continue to be monitored over the next few years with the next full trend assessment scheduled for 2016.

Further information about the trend analysis and SPWWTP influent and effluent quality in 2014 can be found in the SPWWTP Wastewater and Marine Environment Program annual report for 2014, to be completed in September 2015.

### **3.4.3 Biosolids, Sludge and Mixed Liquor Contaminant Reductions**

Another important objective of the RSCP is the protection of sewage treatment plant biosolids, sludge and mixed liquor quality. Biosolids are stabilized sludge from wastewater treatment processes that have been treated to allow beneficial recycling in accordance with the requirements of the *Organic Matter Recycling Regulation of British Columbia* (OMRR). Mixed liquor is the term used for a mixture of wastewater and activated sludge produced at a sewage treatment plant. The specific goal associated with this objective, included in both the Core Area and Saanich Peninsula LWMPs, is “to meet BC standards for Class A biosolids as outlined in the OMRR”. More specifically, these are the standards established for Class A compost set out in Schedule 4 of the OMRR and the Class A biosolids standards for maximum acceptable metal concentrations specified in Table II of Canadian Food Inspection Agency Trade memorandum T-4-93 (CFIA, 1997).

Lime and heat-treated biosolids produced at the SPWWTP have been monitored for a range of metals and other substances on a regular basis since the plant was commissioned in 2000. This monitoring ended in April 2011 following CRD Board direction to cease land application of biosolids. Monitoring of dewatered sludge produced at the SPWWTP commenced in March 2013 and continued in 2014. Monitoring of the mixed liquor produced at the smaller GWWTP began in 1994 and continued in 2014.

#### Saanich Peninsula Wastewater Treatment Plant Biosolids and Sludge

The quality of SPWWTP biosolids consistently met the most stringent (Class A) criteria for all parameters over the period 2000-2011. Biosolids trend analysis at SPWWTP (reported in Hatfield Consultants Ltd, 2005) confirmed that there were significant downward trends in mercury, chromium, barium and manganese concentrations over the period 2000-2004.

The Golder Associates Ltd., 2009a report included a reassessment of biosolids trends at the SPWWTP over the period 2000-2008 and Golder Associates Ltd., 2013 provided an update for the period 2000-2011. The main findings of this report included the following:

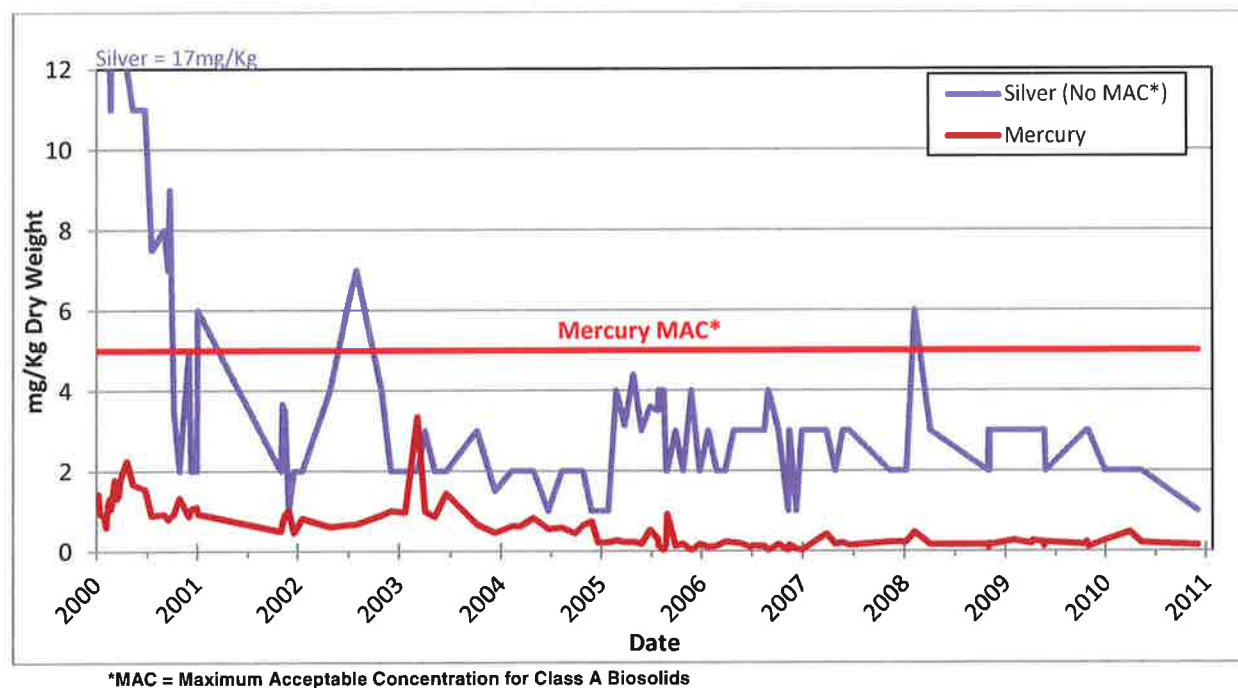
- Significant decreases in the detection frequency of a number of priority metals, including arsenic, cadmium, chromium, nickel and selenium were observed in the last three years.
- The detection frequency for lead and molybdenum increased significantly over the same period. This was largely attributable to a decrease in detection limit for these parameters in recent years.
- Significant decreases, ranging from 4% to 21% per year, were observed for concentrations of a range of priority metals including chromium, copper, manganese, mercury and zinc.
- The only substances for which a significant increase in concentration was observed were the unregulated, non-priority, elements calcium and strontium.

Many of the above observed decreases are likely a result of the application of source control regulations within the SPWWTP sewage catchment area, as previously noted for SPWWTP influent and effluent.

Mercury levels in SPWWTP biosolids met the Class A criterion of 5 mg/kg over the period 2000-2011 and have been less than 0.5 mg/kg since April 2005 (see Figure 1). These very low and relatively stable results confirm the continuing success of the implementation of the dental COP in July 2001 in reducing and controlling mercury and silver levels in SPWWTP biosolids.

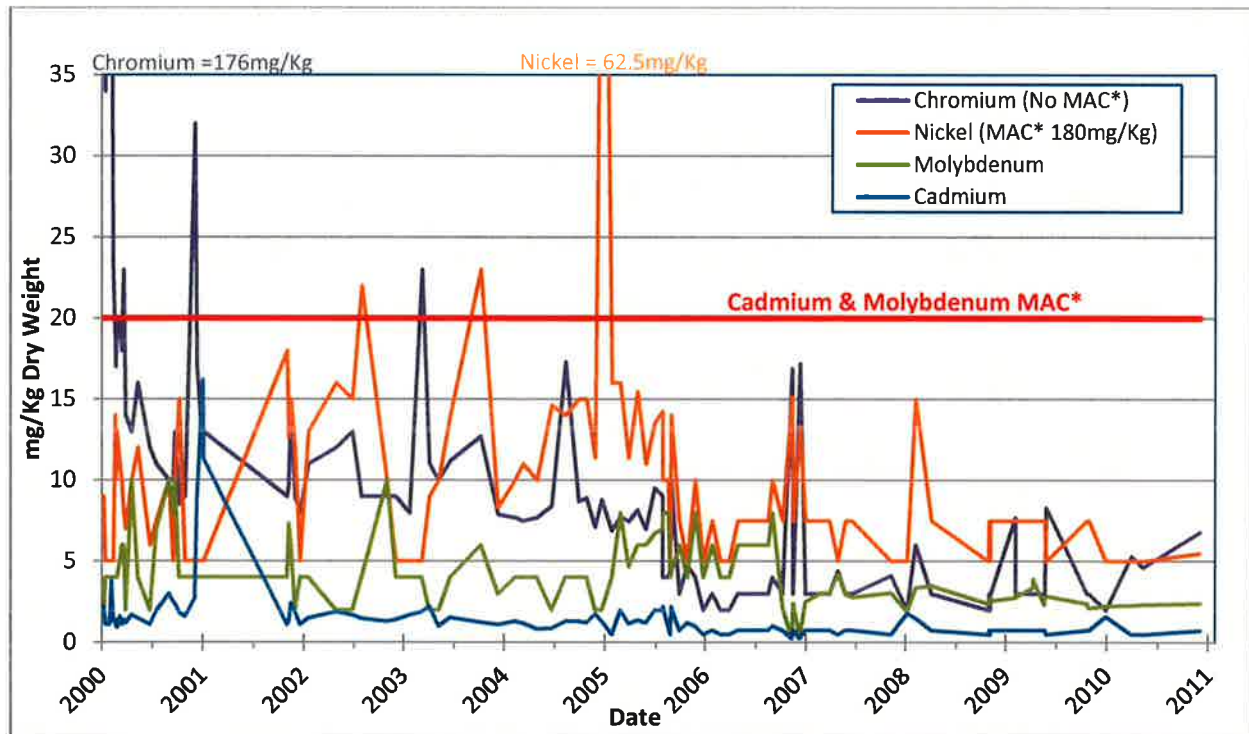


**Figure 1: Mercury and Silver in Saanich Peninsula Wastewater Treatment Plant Biosolids (2000-2011)**



Concentrations of some common metals used in electroplating and in corrosion inhibitors are shown over the same period in Figure 2. The metals levels show a general decline over the period of record and, for cadmium and molybdenum, are well below the Class A criteria for biosolids. The highly variable nature of chromium and nickel levels over the period 2000–2007 suggest that uncontrolled discharge of plating solutions may have been occurring during this time, with a much lower frequency of these events in later years.

