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## SAANICH PENINSULA WASTEWATER COMMISSION

Notice of Meeting on **Thursday, October 2, 2014 at 9 am**

Saanich Peninsula Treatment Plant Meeting Room, 9055 Mainwaring Road, North Saanich, BC

A. Bryson	R. Barnhart	T. Daly	M. Doehnel
Z. King	M. Lougher-Goodey	M. Loveless	E. McMurphy
M. Williams (Chair)	A. Rowland	Pauquachin First Nation	Tseycum First Nation

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### AGENDA

1. Approval of Agenda
2. Adoption of Minutes of June 19, 2014
3. Chair's Remarks
4. Saanich Peninsula Wastewater Strategic Plan Update (Staff Report #SPWWC 2014-06)
5. District Energy System Project Update – Energy And Billing Technical Review (Staff Report #SPWWC 2014-04)
6. 2015 Capital and Operating Budget (Staff Report #SPWWC 2014-05)
7. Sludge Disposal Update Resulting from Seaterra Decisions (Verbal Report)
8. New Business
9. Adjournment

#### **Distribution:**

Staff/Town Halls, etc.

R. Lapham	T. Robbins	P. Robins, Central Saanich
L. Hutcheson	T. Tanton	D. McAllister, Central Saanich
D. Lokken	P. Sparanese	R. Buchan, North Saanich
A. Orr	D. Robson	P. O'Reilly, North Saanich
J. Poncelet	M. Montague	R. Humble, Sidney
G. Harris	Commission file	Tsartlip First Nation



**REPORT TO SAANICH PENINSULA WASTEWATER COMMITTEE  
MEETING OF THURSDAY, OCTOBER 2, 2014**

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**SUBJECT SAANICH PENINSULA WASTEWATER STRATEGIC PLAN – UPDATE**

**ISSUE**

The 2013 Saanich Peninsula Wastewater (SPWW) Strategic Plan provides short and long term guidance for operations, maintenance, infrastructure asset management and financial planning.

**BACKGROUND**

On April 17, 2014, CRD staff presented the SPWW Strategic Asset Management Plan (SAMP) to the Commission. In the report, the consultant recognized that the system is relatively new, adequately sized to handle anticipated future flows and well maintained. Recommended immediate upgrades are identified at \$2.1 million within the next five years, another \$1.6 million for the following 5 years, and a further \$3.4 million in the 10 to 20 year time period.

To complete the comprehensive SAMP, the following next steps were proposed at the meeting:

1. Provide supplementary technical information, including:
  - a. The addition of a section addressing the treated effluent marine outfall and the emergency relief discharge points.
  - b. A compliance review, including BC Building Code, Canadian Electrical Code and Worksafe BC.
  - c. Implications of Liquid Waste Management Plan commitments.
2. Provide supplementary financial information, including:
  - a. Short and long term operation and maintenance cost projections based on level of service and best management practices.
  - b. Future residual disposal costs.
  - c. Long term financial plan outlining financing options (debt, reserve funding, cash funding) and a financial framework for operation, maintenance and capital improvements.
3. Review plan with service area participants to ensure alignment with stakeholder plans, particularly with municipal planning and project commitments and objectives.
4. Report back to the Commission with a comprehensive plan in advance of the 2015 Commission budget review.

In response to the next steps, CRD staff retained Stantec to provide a supplemental Technical Memorandum to provide supplementary technical information to address the first step.

- 1a. Marine Outfall - The existing marine outfall is, in general, operating properly with the exception of some minor leakage at certain joints in the pipe. Corrosion of the pipe is evident. Therefore, an evaluation of the structural condition of the pipe and its projected life span is required. As is evident from the visual inspection, design and installation of a corrosion protection system to protect the pipe and fittings is required.
- 1b. A review of the facilities, with regard to compliance with the BC Building Code, Canadian Electrical Code and Worksafe BC, was conducted as part of the Strategic Plan.

In general, the Keating, Sidney, Turgoose pump stations, and the Saanich Peninsula Wastewater Treatment Plant (SPWWTP) conform to the BC Building Code. The masonry walls at the Keating and Sidney pump stations, as well as the SPWWTP, need to be strengthened to meet current and anticipated future seismic requirements. The masonry wall strengthening has been highlighted by Stantec as a 5-10 year capital item.

The four facilities generally conform to the Canadian Electrical Code.

Stantec identified an important issue regarding high rates of inflow and infiltration (I & I) and the impact of overloading the pump stations resulting in illegal overflows. Stantec recommended conducting I & I studies to identify the major problem areas and implement solutions, as well as, monitoring at each point where flow from the municipality enters the trunk system.

