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**REPORT TO MAGIC LAKE ESTATES WATER AND SEWER LOCAL SERVICES COMMITTEE
MEETING OF FRIDAY 28 OCTOBER 2011**

**SUBJECT SCHOONER WAY AND CANNON CRESCENT WASTEWATER TREATMENT PLANTS
– OUTFALL MONITORING PROGRAMS**

BACKGROUND

The Schooner Way and Cannon Crescent wastewater treatment plants (SWWWTP and CCWWTP, respectively) are located in Magic Lake Estates on the southwest side of North Pender Island. The SWWWTP discharges disinfected secondary treated effluent into Swanson Channel through a 198 metre long outfall at a depth of 8 metres below sea level. The CCWWTP discharges secondary treated effluent (not disinfected), also into Swanson Channel, through a 204 metre long outfall at a depth of 29 metres below sea level.

The operation of the SWWWTP is regulated under the BC Municipal Sewage Regulation (MSR) under Registration No. RE-01693, granted in 2000. The CCWWTP is regulated through a Waste Management Permit PE-00220, granted in 1981. Under the registration and permit, effluent discharge to the marine environment requires both plant compliance (effluent quality) and receiving environment (ambient quality) monitoring at each facility at the frequency outlined in Appendix A (attached). Regulatory monitoring requirements are generally proportional to the facility flow volumes. As such, the SWWWTP regulatory monitoring requirements are more substantial than those for the CCWWTP, particularly for the receiving environment monitoring.

In addition to the required regulatory monitoring, treatment plant performance monitoring is conducted on influent, and at various stages throughout the treatment process, to assist operators in maintaining the facilities at optimum efficiency. Staff undertake the operational monitoring at each facility at a frequency outlined in Appendix B (attached).

The 2011 budgets for monitoring and reporting are \$14,490 for the SWWWTP and \$3,310 for the CCWWTP. These budget numbers include all analytical costs and staff time to collect samples and write the annual summary report, but are exclusive of general administration costs shared across the monitoring budgets for all eight Capital Regional District (CRD) marine outfalls. The SWWWTP budget also includes funds to conduct a receiving environment monitoring program, which has been required because at least one of the following regulatory triggers has been exceeded in recent years:

- fecal coliform concentrations in disinfected effluent exceed 200 CFU/100 mL in two consecutive samples or in three samples in a calendar year; or
- maximum flow exceeds 640 m³/day; or
- the UV disinfection process is not functioning.

Up until now, the CCWWTP has not required a receiving environment monitoring program.

The BC Ministry of Environment (MOE) has direct regulatory authority over sewage discharges to the marine receiving environment through the MSR. As such, MOE periodically reviews all outfall monitoring programs throughout the province. On 09 December 2010, MOE presented the results of its most recent review of the CRD Southern Gulf Island and Port Renfrew outfall monitoring programs at a meeting with CRD staff. MOE indicated it wants the CRD to revise all Southern Gulf Island and Port Renfrew outfall receiving environment sampling programs from the non-existent (e.g., CCWWTP) or triggered processes (e.g., SWWWTP) to sampling programs that would occur regardless of effluent quality or flow volume.

Magic Lake Estates Water and Sewer Local Services Committee – 28 October 2011
Re: Schooner Way and Cannon Crescent Wastewater Treatment Plants – Outfall Monitoring
Page 2

The proposed monitoring changes would involve sampling 5 times in 30 days, once per year at each outfall, and would include analyses for enterococci bacteria as well as fecal coliforms. The results from the revised monitoring would be directly comparable to human health guidelines which is not the case with the current monitoring programs. Similar monitoring requirements are being proposed by MOE for all wastewater and some industrial outfalls in BC.

MOE staff initially indicated they would like the CRD to undertake this increased monitoring at the Southern Gulf Island and Port Renfrew outfalls in 2011 and 2012, followed by a review of the results to assess whether annual or less frequent (e.g., every 3 to 5 years) monitoring will be required in the future.

Because the 2011 SWWWTP budget already includes funds for a receiving environment monitoring program, MOE and staff have committed to implement the revised monitoring together in 2011 on a cost-shared basis. The SWWWTP 2011 budget is insufficient to support the monitoring in its entirety and MOE will be contributing a sampling boat and some analytical support. Effort will also be shared with the CRD's outfall at Maliview Estates on Salt Spring Island, as similar sampling will be undertaken for this facility on the same day.