**Figure 2: Chromium, Nickel, Cadmium and Molybdenum in Saanich Peninsula Wastewater Treatment Plant Biosolids (2000-2011)**

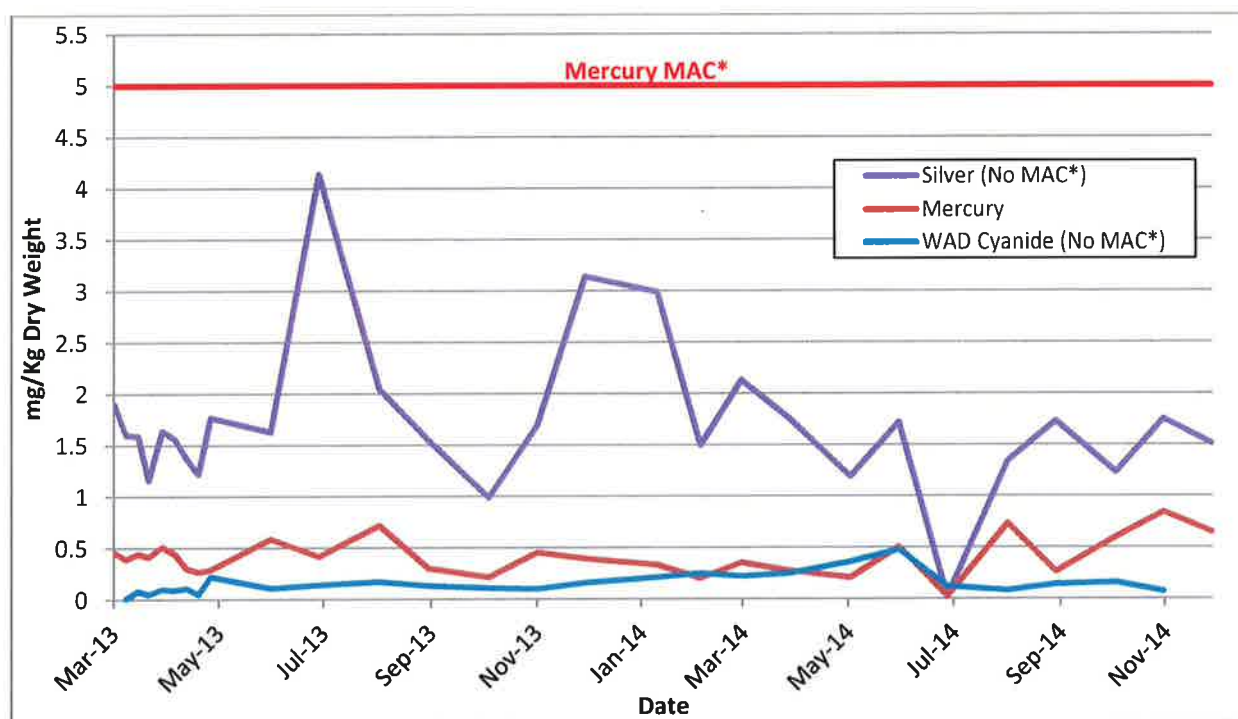


\*MAC = Maximum Acceptable Concentration for Class A Biosolids

Following CRD Board direction to cease land application of biosolids, SPWWTP produced only dewatered sludge after April 7, 2011. This sludge was not sampled or analysed prior to disposal at Hartland landfill as a controlled waste throughout the period April 2011 to February 2013.

A SPWWTP dewatered sludge monitoring plan was developed and implemented in March 2013. The dewatered sludge is not a biosolids product as defined by the OMRR. The sludge is sampled as described in Section 3.1.6 and is assessed using the Class A biosolids quality criteria for comparison purposes to evaluate overall metal concentrations and end-product quality. This monitoring is not intended to characterize the material as a biosolids product. The first two years' results for metals and weak acid dissociable (WAD) cyanide in dewatered sludge are presented in Figures 3 and 4. Mercury and silver continue at levels similar to those in biosolids in the last three years of production. Cyanide (WAD), first monitored in 2013 to confirm increasing trends in SPWWTP influent, shows a slight rise to a high point in June 2014. There is, however, no criterion for this substance in biosolids to use as a benchmark for evaluating the impact of this observation.

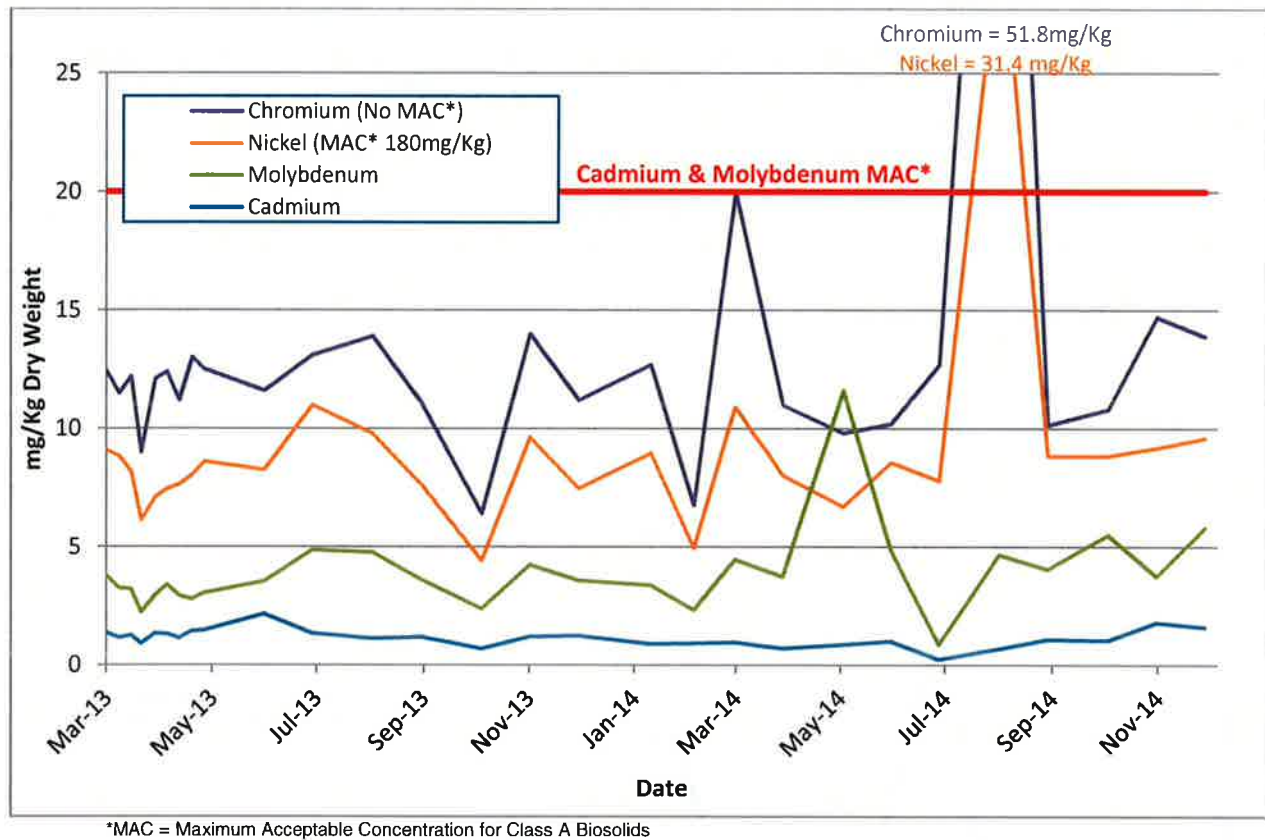
**Figure 3: Mercury, Silver and Cyanide in Saanich Peninsula Wastewater Treatment Plant Dewatered Sludge (2013 - 2014)**



\*MAC = Maximum Acceptable Concentration for Class A Biosolids

Cadmium and molybdenum levels in SPWWTP dewatered sludge generally continued at levels similar to biosolids in the last few years of production. Results were all below the respective biosolids criteria, however there was a single high result for molybdenum in May 2014. The levels of the electroplating metals chromium and nickel appear to be closely correlated with one another – possibly suggesting a common source on the peninsula where there are two electroplating operations under permit. In addition, the August 2014 result for both metals shows a return to levels last seen in biosolids in the period before 2007. This situation is of concern and merits further investigation in 2015.