- 1c. The Saanich Peninsula Liquid Waste Management Plan (LWMP) was originally approved in October 1996. The LWMP was later amended and consolidated in September 2007 to address residual management and liquid waste management in areas outside of sewerage areas.

In review of the various commitments under the LWMP, one area that still needed to be addressed was under **Section 4.2 of the LWMP, Reduction of Inflow and Infiltration to Sanitary Sewers**, for reducing I & I; it outlines the commitments for the CRD and participating municipalities. The key commitments are:

- i) Program for identification of sources and quantity of I & I should have been completed by the end of 1999.
- ii) Develop program for rehabilitation where feasible and cost effective.
- iii) Where rehab works are carried out, measure flow before and after.
- iv) The CRD will monitor flows from participants and shall advise of the need for investigation of I & I problems.

The SAMP recommends an I & I program and the CRD will implement measures for the CRD trunk sewer system and will follow up with the municipalities regarding the status of their programs.

- 2a&b. The SPWW SAMP discussed some of the short and long term operation and maintenance cost implications, but did not include cost projections based on level of service and best management practices.

As highlighted in the strategic plan, the majority of the SPWW system is fairly new. Major components like the trunk system and pump station buildings have a life expectancy of 25-50+ years. Additionally, the Saanich Peninsula is not experiencing the growth estimated when the wastewater treatment plant was constructed. Major increases in maintenance of the system are not expected due to the age of the system, but an annual increase in maintenance of 1% could be expected as equipment ages.

Operating costs are more variable than maintenance costs, mainly due to outside forces and can be less predictable. Recently, rising operating costs have been significantly impacted by increased BC Hydro charges, which accounts for approximately 8.5% of the operating costs at SPWWTP and 30% at the three pump stations. Annual increases in staff salaries can be expected in accordance with the CUPE collective agreement. Also, the cost of residuals disposal can vary over a five year period, as hauling is tendered for a two year term with the provision of two, one year extensions, and the disposal costs at Hartland Landfill may increase. The SPWWTP currently has an operating budget of \$2.9 million (2014) and disposal of residuals accounts for 23% of the budget.

Based on the above, it is recommended that an overall 2% annual increase in operating and maintenance cost (O&M) be used as a conservative increase for the next 5 years. Staff would need to reassess the longer term O&M costs due to the variability of utility rates, costs and disposal methods of residuals subject to the advancement of the regional resource recovery center project.

- 2c. The long term financial plan outlining financing options (debt, reserve funding, cash funding) and a financial framework for the proposed long term capital, operational and maintenance costs have not been developed at this time. It is recommended that staff discuss the proposed SPWW SAMP with the municipalities to determine if there are any concerns and comments for the Committee's consideration with respect to long term funding strategies (such as municipal requisition implications).

3. As indicated above, it is recommended that the SPWW SAMP be reviewed with the service area participants to ensure alignment with stakeholder plans, particularly with municipal planning and project commitments and objectives.
4. It is also recommended that CRD staff report back to the Commission with a comprehensive plan in in early 2015.

### **RECOMMENDATION**

That the Saanich Peninsula Wastewater Commission receive the staff report for information and direct staff to report back to the Commission regarding items 2c, 3 and 4 of the Saanich Peninsula Wastewater Strategic plan in early 2015.

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Craig Gottfred, P.Eng.  
Manager, Regional Wastewater Engineering  
& Planning  
Infrastructure Engineering and Operations

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Peter Sparanese, P.Eng.  
Senior Manager, Infrastructure Engineering  
and Operations  
Concurrence

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Ted Robbins, BSc, C.Tech.  
General Manager, Integrated Water Services  
Concurrence

CG/PS/TR:mm

Attachment:

1. CRD Saanich Peninsula Waste Water System Strategic Plan: Supplemental Information - Stantec



**REPORT TO SAANICH PENINSULA WASTEWATER COMMISSION  
MEETING OF THURSDAY, OCTOBER 2, 2014**

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**SUBJECT     DISTRICT ENERGY SYSTEM PROJECT UPDATE – ENERGY AND BILLING  
TECHNICAL REVIEW**

**ISSUE**

To provide an update on the energy and billing technical review that was recently completed and consider the resulting recommendations.

