



**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE  
MEETING OF WEDNESDAY 22 SEPTEMBER 2010**

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**SUBJECT**      **CORE AREA STORMWATER QUALITY PROGRAM – ENHANCED STORMWATER DISCHARGE INVESTIGATIONS**

**ISSUE**

To summarize the results of an enhanced stormwater discharge investigation program.

**BACKGROUND**

In July 2008, the Core Area Liquid Waste Management Committee recommended that Stormwater, Harbours and Watershed Program (SHWP) staff work with the core area municipalities to refocus the Stormwater Quality Program until the end of 2010 to address the increasing number of stormwater discharges rated high for public health concern (based, in part, on levels of fecal coliform bacteria). By suspending some low-priority routine discharge surveys and annual reporting, SHWP shifted resources to allow for increased investigative efforts. When sources of contamination were located, the information aided municipal partners in their work to maintain and repair storm drain infrastructure.

Enhanced investigative work was performed on 42 discharges previously rated high. A combination of municipal repairs, municipal infrastructure maintenance and reduced contaminant levels has resulted in preliminary indications that 14 of the discharges are no longer rated high for public health concern. Continued sampling during the fall/winter wet season is necessary to confirm these results. In 2011, SHWP will resume the regular annual monitoring program and, using data from the enhanced program, continue to investigate the discharges still rated high.

Staff prepared a summary report, *Review of Stormwater Contaminant Source Investigations in the Core Area (July 2008 to July 2010)* and the executive summary is attached as Appendix A. This report has been discussed with municipal staff and copies will be sent to the core area municipalities. The full report is available upon request from the Environmental Sustainability department.

**ALTERNATIVES**

That the Core Area Liquid Waste Management Committee:

1. Receive the report *Review of Stormwater Contaminant Source Investigations in the Core Area (July 2008 to July 2010)* for information.
2. Not receive the report *Review of Stormwater Contaminant Source Investigations in the Core Area (July 2008 to July 2010)* for information.

**FINANCIAL IMPLICATIONS**

This work was done within the existing annual Core Area Stormwater Quality Program budget.

**CONCLUSION**

The reallocation of program resources has allowed SHWP staff to give municipalities more data to help locate and repair sources of contamination in discharges rated high for public health concern. Preliminary

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results indicate that this information was useful in reducing the number of high rated discharges. The additional data collected during this period will also aid investigations in successive years.

**RECOMMENDATION**

That the Core Area Liquid Waste Management Committee receive the report *Review of Stormwater Contaminant Source Investigations in the Core Area (July 2008 to July 2010)* for information.

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Glenn Harris, PhD, RPBio  
Senior Manager, Environmental Protection

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Larisa Hutcheson, PEng  
General Manager, Environmental Sustainability  
Concurrence

DG:cam  
Attachment: 1

**REVIEW OF STORMWATER CONTAMINANT SOURCE INVESTIGATIONS IN THE CORE AREA  
(JULY 2008 TO JULY 2010)**

**EXECUTIVE SUMMARY**

**INTRODUCTION**

In consultation with the municipalities, the Capital Regional District (CRD) Stormwater, Harbours and Watersheds Program (SHWP) plans, promotes and coordinates management of stormwater quality under the Core Area Liquid Waste Management Plan (LWMP). The authority to implement mitigative activities is the responsibility of municipalities, First Nations and other government agencies.

The SHWP has evaluated contaminants in core area stormwater discharges since 1993. These efforts have resulted in a large amount of baseline data, identified areas of highest concern, and reduced sources of contamination. However, since 2001, the number of discharges rated high for public health concern (i.e., those that exhibit elevated fecal coliform levels and have potential for public contact) has progressively increased. In July 2008, the Core Area Liquid Waste Management Committee recommended that the program be refocused until the end of 2010 to address this upward trend.

In response to that direction, the SHWP focused sampling activities on identifying sources of sewage contamination in stormwater discharges of highest priority to assist core area municipalities in mitigating contamination and minimizing the increasing number of discharges rated high for public health concern. During this period, staff temporarily suspended assessing lower priority discharges for public health concern and producing annual reports in order to increase attention on identifying sources of contamination in high-priority discharges without additional funds. Other program activities continued during this time (i.e., stormwater sediment assessment, watercourse and marine monitoring and education and outreach).

This report provides an update on the status of source investigations and the efforts of SHWP staff and our municipal partners in Esquimalt, Oak Bay, Victoria, View Royal and Saanich from July 2008 to July 2010.

**RESULTS AND DISCUSSION**

In 2007, there were 42 high-priority discharges in the core area based on high public health concern ratings. The majority of these are in the areas that have the oldest stormwater and sanitary sewer infrastructure (the municipalities of Esquimalt, Oak Bay and Victoria) and issues are largely due to aging pipes and historic engineering practices. Many of these discharges have been of concern for many years and have multiple sources of fecal contamination; the sources have proven difficult to find and costly to repair.

Sources of fecal coliform contamination were identified cooperatively by SHWP and municipal staff (mainly from Esquimalt, Oak Bay and Victoria) in the high-priority discharges. However, SHWP staff also continued to work with Saanich and View Royal to address their high-priority discharges (two in Saanich and one in View Royal).

SHWP staff conducted source investigations in high-priority discharges with genetic analysis (to identify if contamination is from human sources) and sampling upstream of the contaminated discharge for fecal coliform analysis to narrow down the location of the source. Once the source was narrowed to within two manholes, results were presented to the municipalities to aid their efforts to specifically locate the problem.

Municipalities identified sources through dye-testing or camera viewing, or inadvertently when performing ongoing road repair. The municipalities (particularly Esquimalt) have also made considerable efforts to mitigate exfiltration from the sanitary sewer by identifying fractures in sanitary sewer pipes and relining them.

Program changes proposed in summer 2008 were effectively implemented in January 2009. In 2009 and the first half of 2010, SHWP increased the number of upstream sampling events (100 compared to 69 in 2007–2008), resulting in more data collection than previous years in the core area. A sampling event includes investigative work that results in sample collection (planning, sampling, and mapping, interpreting and summarizing data) and does not account for additional efforts where no sample could be collected due to dry or low flow conditions or inability to open a manhole due to barriers or traffic constraints.

Source investigations for the 42 high-priority discharges SHWP investigations have been concluded in 21 discharges, as the source has been repaired or actions to identify and remediate sources are being planned by municipal staff or private owners. SHWP investigations are ongoing for 21 other discharges.

Based on 2009 and preliminary 2010 data, 14 of the 42 high-rated discharges have been assigned a lower rating in 2010. Although some changes may be due to annual variability, many of the lower ratings are attributed to repairs made by municipal staff in areas where contamination was identified by SHWP staff and broad efforts made by municipalities to repair and reline fractured sanitary sewer lines.

## **NEXT STEPS**

Initial results suggest that the refocused approach has been successful in allowing more sampling events, narrowing down sources of contamination and reducing the number of high-rated discharges for public health concern. Municipalities have used information provided by SHWP to find and repair sources of contamination; however, there are a number of sources that are difficult to address and some of them are on private property. For some sources, reducing contamination is a slow, costly process that requires careful planning, prioritizing and time.

Due to the initial successes and the number of contaminant sources that require further investigation, the SHWP will continue to focus efforts to assist municipalities in finding sources of contamination. The SHWP will also continue other program activities (i.e., stormwater sediment assessment, watercourse and marine monitoring) which assess environmental impacts from stormwater and use educational initiatives to help prevent contamination from occurring in the first place.