**Figure 4: Chromium, Nickel, Cadmium and Molybdenum in Saanich Peninsula Wastewater Treatment Plant Dewatered Sludge (2013-2014)**

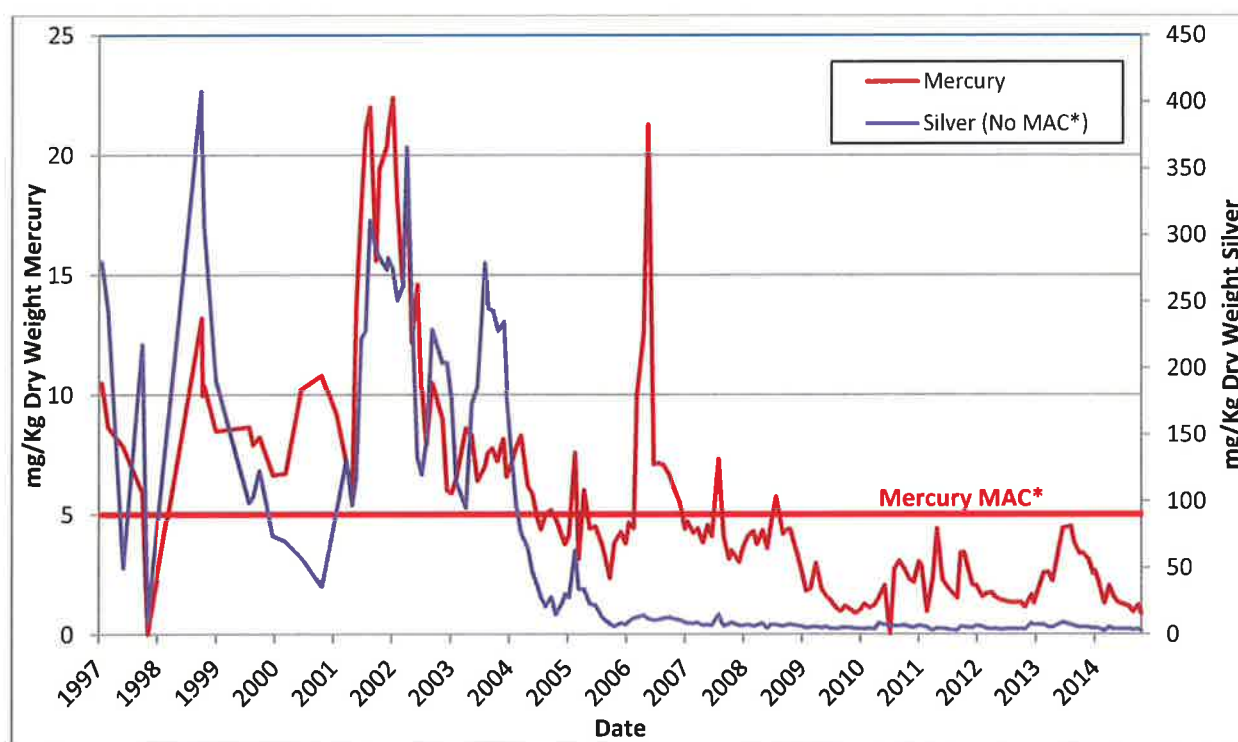


### Ganges Wastewater Treatment Plant Mixed Liquor

The GWWTP process produces a mixed liquor product, not a biosolids product as defined by the OMRR. The mixed liquor is sampled and is assessed using the Class A biosolids quality criteria for comparison purposes to evaluate overall metal concentrations and end-product quality. This monitoring is not intended to characterize the material as a biosolids product. The GWWTP mixed liquor has met Class A quality criteria for all parameters except mercury (and occasionally molybdenum, once for cadmium) since monitoring began in 1994.

Mercury and silver levels in Ganges mixed liquor show a different temporal pattern than that for SPWWTP biosolids; however, the overall trend is toward lower levels for both metals (see Figure 5). Implementation of the dental and photo imaging COP's is thought to be the main reason for the reductions in mercury and silver concentrations at the GWWTP.

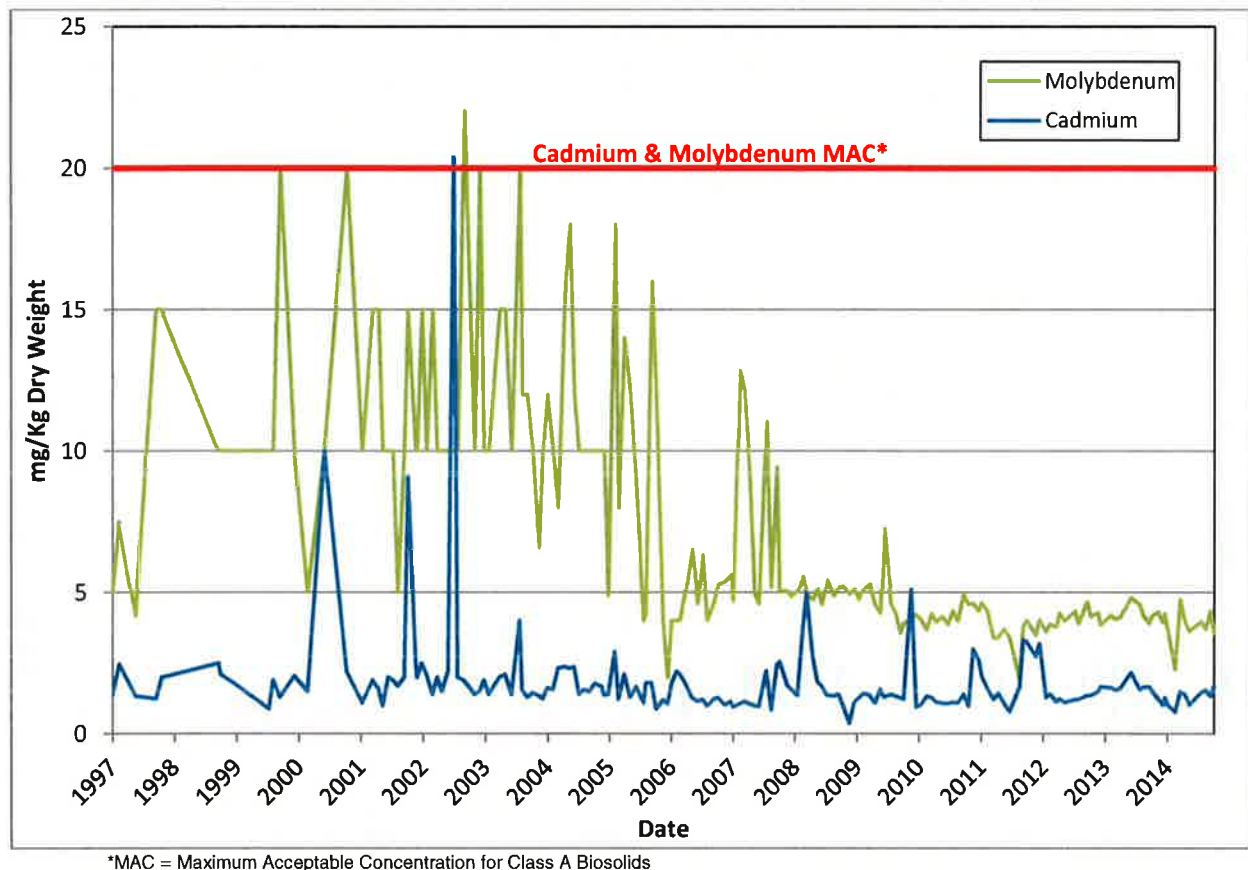
**Figure 5: Mercury and Silver in Ganges Wastewater Treatment Plant Mixed Liquor (1999-2014)**



\*MAC = Maximum Acceptable Concentration for Class A Biosolids

Figure 6 illustrates the decrease in historic levels of cadmium and molybdenum in GWWTP mixed liquor over time. Prior to 2008, molybdenum levels were high and variable, sometimes exceeding the Class A criterion. This may have been due to the use of molybdate corrosion inhibitors in heating and cooling systems within the collection area. More recent levels suggest that there may have been a change to molybdate-free products in at least some situations.

**Figure 6: Cadmium and Molybdenum in Ganges Wastewater Treatment Plant Mixed Liquor (1999-2014)**



For the sixth consecutive calendar year, the 2014 GWWTP mixed liquor results met the Class A criteria for all metals, including mercury.

### 3.5 Significant Incident Reporting

CRD operations and municipal engineering department staff communicate periodically with RSCP staff regarding sanitary sewer wastewater quality problems, suspicious discharges or significant incidents leading to contamination of the district's collection and treatment systems. A "significant incident report form" was initially developed in 2000 to record operational problems within all trunk sewers and treatment plants operated by the CRD. The report form and response procedure was reviewed in 2013 following an incident involving a spill of Bunker "C" fuel oil into the CRD's Lang Cove pump station. A new significant incident response procedure was developed by RSCP staff for implementation in 2014. Training sessions for Core Area and SPWWTP operations staff regarding the new procedure were conducted by RSCP staff in January and February 2014. Further significant incident response training is scheduled for 2015.

Table 10 provides a summary of incidents reported in 2014 that impacted, or had the potential to impact, the environment, sewerage works, sewage treatment facilities or public health and safety. Notes on



incident follow-up were summarized from CRD significant incident reports, municipal grease reports, complaint forms, memos, e-mails, conversation records and other notes on file. There were no incidents reported which affected the operation of CRD sewage treatment plants in 2014.

