Making a difference...together

Agenda Item #5
REPORT #SPWWC 2014 - 02

REPORT TO SAANICH PENINSULA WASTEWATER COMMISSION
MEETING OF THURSDAY, APRIL 17, 2014

SUBJECT **SAANICH PENINSULA WASTEWATER TREATMENT PLANT – SCOPE FOR FEASIBILITY REVIEW AND BUSINESS CASE ANALYSIS OF RECEIVING SEPTAGE**

ISSUE

The Commission has requested a draft, high level Terms of Reference for a consultant to conduct a feasibility review and business case analysis for receiving septage at the Saanich Peninsula Wastewater Treatment Plant (SPWWTP).

BACKGROUND

Supplementary Letters Patent provide authority to the Capital Regional District (CRD) for disposal of septage. Currently, a private company, Septage Processing Limited (SPL) provides septage receiving, treatment and disposal services for the region under contract with the CRD at their facility in Langford. At SPL, the liquid waste receives primary treatment before the effluent is returned to the District of Langford sewer system, which then flows into the CRD Core Area sewer system. The residuals from SPL's treatment process are managed by SPL. The manner in which liquid waste is managed outside sewerage areas on the Saanich Peninsula is outlined in Section 4.4.4 of the Saanich Peninsula Liquid Waste Management Plan.

The total annual volumes of residential, commercial, institutional and industrial septage taken to SPL from Central Saanich, Sidney, North Saanich, and Salt Spring Island are shown in Table 1. It is assumed that any septage from the Tseycum and Pauqauchin First Nations would be included in the totals for North Saanich and Central Saanich, respectively.

Table 1: 2011 to 2013 Annual Septage Received at SPL

Stakeholder	2011 Septage (m3)	2012 Septage (m3)	2013 Septage (m3)
Central Saanich	705	780	731
Sidney	36	51	64
North Saanich	1,512	1,519	1,490
Salt Spring Island	3,845	3,465	4,447
Total	6,098	5,815	6,732

Note: Salt Spring Island is currently receiving on-island septage at an on-island transfer station. The septage is then being hauled to SPL for treatment and disposal.

When considering whether or not to receive septage at the SPWWTP, instead of sending it to SPL in Langford, the following are some of the issues that would need to be considered:

Wastewater Treatment Plant Capacity

The SPWWTP is currently operating at 50% capacity, with an actual 2012 flow of 9,323 m^3/day compared with a design capacity of 18,596 m^3/day. If the 2013 septage volume of 6,732 m^3 (18.4 m^3/day) is added to the SPWWTP, the remaining capacity is reduced by 0.2%. Therefore, plant capacity could accommodate additional septage volumes.

Governing Bylaws and Contracts

CRD Bylaw 2439, *Liquid Waste Management Saanich Peninsula Local Service Establishment Bylaw No. 1, 1996* - Currently, the service does not include the provision of septage receiving and treatment, and the participants' purchased capacity allocations only considered municipal collection system inputs. As well, an amendment to the CRD bylaw governing the Salt Spring Island liquid waste service would be required to allow septage to be trucked off-island if this was to be considered. SPL does not have exclusive rights to the region's septage; other facilities can enter into septage receiving, treatment and disposal service agreements with the CRD.

Infrastructure and Space Requirements for Receiving Septage

Currently, neither the configuration nor the infrastructure at the SPWWTP allows for septage receiving or pre-treatment. Construction of a septage receiving station would be required, and typically consists of a concrete pad, a screen, grit separation/removal, odour control, and equalization tanks. A location close to the headworks is preferred. The available space on the existing property is earmarked for future twinning of the plant to serve future population growth. The upgrades required for receiving septage are significant and may require the purchase of additional property.

SPWWTP Treatment Process

The SPWWTP is a conventional secondary aeration and clarification treatment plant and is designed to handle a suspended solids level of 200 mg/l, which corresponds to typical wastewater from domestic, commercial, institutional and light industry uses. The constituents of septage can be similar to domestic sewage, but are often stronger and more concentrated. For example, the level of suspended solids in septage is typically much higher than domestic sewage at 2,000-3,000 mg/l. Addition of septage could therefore, have a significant impact on the treatment process unless it is pre-treated or blended with wastewater through the use of equalization tanks. It may also be necessary to consider continuing to send higher strength commercial, institutional and industrial liquid wastes to SPL, which have a greater potential to upset the treatment process.