**BACKGROUND**

The Saanich Peninsula District Energy System (DES) is the first wastewater energy recovery system undertaken by the Capital Regional District (CRD) and a first within southern Vancouver Island. The construction and commissioning of the DES was completed in February 2011. The DES recovers waste heat from effluent at the Saanich Peninsula Wastewater Treatment Plant (SPWWTP) for use by the Panorama Recreation Centre (PRC) swimming pool heating system. The DES was designed with additional heating capacity for other nearby facilities. The DES, which is located at the SPWWTP, currently only serves the PRC via a mini-plant located at the PRC. This infrastructure, as well as the heat recovery loop pipe, are owned and operated by Saanich Peninsula Wastewater service.

Since the commissioning of the DES and mini-plant, there have been several system improvements to address system performance and optimization. These improvements have been documented in previous staff reports to the Commission and are summarized in Appendix A.

**Energy and PRC Billing Review**

In February 2013, a heat pump flow rate discrepancy was identified which brought into question the quality of the data used for determining the amount of energy to bill PRC. A new BTU meter was commissioned in August 2013 on the PRC side of the mini-plant to assist in analyzing the heat transfer. This past summer, Integrated Water Services retained an engineering consultant, Geoff Orr, Mechanical Engineer, to complete a technical review of the DES with a focus on past and present billing meter data and methodology.

The consultant has issued a final report, attached as Appendix B, with an analysis of the historical billing and energy information. The report concludes that, based on an energy balance, a review of the coefficient of performance and a BTU ratio analysis, the billing amounts between February 2011 and July 2013 were overstated in the amount of \$105,000. While the PRC has realized a cost savings of about \$26,000 by not using natural gas boilers during this time period, the net overbilling has been estimated at \$79,000.

To correct this issue, a new BTU meter was installed and commissioned in August 2013. Aside from some minor, intermittent metering interruptions resulting from operational issues, the analysis confirmed that the new BTU meter has been recording accurate energy transfer data for billing purposes since installation.

Another recommendation from the report is to consider re-commissioning the mini-plant in conjunction with a mechanical engineering review of the PRC pool HVAC and other adjacent buildings. This report will be shared with PRC staff so that this recommendation can be considered by PRC as part of the PRC mechanical review.

The second phase of the consultant's work will be to provide comment on record drawing revisions based on current DES equipment and operating parameters and provide a cost-benefit analysis for the overall system to determine the long term viability of the system. This work is currently underway and is expected to be completed by November 2014.

### Recent Electrical Issue

On August 19, 2015, a large electrical surge caused by a short circuit at the BC Hydro transformer that feeds the PRC and mini-plant, resulted in significant damage to the PRC electrical equipment and mini-plant. The mini-plant has been out of operation since this occurred. Trane, the contractor, is waiting for some electrical equipment to complete repairs to the mini-plant, which are expected to be complete by the end of September.

As a result, there will be loss in revenue for the DES system and higher operation and maintenance cost for the 2014 operating year. Repair and equipment replacement costs for the mini-plant are estimated at \$10,000; lost revenue over one month is estimated to be about \$5,000 - \$10,000. An insurance claim is being filed to attempt to recover the repair and equipment replacement costs. As noted, PRC received considerable damage to their electrical equipment and has hired an electrical consultant to further investigate surge protection solutions.

## ALTERNATIVES

### Alternative 1

That the Saanich Peninsula Wastewater Commission direct staff:

- a. To reduce the 2014 transfer to the capital reserve fund by \$79,000, and to reimburse PRC this amount to reconcile the overbilled amount;
- b. To forward the *Saanich Peninsula Wastewater Treatment Plant District Energy System Billing Meter and Project Review, August 2014*, report to PRC staff for information; and
- c. To report back to the Commission with the recommendations from the cost-benefit analysis.

### Alternative 2

That the Saanich Peninsula Wastewater Commission direct staff to provide additional information.

## IMPLICATIONS

Proceeding with Alternative 1 will result in a reduced transfer to the capital reserve fund, but is necessary to correct the historical PRC billing issue. However, the overall reserve fund balance will remain sufficient to fund the current five-year capital plan.

Alternative 2 does not provide a resolution to the PRC billing issue.

## **CONCLUSION**

The method of energy transfer calculation used previously provided inaccurate results resulting in overbilling PRC for energy consumption between February 2011 and July 2013. It is proposed to reimburse PRC in the amount of \$79,000 to reconcile the overbilled amount. The present configuration of DES system and calculation of energy transfer is providing accurate data.

## **RECOMMENDATION**

That the Saanich Peninsula Wastewater Commission direct staff:

- a. To reduce the 2014 transfer to the capital reserve fund by \$79,000, and to reimburse PRC this amount to reconcile the overbilled amount,
- b. To forward the *Saanich Peninsula Wastewater Treatment Plant District Energy System Billing Meter and Project Review, August 2014*, report to PRC staff for information; and
- c. To report back to the Commission with the recommendations from the cost-benefit analysis.