**Table 10: Summary of Reported Sewer System Incidents (2014)**

Contaminant	Nature of Incident	Potential Impact	Incident Follow-up
Fats, Oils and Grease (FOG)	City of Victoria staff reported excess FOG accumulation in the Queens, Quadra, Caledonia St. area. (January)	Sewer back-ups, (health risk), odour, corrosion, increased maintenance of municipal sewers	RSCP staff inspected four food service operations in the area. Two operations were found to be out of compliance for excess FOG and poor maintenance. Corrective actions were taken and monitoring was increased.
Industrial Wastewater	RSCP staff were alerted to a spill (estimated 400 liters) from a rinse water tank. (Soap - pH 5) by a permitted aviation manufacturing facility. (February)	Corrosive waste, worker health and safety.	Estimated 20 liters entered sanitary sewer. Permit Manager reviewed facility response procedures and followed-up with recommended actions.
Drywall Mud	CRD Operations staff reported accumulation of a thick white, paint-like material in the North Saanich grit chamber (April)	Sewer obstruction, increased odour and corrosion.	RSCP staff examined material and determined it to be drywall mud. An investigation in the local catchment area did not identify any obvious sources (e.g., construction or renovation businesses).
Obstructive material	Westshore Environmental staff reported a sewer spill at a Langford pump station in the Westhills area. (April)	Public and worker health and safety	RSCP staff followed up with Westshore. Spill was determined to be a result of a plumber's test plug jamming a sewer line and creating a back-flow. Westshore cleared the plug and conducted clean-up. No need for further action by RSCP.
FOG	District of Saanich staff requested assistance from RSCP to investigate the cause of sewer blockages and back-ups at a shopping centre. (June)	Sewer back-ups, (health risk), odour, corrosion, increased maintenance of municipal sewers	RSCP staff inspected three food service operations in the centre. Two operations were found to be non-compliant for excess grease poor maintenance and lack of cleaning records. Enforcement actions were taken and follow-up inspections scheduled.
Hydrogen Sulphide (H <sub>2</sub> S)	CRD Operations staff reported high levels of H <sub>2</sub> S in Lang Cove wet well. (August)	Worker health and safety, sewer infrastructure corrosion, odour complaints	CRD Operations staff ventilated wet well until gas detector registered zero. RSCP staff followed up with Odour Control staff. No obvious H <sub>2</sub> S source was identified.
FOG	City of Victoria staff reported excess FOG accumulation in the vicinity of Hillside and Fifth St. (September)	Sewer back-ups, (health risk), odour, corrosion, increased maintenance of municipal sewers	RSCP staff conducted an inspection and found one food services operation to be non-compliant due to infrequent GI maintenance. Education was provided on maintenance requirements and results were to be closely monitored

			prior to further enforcement.
FOG and Obstructive Waste	A consultant reported that large amounts of FOG and wet wipes were clogging pumps in a Langford pump station. (October)	Sewer back-ups (health risk), increased maintenance of municipal pumps and sewers.	RSCP investigations into upstream food service facilities revealed that they were generally compliant but that the wipes were likely coming from a Daycare Centre. City of Langford requested that this facility post signs discouraging sewer disposal of wipes.
Hydrocarbons	CRD Operations staff noticed a strong hydrocarbon odour and milky colour at the Lang Cove pump station. (November)	Flammable or explosive waste, hazardous waste, worker health and safety.	Operations staff ventilated wet well until it tested safe for entry. The milky colour was determined to be coming from the DND/EGD sewer. A wet well sample was compared to wastewater from an EGD tenant. There were some similarities to mineral spirits or paint thinner, however analysis was insufficient to determine an exact source.
FOG	CRD RSCP staff noted an overflowing outside grease interceptor leaching FOG to storm drain. Restaurant regulated by RSCP. (November)	Sewer obstruction, storm water pollution, fire hazard.	RSCP worked with CRD Integrated Watershed Management Program staff, Health Authority staff and Colwood operations staff. Restaurant made to fix leak and service grease traps.

### 3.6 Outreach

RSCP staff continued to develop and maintain program-specific outreach and education messaging throughout 2014. Where appropriate, source control messaging was also integrated with other initiatives, campaigns and community outreach events held throughout the year across the region.

Key source control initiatives and campaigns for 2014 are summarized below under separate sections for residential and business outreach, education and the RSCP website.

#### Residential Outreach

- Continued partnerships with the BC Pharmacy Association (BCPhA) and the Health Products Stewardship Association. Distributed "point of sale" tools including shelf signs and flyers to 65 pharmacies (BCPhA members) within the Capital Region to promote the Medication Return Program. Seventy percent of the region's pharmacies are members of the BCPhA
- Worked with the College of Pharmacists of British Columbia to develop a pilot project regarding labeling medication containers with medication return information. Unfortunately, the College advised that they will not be proceeding with the project.
- In 2014, the CRD continued to have one of the highest medication return rates per capita (0.0313 kg/capita) amongst regional districts in the province, second only to the Central Kootenay Regional



District (0.0321 kg/capita). Approximately 11.7 tonnes of medications were collected in the region during 2014. This is consistent with what was collected in 2013.

- A survey of residents regarding current source control attitudes, practices and barriers was commissioned in 2014 for implementation in 2015. The survey will be similar to surveys carried out in 2009 and 2011, however a new section was created to evaluate attitudes, practices and barriers to proper management of “non-flushable” products (e.g. “flushable” wipes, female hygiene products, condoms and dental floss).
- With the success of the previous “Slogan Master” campaigns for medications return and surfactant reduction, a new campaign was launched to promote the proper disposal of residential fats, oils and grease (FOG). This version of Slogan Master was again a social media campaign, which challenged local residents to create slogans to highlight the impact of FOG on the sewer system or septic systems. The initiative was also used to highlight septic systems and a specific challenge was sent out to multi-unit residential buildings. Thirty slogans were submitted and the winning slogan was “To prevent the clog reduce the FOG”. T-Shirts with the slogan were created for outreach events in 2014 and will be distributed in 2015.
- “My Green Plan” project support (2013-2014). The RSCP, with BC Hydro and other CRD programs provided technical and financial support to the Community Social Planning Council to develop and operate an online interactive tool to encourage households to select and prioritize sustainability actions they want to undertake. This project also provided a resource for those who wanted to learn more about specific topics offered by the participating partners.
- Continued integration of RSCP with the CRD Onsite Wastewater Management Program, including cross-messaging on outreach material, webpages and advertisements. For 2014, working with Royal Road University students, there was a focus on ICI sectors using septic systems which were comparable to the RSCP code of practice sectors.
- RSCP resources and staff were used to develop and pilot integrated messaging from several CRD environmental programs in two themed campaigns: “Green 365: In the Kitchen” and “Green 365: Spring Cleaning”.
  - “Green 365: In the Kitchen” was a winter campaign, which ran from January through March 2014. The focus was on promoting environmental practices related to kitchen activities. Much of the source control messaging was related to proper disposal of fats, oils and grease and reduced garburator and surfactant use.

The source control-related communication objectives were: “to increase awareness that all drains lead to local streams, creeks or the ocean” and “to promote proper and safe disposal of waste”.

Source control key messages were integrated with other messages, such as: “Put your sink on a fat free diet”; “Don’t put fats down drains where it can cause blockages”; “Collect fats in sealable non-recyclable containers, refrigerate, and when the container is full, discard with household waste”; “Garburators, not only use more energy and water to dispose of food solids, they can cause blockages and sewer backups”; “Try composting food waste”; and “Victoria’s water is very soft, so you can use half the amount of dishwashing liquid, or powder, to get your dishes squeaky clean. Try using half the detergent for all your cleaning.”

- “Green 365 Spring Cleaning” was a spring campaign, which ran from April through June 2014. The focus was on promoting environmental practices related to spring cleaning (i.e. waste disposal and cleaning). The spring cleaning focus provided more opportunities to highlight source control messages, including reduced surfactant use and the proper disposal of waste medications and household cleaners.

The source control-related communication objectives were: “to increase awareness that all drains lead to local streams, creeks or the ocean” and “to promote proper and safe disposal of solid and liquid waste where reuse or recycle options are not available”.

Key source control messages included: “When cleaning out your garage of old cleaners and solvents, don’t pour them down the drain, check out [myrecyclopedia.ca](http://myrecyclopedia.ca) for disposal options”; “Wipes labeled as “flushable” does not necessarily mean that they should be flushed into sewers”; “Flushable” wipes do not always break down in the sewer system and can combine with fats, oils and grease in your sewer or septic system to cause sewer backups”; and “When cleaning out your medicine cabinet, take your old or expired waste vitamins, herbal medications, prescription medications and other pharmaceuticals to a pharmacy for free proper disposal”.

### Business Outreach

Inspectors continued to be the front line staff delivering RSCP outreach messaging to local businesses. Outreach included distribution of RSCP sector-based posters and guidebooks. In addition, inspectors worked with business owners to highlight the benefits associated with protection against cross connections (protection of public health), water conservation (potential cost savings), kitchen scraps collection programs and other CRD initiatives. See Section 3.1.5 (Coordinated Inspections) for additional information.

Although RSCP outreach was primarily focused on residential messaging in 2014, RSCP staff continued to support outreach to local businesses. This included revision of the Automotive Repair guidebook to refocus messaging on addressing all types of mechanical repair, not just automobile repair.

In addition, eight industry educational videos, (four videos each for the food services sector and the automotive repair sector) developed in 2013, were released for business use in 2014.