For the CCWWTP, staff indicated that the 2011 budget was already set and that potential additional funds for receiving environment monitoring would not be available until 2012 (meaning sampling would take place for 2 years starting in 2012). In addition, the SWWWTP budget will require supplemental funds in 2012, as the cost-sharing agreement with MOE will only be available for 2011.

Preliminary cost estimates to revise the marine receiving environment monitoring programs at both Magic Lake Estates outfalls to annual 5 samples in 30 day sampling regimes could increase the budgets by up to \$6,000 per year per facility. It is anticipated that some cost-sharing will be possible for the 4 CRD Southern Gulf Island wastewater outfalls (i.e., the 2 Magic Lake facilities and Maliview Estates and Ganges on Salt Spring Island). The total budget implications are currently being estimated and would likely be included as supplemental requests in the 2012 budget packages.

ECONOMIC IMPLICATIONS

An increase in marine receiving environment monitoring budgets for the SWWWTP in 2012 and CCWWTP in 2012-2013, as per MOE expectations, will likely result in annual increases of up to \$6,000 per year per facility (above costs currently associated with wastewater monitoring).

RECOMMENDATION

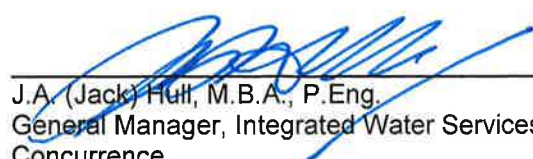
That the Magic Lake Estates Water and Sewer Local Services Committee receive this report for information.



Glenn Harris, Ph.D., R.P.Bio.
Senior Manager, Environmental Protection



Larisa Hutcheson, P.Eng.
General Manager, Environmental Sustainability
Concurrence



J.A. (Jack) Hull, M.B.A., P.Eng.
General Manager, Integrated Water Services
Concurrence

SL/CL:km
Attachments: 2

SCHOONER WAY WASTEWATER MONITORING PROGRAM

	Regulation Limit	Required Sampling Frequency
Flow		
• daily total	640 m ³ /day	daily
Disinfected Effluent Requirements		
• carbonaceous biochemical oxygen demand	45 mg/L	monthly
• total suspended solids	45 mg/L	monthly
• fecal coliforms	200 CFU/100mL	monthly
• 96 hour LC ₅₀	pass	annually
• ammonia	no limit	monthly
• pH	no limit	monthly
Receiving Environment Monitoring		
• fecal coliforms	Pre-2011, sampling was not required unless triggered.* Trigger has been tripped, requiring sampling in 2009 and 2010. The trigger process was abandoned in 2011 at the direction of the BC Ministry of Environment.	Pre-2011, twice per year (summer and winter) 2011-2012, five sampling events in 30 days, once per year (winter). The need for monitoring in 2013 and beyond will be determined following review of the 2011-2012 results.
* historical (pre-2011) trigger: <ul style="list-style-type: none"> • if fecal coliform concentrations in disinfected effluent exceed 200 CFU/100 mL in 2 consecutive samples or in 3 samples in a calendar year; or • if maximum flow exceeds 640 m³/day; or • if the UV disinfection process is not functioning. 		

CANNON CRESCENT WASTEWATER MONITORING PROGRAM

	Regulation Limit	Required Sampling Frequency
Flow		
• daily total	68 m ³ /day	daily
Undisinfected Effluent Requirements		
• carbonaceous biochemical oxygen demand	45 mg/L	quarterly
• total suspended solids	60 mg/L	quarterly

SCHOONER WAY TREATMENT PLANT PERFORMANCE PROGRAM

	Sampling Frequency
Influent	
• flow	daily
• total biochemical oxygen demand	monthly
• total suspended solids	monthly
• fecal coliforms	monthly
Undisinfected Effluent	
• total suspended solids	monthly
• fecal coliforms	monthly
Disinfected Effluent	
• total biochemical oxygen demand	monthly

CANNON CRESCENT TREATMENT PLANT PERFORMANCE PROGRAM

	Sampling Frequency
Influent	
• flow	daily
• total biochemical oxygen demand	monthly
• total suspended solids	monthly
• fecal coliforms	monthly
Undisinfected Effluent	
• total and carbonaceous biochemical oxygen demand	monthly
• total suspended solids	monthly
• fecal coliforms	monthly
• ammonia	monthly
• pH	monthly