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Attachments: 2

**REPORT TO SAANICH PENINSULA WASTEWATER COMMISSION  
MEETING OF THURSDAY, OCTOBER 2, 2014**

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**SUBJECT 2015 OPERATING AND CAPITAL BUDGET**

**ISSUE**

This report provides an overview of the 2015 Saanich Peninsula Wastewater Service operating and capital budget, highlighting the changes from the 2014 budget and the proposed 2015 budget figures. The report generally follows the sequence of information provided in the attached draft budget document (Attachment 1).

**BACKGROUND**

2014 Operating Expenditures and Revenue

The actual 2014 overall operating expense for trunk sewer and treatment plant operations is projected to be \$115,344 under budget primarily due to lower expenditures on equipment and restructure repairs, and odour control chemical costs. The 2014 capital reserve fund transfer was increased by \$88,546 to balance the projected year end budget.

Although the operating expenses are almost entirely funded through requisition based on each participant's percentage of total wastewater input, the District Energy System (DES) is projected to generate \$93,200 in revenue from the sale of energy to the Panorama Recreation Centre. This revenue is \$26,800 below the budgeted revenue of \$120,000. The revenue budget requires adjustment as a result of a revised energy balance, system performance and operating adjustments. Details of these adjustments will be addressed in a separate report.

2015 Operating Expense

A net 2.05% increase in the operating expense in the amount of \$60,073 is planned and results primarily from an adjustment to labour costs and electricity cost increases, including a continuous supplementary budget request of \$1,500 to fund a maintenance reserve account for the DES heat exchanger equipment maintenance.

2015 Operating Revenue

As noted previously, although the operating expenses are almost entirely funded through requisition based on each participant's percentage of total wastewater input, the DES system was initially projected to generate \$120,000 in revenue in 2015 from the sale of energy to the Panorama Recreation Centre. However, due to recent equipment failures resulting from a power surge, and the adjustments noted previously in this report, this revenue figure may be revised prior to finalizing the budget.

2015 cost sharing percentages based on prior year flows will be finalized in October and are not expected to change significantly from the 2014 cost sharing figures. The overall requisition for Saanich Peninsula trunk sewers, treatment and disposal for 2015 has been set at \$3,230,326, which is a 0% increase over 2014.

2015 Capital Budget

The planned capital expenditures for 2015 total \$730,000 funded from capital reserves. The 2015 capital program consists of several new projects, mostly related to the replacement of equipment that is at the end of the service life, or to address operational issues related to equipment and structures.



The planned transfer to the capital reserve fund in 2015 is \$333,745. At year-end 2014, the capital reserve fund balance is estimated to be \$1,813,707. Other funding sources available for capital expenditures include the Development Cost Charge reserve fund in the amount of \$1,161,089 and an equipment replacement fund with a balance of \$846,100.

The value of the five year (2015-2019) capital plan is currently \$2,565,000. With the current reserve fund balance and the planned contributions over the next five years, based on the current capital plan, there will be sufficient funding in reserves for the five-year capital plan, while maintaining a positive balance for unplanned expenditures, without the need for new borrowing.

#### Saanich Peninsula Wastewater Debt

The Saanich Peninsula Wastewater Capital Debt expenditures decreased by \$400 in 2015. The 2015 requisition to fund the debt budget is \$18,080. The remaining debt will be retired in 2016.

#### Saanich Peninsula Environmental Programs

The programs and service levels for the Saanich Peninsula Liquid Waste Management Plan administration and Stormwater Quality Management and Source Control are intended to remain unchanged for 2015 and are projected to be on budget for 2014. The total requisition increase for these three programs is \$1,347.

### **RECOMMENDATION**

That the Saanich Peninsula Wastewater Commission recommend that the CRD Board:

1. Approve the 2015 Saanich Peninsula trunk sewers, treatment and disposal operating and capital budget;
2. Approve the 2015 debt budget;
3. Approve the 2015 Parks and Environmental Services program budgets that support the Saanich Peninsula Wastewater service, including Liquid Waste Management Plan Implementation, Saanich Peninsula Stormwater Quality Management, and Saanich Peninsula Source Control Stormwater; and
4. Balance the 2014 actual revenue and expense on the transfer to capital reserve fund.

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Ted Robbins, BSc, CTech  
General Manager, Integrated Water Services

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Attachment: 1