### Education

- RSCP messaging was included in the following “in-service educator and program coordinator” training sessions in 2014: the Tri-District Professional Development Tapestry Conference (25 booth visitors), the Tri-District Professional Development Green Minds Workshop, held in partnership with the University of Victoria Continuing Studies Department (60 participants), and the Shaw Ocean Discovery Centre staff training workshop (4 participants).
- RSCP educational information was included in 30 Environmental Partnerships community outreach events throughout the region.
- The following youth outreach events incorporated RSCP key messages: Campus View’s “Earth Fest Community Fair” (75 booth visitors), “Creatures of Habitat”, a workshop linking healthy ecosystems to actions at home and in the community was developed and delivered by CRD Parks staff 16 times to 320 middle school students.
- The Spring Break Workshops held at Shaw Ocean Discovery Centre incorporated CRD lessons, activities and resources about local drinking water, watersheds, pollution prevention, waste management and “cleaning green”. The Centre’s staff were trained and supported to adapt the programming and offer hands-on workshops (911 participants and 3935 visitors).
- Two new resource packages “Food Lessons and Resources” and “Automotive Lessons and Resources” were designed and developed with teachers to support instruction linking local waste management and pollution prevention practices to BC learning outcomes. These new lessons and resources build on workplace safety, exploring the capital region’s pollution history, local regulations and how to protect workers, community and the environment from industrial waste. Resources include videos, maps, lessons and activities which are available online, in pre-loaded USB and in print format.

- The “My Green School Plan” challenges, offered with support from BC Hydro, complemented the CRD’s “Green 365” campaigns promoting sustainable behaviour changes at home by asking students in the region to propose ways to reduce their school’s eco-footprint, raise student awareness and change behaviour.
  - Spring 2014, four high schools from across the region received funding (ranging from \$250-\$1500) to implement their green plans. A total of 3,949 students were engaged at the participating schools.
  - Fall 2014, the challenge was adapted and launched for K-12 students. Two high school teams and one elementary school team received funds (ranging from \$500-\$1000) for their plans which demonstrated a commitment to environmental stewardship and included prioritized sustainability actions, actions planned for the 2014/15 school year and actions that could be accomplished with funds from January to April 2015.

#### Regional Source Control Program Website

The CRD launched a new corporate website in December 2013. RSCP webpages were transitioned to the new platform and RSCP information was highlighted in the outreach and education section of the website in addition to the services section. The new platform also provided an opportunity to redesign and reorganize source control information.

Table 11 represents website activity on the new corporate website.

Although 2014 could not be directly compared to 2013 because of the redesigned website, all web page activity in 2014 showed a significant drop from 2013 levels. RSCP staff believes that the drop was due to the change in the corporate website. For example previous links were no longer working (e.g., a saved “favorites” in Internet Explorer would no longer work). Furthermore, the new website would not redirect you to the new pages based on the old address and would only provide “Page Not Found”. Staff will develop new strategies to promote the website and provide improved access.

Web page activity is based on external use (sorted by internet protocol address) and excludes all use by CRD employees.

**Table 11: Summary of RSCP Web Page Activity**

<b>RSCP Primary Web Pages</b>	<b>2014</b>
RSCP Main Page	667
RSCP Residential General	526
RSCP Residential Medications Return Program	523
RSCP Residential Surfactant Reduction	192
RSCP Residential Fats, Oils and Grease Diversion	518
RSCP Business General	669
RSCP Automotive Repair Operations	216
RSCP Food Services Operations	329
RSCP Dental Operations	64
RSCP Dry Cleaning Operations	74
RSCP Fermentation Operations	186
RSCP Laboratory Operations	59
RSCP Photographic Imaging Operations	32
RSCP Printing Operations	32
RSCP Recreation Facility Operations	23
RSCP Vehicle Wash Operations	6

### **3.7 Partnerships Initiatives**

Since its inception, the RSCP has worked with many agencies to expand program reach and effectiveness, improve services and resolve problems of mutual concern. These agencies have included MOE, federal agencies (e.g., DND and PWGSC), regional districts, municipalities, Island Health and local academic institutions.

In 2014, there were continued collaborative efforts between RSCP staff, other Environmental Services programs and external partners to enhance a “one-window approach” to providing augmented inspection services and superior customer service and to promote high environmental performance within businesses.

Some examples of both internal and external collaborative partnerships initiatives undertaken in 2014 are outlined below.

#### Co-Inspections, Multi-jurisdictional collaborations

RSCP worked with CRD Integrated Watershed Management Program staff, Health Authority staff and Colwood operations staff to resolve storm pollution and a fire hazard resulting from a leaking external grease trap operated by an RSCP regulated facility in Colwood.

RSCP worked with CRD Integrated Watershed Management Program staff and View Royal staff to sample, strategize and collaborate in addressing pollution coming from a car dealership site and contaminating a nearby stream.

In 2014, RSCP staff travelled to Delta to meet with Metro Vancouver staff and Abbotsford municipal staff to discuss Automatic Grease Recovery Device technologies, operational challenges with “flushable wipes”, grease interceptor compliance monitoring software and regulatory issues associated with a growing mobile food services and microbrewery sector.

#### Stormwater Inspections

In 2014 RSCP staff collaborated with CRD Environmental Protection staff and a City of Victoria Stormwater Bylaw Inspector to trial inspection protocol for the pending Saanich Peninsula Stormwater Source Control bylaw on nine Victoria Airport Authority (VAA) tenant businesses. Regulators worked in partnership with VAA staff and the volunteering business to gather feedback from affected businesses, train RSCP inspectors and identify gaps within the proposed bylaw for potential amendment.

The inspections were well received by the businesses volunteering their sites for evaluation.

#### Water Audits

RSCP continued to integrate Demand Management Program (DM) water audits for businesses as an expanded inspection service and work collaboratively with the Integrated Water Services Department. In 2014, RSCP staff retained a consultant to develop an audit or self-assessment tool for conducting quick and simple reviews of commercial facilities (e.g., office, retail and food service) to estimate the potential for cost-effective improvements to water efficiency. The “2 Hour Water Audit” (2HWA) is a simple, step-by-step guide to assessing the relative water efficiency of a commercial facility, and identifying good opportunities to improve efficiency.

The 2HWA process relies on information about the facility that is easily obtained to quickly identify the best opportunities to conserve water (and energy used to heat water). The 2HWA process was piloted on three facilities (one office/lab, one restaurant and one pub/restaurant) in late 2014 and is scheduled for further development and piloting in 2015.

RSCP staff also conducted more traditional in-depth water audits on larger facilities, completing an audit for a major transit facility.

Inspectors looked for water savings opportunities during inspections of high water use facilities, identifying use of once-through cooling equipment and referring for rebates, and discussing water saving best practices.

#### Onsite Wastewater Management Collaboration

RSCP staff met with Onsite Wastewater Management Program (OWMP) staff on a bi-weekly basis to exchange information and identify synergies for sharing messaging and efforts to maximize efficiencies. As the messaging for infrastructure, human and environmental health are virtually identical for both sewer use and onsite septic systems, there are opportunities for increasing economies of scale and addressing grey areas (e.g., RSCP regulates businesses on sewer; OWMP regulates residents on septic – there are some businesses on septic which aren't officially targeted by either program). In 2014, an RRU onsite "source control" research project targeting businesses on septic was completed. RSCP staff also participated in septic system inspection training in 2014.

#### Kindergarten to Grade 12 Education

In 2014, the RSCP continued to contribute funding for an Environmental Education Development Coordinator to develop source control specific lesson plans and resources for adoption by teachers. A series of lesson plans for both food services and automotive repair were created that can be quickly adopted and adapted to by local teachers. Although focused on source control practices for food services and automotive repair, the learning outcomes will also benefit those interested in environmental practices (e.g., environmental studies).

#### CRD Inter-Departmental Partnerships

The RSCP was a major sponsor for Green 365. The Green 365 initiative focused on integrated messaging from across divisions within the Parks & Environmental Services Department. The 2014 campaigns piloted were "Green 365: In the Kitchen" and "Green 365: Spring Cleaning". The campaigns combined key residential messages from Parks & Environmental Services programs into themed campaigns with a holistic approach.

The theme of "Green 365: In the Kitchen" focused on activities associated with kitchen, while the theme of "Green 365: Spring Cleaning" focused on activities associated with springtime cleaning. An example of a holistic approach of the "In the Kitchen" campaign was messaging around garburators, which provided an opportunity to promote practices related to climate change adaption (energy use), food waste management (kitchen scraps strategy, septic systems and source control) and water conservation (demand management).

The purpose of the pilot campaigns was an effort to increase efficiency in communications objectives, deliver comprehensive messaging to the identified audiences and decrease overall costs by combining messaging.

#### Island Health Collaboration

RSCP and Island Health staff continued their information-sharing efforts in 2014 through an administrative practices agreement whereby Island Health administrative staff commenced forwarding all "application for food facility" forms to RSCP staff. The forms provide contact and operating details for new food service businesses, enabling RSCP staff to work with new applicants more proactively, and dramatically improving RSCP data quality. The forms are forwarded to CCC staff so that, wherever possible, Cross Connection Control inspections can be conducted quickly for new businesses, and in some cases jointly with RSCP inspections, saving the businesses money and time for inspection visits.

RSCP staff, in partnership with Island Health, delivered two Medication Return Program (MRP) education sessions in January and April 2014 for Island Health community health care staff within the CRD and Vancouver Island. The presentations highlighted the background to the MRP, the impact of improper medication disposal and the important role that health care staff can play in education regarding medications return.