Odour Control

Odour issues are of concern with residential neighbours nearby. The existing treatment plant carbon filtration system would likely not be large enough for the increased loading that would be present if septage was added. A larger carbon filter would be required or, alternatively, a separate filter at another location.

Truck Traffic

The expected increase in truck traffic is between 2 to 6 septage truck trips per day if the SPWWTP is to accept septage. The existing narrow access road to the SPWWTP was not designed to handle this level of large truck traffic and does not readily accommodate two-way truck traffic safely. The plant access road would likely require upgrading to accommodate two-way truck traffic. In addition, the District of North Saanich may have concerns about increased truck traffic in the surrounding neighbourhood.

Tipping Fees

The current septage tipping fee at SPL is $0.27/ imperial gallon. To be a viable option economically to private septage haulers, the tipping fee at the SPWWTP would have to be in-line with the SPL tipping fee.

Carbon Footprint

Receiving and treating septage from the Saanich Peninsula at the SPWWTP allows for centralized treatment of 'locally' generated liquid wastes. Rather than hauling to Langford, the hauling distance would be greatly reduced, reducing the amount of diesel fuel consumed, resulting in lower emissions and CO2 releases.

Feasibility Review and Business Case Analysis

Before moving forward with the concept of receiving septage at the SPWWTP, the Commission directed staff to prepare a draft, high level terms of reference and cost estimate for a consultant to prepare a feasibility review and business case analysis. The draft terms of reference follow:

1. Considering the issues noted above as a guide, conduct a high level feasibility review of receiving septage at the SPWWTP.
2. Evaluation of the impacts of septage on the current treatment process, including changes to the treatment process, impacts on odour control, increased operating costs, and accelerated replacement of equipment.
3. Methods for re-allocating the purchased capacity at the SPWWTP with septage included.
4. Provide Class "D" cost estimates for design and construction of providing a septage receiving facility at the SPWWTP including the space to accommodate the works, changes to treatment process, and road improvements required.
5. Provide Class "D" cost estimates for administration, operation and maintenance costs for providing a septage receiving facility at the SPWWTP.
6. Based on the cost estimates above, estimate the life cycle cost of the upgrade and operation.
7. Evaluate method of cost recovery through tipping fees, and estimated return on investment. Provide a financial framework for funding capital and operating costs considering the context of the current service funding model.
8. Propose amendments to the existing CRD bylaws and agreements to capture and satisfy all requirements.
9. Prepare a triple bottom line evaluation to understand the economic, environmental and social implications of the concept.
10. Prepare recommendations for the Commission's consideration.

The cost for a consultant to undertake a comprehensive analysis based on the above-noted scope is estimated at $60,000.

ALTERNATIVES

1. That the Saanich Peninsula Wastewater Commission (SPWWC) direct staff to amend the 2014 capital plan to include a SPWWTP Septage Receiving and Treatment – Feasibility Review and Business Case Analysis project, with a budget of $60,000 funded from the capital reserve fund, and prepare a Request for Proposals to retain a consultant to undertake this work.

2. That the Saanich Peninsula Wastewater Commission receive the staff report for information.

IMPLICATIONS

Alternative 1 – In order to receive septage at the SPWWTP, there are many issues to be addressed including those identified above. Some of the issues have significant financial and social implications, which may affect the business case for moving the concept forward. A feasibility review and business case analysis will allow the Commission to determine if there is merit in proceeding further with the concept.

Alternative 2 – Should this alternative be chosen, no further action will be taken at this time.

CONCLUSION

In order to receive septage at the SPWWTP, the technical, economic, social and environmental impact of doing so must be evaluated. Prior to proceeding further with this concept, the Commission would need to consider the feasibility and business case for receiving septage at the SPWWTP rather than utilizing the current regional service provider.

RECOMMENDATION

That the Saanich Peninsula Wastewater Commission receive the staff report for information.

Craig Gottfred, P.Eng.
Manager, Regional Wastewater
Integrated Water Services

Tim Tanton, MPA, P.Eng.
Senior Manager, Infrastructure Engineering
Integrated Water Services
Concurrence

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

CG:rw:mm