### Assistance with Regional Kitchen Scraps Strategy

RSCP inspectors continued to play a large role in facilitating discussions and providing accurate information pertaining to the region's kitchen scraps strategy to food services businesses in 2014. There were many opportunities with food services code of practice inspections for engaging in discussions regarding this diversion strategy. RSCP inspectors helped to voice challenges and concerns on behalf of regulated facilities and respond with answers and guidance on behalf of CRD Environmental Resource Management staff.

### Collaboration with Academic Institutions

The RSCP also developed various partnerships with educational institutions in 2014, sponsoring one undergraduate research project with Royal Roads University (RRU) Environmental Science students to investigate Source Control strategies for businesses discharging to onsite systems.

RSCP inspectors and outreach staff presented workshops to both RRU Environmental Science and Camosun College Environmental Technology students. In the former workshop, RSCP staff co-presented with CRD Regional Planning staff to help students gain perspective on higher level regional issues and provide context for a detailed workshop on the RSCP. In addition, RSCP staff continued to participate in the Camosun College Environmental Technology program advisory committee.

RSCP staff worked with Camosun College staff to customize a specialized two day training session through their plumbing program. Course content included site drawings reading interpretation, plumbing basics, water treatment systems, and water cooling systems. The course helped inspectors to have a fuller understanding of the influence of plumbing practices on treatment works, and will help to better inform municipal inspectors of issues thereby improving communication and collaboration efforts.

### Municipal Collaboration

Since 1999, municipal staff have been encouraged to issue waste discharge assessment forms (WDAFs) to persons applying for new building licenses or new sewer connections for businesses that have the potential to discharge non-domestic waste to sewer. Completed forms are forwarded by the municipality to the CRD for evaluation. In addition, businesses or plumbers contracted to perform upgrades at COP operations directly contact RSCP staff regarding COP requirements. Letters copied to municipal plumbing or licensing contacts are sent directly to COP operations outlining specific requirements and providing information.

In the past year, RSCP staff worked with municipal staff to resolve various oil and grease blockages in sewers. Municipal staff continued to provide plumbing and building information, flow data and other information to RSCP staff to assist in the preparation of permits, authorizations and COP treatment works installations in 2014.

In 2014, RSCP staff upped their presence, participating regularly on the VIPCC (Vancouver Island Plumbing Code Committee). This is an opportunity to improve personal relationships with municipal plumbing inspectors, provide regulatory updates, and problem solve with issues that affect both municipal and regional inspectors.

## **3.8 Data Management**

The RSCP portion of the Cross Connection and Regional Source Control Information Management System (CRIMS) was integrated with the CRD geographic information system (GIS) in 2012; operational integration for inspection planning continued throughout 2014. The integrated product, CRIMS Spatial, makes CRIMS regulatory database viewable via a GIS web mapping application, allowing RSCP inspectors to have access to enhanced spatial relationships regarding all facilities regulated under the Sewer Use Bylaw. The integration allowed RSCP staff to take advantage of other available spatial data (e.g., sewer lines, flow direction and manhole locations). CRIMS Spatial is designed to assist with

compliance tracking, inspection planning, tracking implementation plans, providing ad hoc and regular statistics and assisting with spill or incident response.

In 2014, the RSCP borrowed and enhanced data integrity reports initially developed by CCC. Further, a new infrastructure layer displaying the lateral connections from buildings to sewer, was developed in 2014; this layer will provide faster assessments of sources to trace grease blockages, resulting in quicker responses to significant incidents.

### 3.9 Revenue and Expenditures

A summary of revenue and expenditures for the RSCP in 2014 is provided in Table 12.

A portion of program revenue is provided through the imposition of fees and charges on businesses and institutions under the Source Control Local Service Establishment Bylaw. The total waste discharge permit fees and fines (tickets) collected in 2014 amounted to **\$113,422**.

**Table 12: Regional Source Control Program Revenue and Expenditures – 2014**

Description	Revenue (\$)	Expenditure (\$)	
Fees, fines, grants, surplus, other	216,463		
Requisition	1,223,097		
<b>Total Program Revenue</b>	<b>1,439,560</b>		
Program Expenditures		1,416,354	
Administration Expenditures		19,526	
<b>Total Program Expenditure</b>		<b>1,435,880</b>	
<b>Carry Forward to 2015</b>			<b>3,680</b>

#### Waste Discharge Permit Fees

The RSCP waste discharge permit fee structure was developed in 1997 in consultation with stakeholders to reflect the size and impact of the discharge from each business type. The fee structure is outlined in the Sewer Use Bylaw and the RSCP fees and charges policy governs the administration of the fees. In addition to a fixed annual administration fee, permittees pay discharge fees in proportion to the loads of specific contaminants discharged, based on their own self-monitoring results. Permit application and amendment fees are also charged in order to offset administrative costs.

### 3.10 Planning and Development

The following is a summary of the main activities and achievements related to the management, planning and administration of the RSCP in 2014.

- The RSCP continued to meet the commitments outlined in the Core Area and Saanich Peninsula LWMP's in 2014.
- The RSCP annual report for 2013 was presented to the Core Area Liquid Waste Management Committee, as part of a consolidated annual report for all Liquid Waste Management Plan programs, on October 8, 2014. Copies of the annual report were sent to the Ministry of Environment on October 10, 2014.
- The findings of the second five-year independent review of the program for the period 2004-2008 (Morrison Hershfield, 2010) were used to develop a five-year plan for the RSCP covering the period 2011-2015. This five-year plan is summarized in Table 14.



- The 2014 RSCP work plan was developed in January 2014 and was updated throughout the year. This plan assisted in setting project timelines and defining responsibilities for activities and projects within the overall context of the five-year plan.
- In July 2014, a consultant was selected to undertake the next five-year independent review of the program. The findings of this review will assist in the development of a new plan for the period 2016-2019 to align program activities with the next CRD budget cycle.

**Table 13: Regional Source Control Program–Five-Year Plan (2011-2015)**

The RSCP five-year implementation plan consists of four main strategies which were aligned with the main elements of the Environmental Partnerships Strategic Plan and Business Plan. The five-year plan was designed to assist in the delivery of Environmental Partnerships' mandate and to help the CRD prepare for the initiation of advanced sewage treatment in the core area.

Main Strategies and Activities	Timeline
<b>1. Coordinated Outreach and Education</b>	
<ul style="list-style-type: none"> <li>• Develop, through stakeholder consultation, new business outreach materials for industrial, commercial and institutional sectors incorporating a "one-window" approach to service delivery.</li> </ul>	2011-2015
<ul style="list-style-type: none"> <li>• Enhance and update four existing "Clean Water Begins at Home" residential outreach campaigns, including:               <ul style="list-style-type: none"> <li>- Medications return—expand to home and community care and investigate container labelling</li> <li>- Launch Source Control 201, "Sustainable U", social media campaign</li> </ul> </li> </ul>	2011-2015  2011  2012
<ul style="list-style-type: none"> <li>• Develop and launch new "Clean Water Begins at Home" initiatives, including:               <ul style="list-style-type: none"> <li>- Promote alternative household cleaners through "Clean Green"</li> <li>- Promote proper hazardous waste and hobby waste disposal</li> </ul> </li> </ul>	2011-2015 2011 2013
<ul style="list-style-type: none"> <li>• Develop education plans for K-12, post-secondary and trade schools, incorporating RSCP themes and information from other CRD programs</li> </ul>	2012
<ul style="list-style-type: none"> <li>• Enhance relationships with municipal and other agency staff by establishing procedures that facilitate efficient information exchange</li> </ul>	2012
<ul style="list-style-type: none"> <li>• Update business and residential components of RSCP website, incorporating interactive features and a "one-window" approach</li> </ul>	2015
<b>2. Coordinated Inspections and Monitoring</b>	
<ul style="list-style-type: none"> <li>• Coordinate inspections and audits for all Partnerships' programs               <ul style="list-style-type: none"> <li>- Demand Management, Cross Connection Control, Onsite Systems, Stormwater Source Control (Saanich Peninsula)</li> </ul> </li> </ul>	2012
<ul style="list-style-type: none"> <li>• Focus inspection efforts on priority industrial, commercial and institutional sources               <ul style="list-style-type: none"> <li>- Hospitals, metal platers, ship waste treatment, vehicle washing, photo imaging, printing</li> </ul> </li> </ul>	2011-2015
<ul style="list-style-type: none"> <li>• Enhance all RSCP monitoring plans (annual reviews) for:               <ul style="list-style-type: none"> <li>- Permits, authorizations, codes of practice, key manholes</li> </ul> </li> </ul>	2011-2015
<b>3. Program Review and Metrics</b>	
<ul style="list-style-type: none"> <li>• Maintain existing program components to ensure Liquid Waste Management Plan commitments are met</li> </ul>	2011-2015
<ul style="list-style-type: none"> <li>• Review program measures of success</li> </ul>	2012
<ul style="list-style-type: none"> <li>• Review, develop and adopt standard operating procedures for all RSCP activities</li> </ul>	2013
<ul style="list-style-type: none"> <li>• Review, update and amend the Sewer Use Bylaw (coordinate with reviews of other program bylaws)</li> </ul>	2014
<ul style="list-style-type: none"> <li>• Coordinate data management and database development with all Partnerships' programs</li> </ul>	2015

<b>4. Research and Emerging Technologies</b>	
<ul style="list-style-type: none"> <li>Research priority contaminants, sources, reduction strategies and targets <ul style="list-style-type: none"> <li>Investigate use of molybdenum-based corrosion inhibitors in heating/cooling systems and potential local impacts</li> <li>Develop a reduction plan for phthalates (plasticizers)</li> <li>Research use of copper-based algaecides and local impacts</li> <li>Investigate local use of nano-silver products and potential impacts</li> </ul> </li> </ul>	2011-2015  2011 2012 2013 2014
<ul style="list-style-type: none"> <li>Research and pilot test new pre-treatment technologies for effectiveness at achieving contaminant reductions and meeting regulations</li> </ul>	2011-2015

### 3.11 Performance Measures

Three program performance measures were developed over the period 2004-2006. These measures have been incorporated in RSCP “program budgets” since 2007 and were included in the scope of the five-year review undertaken in 2009. The performance measures are as follows:

- Percentage of regulated businesses with proper waste treatment installed. This measure is associated with the RSCP objective of consistent application of the program for all users of CRD sewage facilities.
- Percentage of priority contaminants showing no increase in loads to the core area environment. This measure is associated with the RSCP objective of protecting the marine environment adjacent to the CRD’s sewage outfalls.
- Percentage of biosolids and sludge samples that meet Class A standards for metals. This measure is associated with the RSCP objective of protecting the quality of sewage sludge and biosolids.

A fourth performance measure, Overall Compliance, was established in 2014 to replace “Percentage of regulated businesses with proper waste treatment installed”. See write-up below for rationale.

The method of calculating each performance measure is described in Appendix 2, using 2014 data as an example. The results of performance measure calculations for the period 2005-2014 are summarized in Table 14.

**Table 14: Results of RSCP Performance Measures (2005-2014)**

Performance Measure	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Proper waste treatment <sup>1</sup>	80	85	87	93	95	96	97	90	97	N/M <sup>5</sup>
Priority contaminants <sup>2</sup>	92	N/M	N/M	79	N/M	N/M	95	N/M	N/M	I/P <sup>6</sup>
Biosolids and sludge <sup>3</sup>	92	67	88	93	100	100	100	100	100	100
Overall Compliance <sup>4</sup>	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	95

**Notes:**

- Percentage of regulated businesses with proper waste treatment installed.
- Percentage of priority contaminants showing no increase in loads to the core area environment.
- Percentage of biosolids and sludge samples that meet Class A standards for metals.
- Overall Compliance is now substituting “Proper waste treatment” as of 2014.
- N/M = Not measured
- I/P = In preparation

Performance measure #1 was not able to be calculated prior to 2004 due to the lack of complete data on the installation of proper waste treatment for COP. Steady progress had been recorded for this measure over the period 2005-2011.

Performance Measure #1 was modified in 2014 to "Overall Compliance". Proper waste treatment was a significant marker of program influence in the developing years, as new Codes of Practices were being introduced to the region, however it is the belief of RSCP staff that a shift to "overall compliance" is now a better indicator of effective contaminants diversion. An enforcement status of "compliant" or "step 1" inherently indicates proper treatment works or that an acceptable performance-based treatment arrangement has been arranged, though not necessarily compliant with what is prescribed in the code of practice. Further a "compliant" or "step 1" enforcement status assumes that the treatment works are being properly maintained. All treatment work systems are rendered ineffective if they are not maintained, thus as a compliance indicator this is much more accurate in representing how well waste is being managed.

Performance measure #2 is based on the "yearly trend" in loads at both Macaulay and Clover point outfalls for 39 priority contaminants, as documented in the most recent trend assessment report (Golder Associates Ltd, 2013). This report found that there were significant decreasing trends, or no significant trend, in 36 of the 39 priority contaminants listed in Appendix 1. Increasing trends were recorded for cobalt at Macaulay Point and WAD cyanide at Clover Point, resulting in a 95% rating for this performance measure in 2011.

Long-term analysis of effluent trends for the core area outfalls is only undertaken every three to four years. This measure cannot be calculated for the two to three years in between. The next analysis, including data from 1990-2015, is scheduled for 2016.

The final performance measure has shown some variability over the years, largely due to the mixed liquor metals results from the GWWTP exceeding Class A criteria for biosolids. However, for the sixth consecutive year, the 2014 GWWTP mixed liquor results met the Class A criteria for all metals, including mercury. SPWWTP dewatered sludge monitoring commenced in March 2013. All of these results also met the Class A criteria for metals. The combined results from the two plants provided an overall 100% rating for this performance measure in 2014.

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## APPENDIX 1

### RSCP Priority Contaminant List (2014)

<b>TOTAL METALS</b>
arsenic (As)
cadmium (Cd)
chromium (Cr)
cobalt (Co)
copper (Cu)
lead (Pb)
manganese (Mn)
mercury (Hg)
molybdenum (Mo)
nickel (Ni)
selenium (Se)
silver (Ag)
zinc (Zn)
<b>POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs)</b>
Total PAHs
Low molecular weight PAHs
naphthalene
acenaphthylene
acenaphthene
fluorene
phenanthrene
anthracene
fluoranthene
High molecular weight PAHs
pyrene
benzo(a)anthracene
chrysene
benzo(b)fluoranthene
benzo(k)fluoranthene
benzo(a)pyrene
dibenzo(a,h)anthracene
indeno(1,2,3-cd)pyrene
benzo(g,h,i)perylene
<b>Phthalates</b>
bis(2 ethylhexyl)phthalate
di-n-butyl phthalate
<b>Miscellaneous</b>
1,4-dichlorobenzene
Cyanide - weak acid dissociable (WAD)
Cyanide - strong acid dissociable (SAD)
phenol
total oil and grease



## APPENDIX 2

### Calculation Methods for RSCP Performance Measures

The following methods are used to calculate the four RSCP performance measures referred to in Section 3.11.

#### RSCP Performance Measure #1:

##### **“Percentage of regulated businesses with proper waste treatment installed”**

As of 2014, this performance measure has now been replaced with “Overall Compliance”. Number of regulated business with proper waste treatment installed” was, in earlier program years, a significant marker of program influence. As new Codes of Practice were being introduced to the region, it was important to measure how many (and how quickly) businesses were adopting proper wastewater treatment systems. Currently however, it is the belief of RSCP staff that a shift to “overall compliance” is now a better indicator of effective contaminants diversion, due to:

- **Consistent high compliance with proper treatment works installed.** We know from our inspection history that, as a baseline, almost all regulated facilities are operating with proper waste treatment.
- **Performance-based compliance site-specific practices:** Alternative arrangements in practices or technologies, which might deviate from what is prescribed in a code, may be effectively treating the waste. For example, there are several automotive facilities with (technically) under-sized oil water separators, who are supplementing their systems with oil coalescing plates, analyzing the wastewater effluent and being monitored through an authorization to ensure that the systems are not bypassing hydrocabons or in excess of other restricted waste limits.
- **Treatment Works Maintenance:** The top enforcement issue amongst regulated facilities is proper maintenance of treatment works. All treatment work systems are rendered ineffective if they are not maintained; thus as a compliance indicator this is much more accurate representation of proper contaminants diversion. A facility not maintaining a system will receive a major infraction (step 2) compliance status.
- **Working with facilities with inadequate or no treatment works:** On the rare occasion where a facility is found to have no treatment works on site, staff work swiftly with the business towards adopting an effective system. When there is resistance to working proactively with staff, enforcement actions escalate quickly, typically resulting in positive action from the facility. When inspected treatment works are viewed as ineffective (e.g., under capacity, in poor repair, or not undergone base standard certification), the inspector will work with the business to improve treatment performance through either an upgraded system that meets CRD requirements, authorizing modifications to the existing system to meet or beat base performance requirements or assisting the business in modifying their practices to eliminate the need for onsite treatment works (e.g., an automotive shop disconnecting their floor drains and using off-site treatment services exclusively).

#### RSCP Performance Measure #2

##### **“Percentage of priority contaminants showing no increase in loads to the core area environment”**

This measure is associated with the RSCP objective of protecting the marine environment adjacent to the CRD’s sewage outfalls.

CRD Environmental Protection Division’s Marine Programs group has collected samples of wastewater from the Macaulay and Clover point outfalls since 1988. Wastewater samples have been analysed for over 200 parameters, including priority substances and conventional parameters. Statistical analysis

have been conducted periodically in the past to evaluate long-term trends in concentrations and loads of these substances in wastewater. The most recent trend assessment (Golder Associates Ltd., 2013), utilizing data from the period 1990-2011, updates the previous assessment (Golder Associates Ltd., 2009a), which included data from 1990-2008.

In 2008, the RSCP prepared a list of core area priority contaminants based on information provided by Marine Programs and other sources. The following table shows the current list of 39 RSCP priority contaminants (Appendix 1 of this report). Most of these contaminants have been targeted for reduction by RSCP, either through regulation or outreach, or a combination of initiatives.

Performance measure #2 is based on the “yearly trend” in loads at both Macaulay and Clover point outfalls for the above 39 priority contaminants, as documented in the most recent trend analysis report. All RSCP priority contaminants showing either a decrease or “no significant trend” in loads at either Macaulay or Clover point outfalls are identified and reported as a percentage of the 39 listed priority contaminants. Note that trends for “total” metals, not “dissolved”, are used in the calculation. For PAHs, trends for individual PAHs, LMW, HMW and Total PAHs are used in the calculation.

#### Performance Measure Calculation

The following table shows how performance measure #2 was calculated for 2005, 2008 and 2011, based on information provided in Golder Associates Ltd., 2006, 2009a and 2013. Note: only the contaminants for which a significant increasing trend was reported are shown – all other contaminants showed either a “significant decrease”, no “significant trend” (ns) or “could not be calculated” (nc).

RSCP Priority Contaminant	Yearly Trend (1990-2005) Core Area Loads	Yearly Trend (1990-2008) Core Area Loads	Yearly Trend (1990-2011) Core Area Loads
<b>TOTAL METALS</b>			
arsenic (As)		Increase	
cadmium (Cd)			
cobalt (Co)			Increase (Macaulay only)
chromium (Cr)			
copper (Cu)			
lead (Pb)			
molybdenum (Mo)	Increase (Clover only)	Increase (Macaulay only)	
manganese (Mn)			
mercury (Hg)			
nickel (Ni)			
selenium (Se)		Increase	
silver (Ag)			
zinc (Zn)			
<b>POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs)</b>			
<b>Low molecular weight PAHs</b>			
naphthalene			
acenaphthylene			
acenaphthene		Increase	
fluorene			
phenanthrene			
anthracene			
fluoranthene		Increase	



<b>RSCP Priority Contaminant</b>	<b>Yearly Trend (1990-2005) Core Area Loads</b>	<b>Yearly Trend (1990-2008) Core Area Loads</b>	<b>Yearly Trend (1990-2011) Core Area Loads</b>
<b>High molecular weight PAHs</b>	Increase	Increase	
pyrene			
benzo(a)anthracene			
chrysene			
benzo(b)fluoranthene			
benzo(k)fluoranthene			
benzo(a)pyrene			
dibenzo(a,h)anthracene			
indeno(1,2,3-cd)pyrene			
benzo(g,h,i)perylene			
<b>Total PAHs</b>		Increase (Macaulay only)	
<b>Phthalates</b>			
bis(2 ethylhexl)phthalate	Increase	Increase (Macaulay only)	
di-n-butyl phthalate			
<b>Miscellaneous</b>			
1,4-dichlorobenzene			
phenol			
total oil and grease			
Cyanide - WAD			Increase in WAD Cyanide (Clover only)
Cyanide - SAD			
<b>Total # Increase</b>	<b>3</b>	<b>8</b>	<b>2</b>
<b>Total # Decrease or “ns”</b>	<b>35</b>	<b>30</b>	<b>36</b>
<b>% of 39 Priority Contaminants</b>	<b>92%</b>	<b>79%</b>	<b>95%</b>

### RSCP Performance Measure #3

#### **“Percentage of biosolids and sludge samples that meet Class A standards for metals”**

Performance measure #3 is linked to the RSCP objective of protecting the quality of sewage sludge and biosolids.

Composite samples of biosolids produced at the SPWWTP were analysed on a regular basis during periods of production from May 2000 – April 2011. Samples were analysed for metals, moisture, pH, nutrients and microorganisms. Analytical results for metals were assessed using Class A Biosolids Standards as specified in *Canadian Food Inspection Agency Trade memorandum T-4-93 Table II* (see below).

Following CRD Board direction to cease land application of biosolids, SPWWTP has produced only dewatered sludge since April 2011. The dewatered sludge was landfilled as controlled waste throughout 2012 without routine sampling and analysis. Consequently, there was no 2012 SPWWTP dewatered sludge data available for input to this performance measure. SPWWTP dewatered sludge monitoring commenced in March 2013.

### Class A Biosolids Standards, Maximum Acceptable Metal Concentrations\*

Metal	Concentration (mg/Kg dry weight)
Arsenic	75
Cadmium	20
Cobalt	150
Mercury	5
Molybdenum	20
Nickel	180
Lead	500
Selenium	14
Zinc	1,850

\*From: Canadian Food Inspection Agency Trade memorandum T-4-93 Table II

The GWWTP produces a mixed liquor product, and the SPWWTP produces dewatered sludge. Neither of these are biosolids products by definition. Grab samples of GWWTP mixed liquor are analysed for metals and moisture on a monthly basis. Composite samples of SPWWTP dewatered sludge are submitted for metals cyanide and moisture analysis initially on a weekly, and finally on a monthly, basis. The results are assessed using the Class A Biosolids standards referred to above.

The performance measure is calculated using the ratio of the annual number of samples of both dewatered sludge and mixed liquor that were compliant with Class A standards and the total annual number of samples collected and analyzed – expressed as a percentage.

#### Performance Measure Calculation – 2014

The following table illustrates how performance measure #3 is calculated, using 2014 data as an example.

Treatment Plant	# Samples (2014) <sup>1</sup>	# Compliant (2014) <sup>2</sup>
Ganges WWTP (Mixed Liquor)	12	12
Saanich Peninsula WWTP (Dewatered Sludge)	12	12
<b>Totals</b>	<b>24</b>	<b>24</b>
<b>Percentage Compliant</b>		<b>100%</b>

**Notes:**

<sup>1</sup> the number of dates on which discrete samples were submitted for analysis.

<sup>2</sup> the number of samples with results that were fully compliant with Class A Biosolids standards for nine metals. Results for any field duplicates taken on the same date are averaged. If the standards are exceeded for one or more of the nine metals, a "failure" is recorded for the entire sample.

The overall percentage of biosolids and sludge samples that met Class A standards for metals in 2014 was **100%**.

#### RSCP Performance Measure #4

##### **"Overall compliance"**

This new performance measure, replacing "# of facilities with proper waste treatment" would include facilities regulated through permits, authorizations or COP's receiving either a "compliance" or "step 1" inspection status. A "step 1" compliance status is indicative of a "first infraction" e.g., a late permit report, or failure to keep records as required. A single infraction does not have a significant impact on the program. Any facility without proper treatment works or not maintaining treatment works would be given a "Step 2" (first major infraction" or higher level of enforcement depending on the situation).

#### Performance Measure Calculation–2014

The first step in estimating overall compliance is establishing the individual COP sector size. All of the facilities within each COP data set are assessed and screened on the following criteria:

- Repeat inspections removed
- “No Regulated Waste” Discharge Types removed
- “Not Connected to Regional Sewers” Discharge Types removed
- “Storm Drain Discharge” Discharge Types removed
- Facilities with no inspection dates removed
- “Unknown Discharge Type” Discharge Types removed
- “Closed Facilities” removed
- “Unknown Discharger Types” Discharge Types removed
- “Operating Under Another Regulatory type” Discharge Types removed
- “Operation Under Construction” Discharge Types removed
- Facilities operating under an authorization removed
- “Groundwater Discharger” Discharge Types removed

It should be noted that the screened facilities are not assumed to permanently exist in that state, and are re-visited for updates through “newly sewerer facility” GIS mapping updates and/or site contact to determine if practices have changed. Sector sizes for permitted and authorized facilities are simply based on number of active permits/authorizations at that time.

#### **Summary of Code of Practice/Permit/Authorization Sector Sizes in 2014**

<b>Code of Practice</b>	<b>Est. Sector Size (2014)</b>
Automotive Repair	134
Carpet Cleaning	47
Dental	113
Dry Cleaning	13
Fermentation	28
Food Services	1176
Laboratory	31
Photographic Imaging	90
Printing	20
Recreation Facility	13
Vehicle Wash	34
<b>Total COP Operations</b>	<b>1699</b>
Total Active Permits	31
Total Active Authorizations	91
<b>Total Regulated Facilities</b>	<b>1821</b>

With the established COP sector sizes and number of permitted/authorized facilities, number of “overall compliant” facilities within each data set are established using the last compliance status of 2014. Facilities with “Compliant” or “Step 1” status are considered “Overall compliant” i.e., minor infractions but assumed treatment works and associated maintenance. Overall Compliance since full implementation of COP are presented below.

**Progress on Overall Compliance since Adapting New Success Measure in 2014**

<b>Sector</b>	<b>Sector Size</b>	<b># Compliant or Step 1</b>	<b># Step 2 or higher</b>	<b>% Overall Compliance</b>
Automotive Repair COP	134	132	2	<b>98.5%</b>
Carpet Cleaning COP	47	47	0	<b>100.0%</b>
Dental COP	113	112	1	<b>99.1%</b>
Dry Cleaning COP	13	12	1	<b>92.3%</b>
Fermentation COP	28	28	0	<b>100.0%</b>
Food Services COP	1176	1101	35	<b>93.6%</b>
Laboratory COP	31	31	0	<b>100.0%</b>
Photographic Imaging COP	90	90	0	<b>100.0%</b>
Printing COP	20	20	0	<b>100.0%</b>
Recreation Facility COP	13	13	0	<b>100.0%</b>
Vehicle Wash COP	34	34	0	<b>100.0%</b>
Permits	31	21	10	<b>67.4%</b>
Authorizations	91	86	5	<b>94.5%</b>
<b>TOTALS</b>	<b>1821</b>	<b>1727</b>	<b>54</b>	<b>94.8%</b>

As a result, the “Overall Compliance” in 2014 is **95%**.