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REPORT TO SALT SPRING ISLAND LIQUID WASTE DISPOSAL LOCAL SERVICE COMMISSION MEETING OF TUESDAY 04 MAY 2010

SUBJECT **BURGOYNE SEPTAGE FACILITY UPGRADE PROJECT UPDATE**

PURPOSE

To provide the Salt Spring Island Liquid Waste Disposal Local Service Commission (SSILW) information regarding the status of the upgrade project.

BACKGROUND

The Burgoyne septage facility suffers from performance and reliability problems including:

- Inadequate mixing in septage storage tanks for the increased volumes received.
- Rapidly deteriorating performance of effluent press and pressate filtration membranes.
- Inadequate facilities for polymer preparation and storage.
- Inadequate headworks facilities for separation of grit and debris.
- Unsuitable facilities for protection of electrical and control systems.
- Aging and potentially unstable septage and filtrate storage tanks.

In July 2008, recognizing that the existing Burgoyne facility is struggling to provide reliable and cost-effective service, SSILW decided to begin planning a major upgrade. On November 15, 2008, the electors of Salt Spring Island voted in favour of adopting Capital Regional District (CRD) Bylaw No. 3564, enabling the CRD to borrow up to $2.1 million for upgrading the Burgoyne septage facility. $300,000 of the total funds borrowed were budgeted for a permanent composting process, leaving a budget of $1.8 million for upgrades to the dewatering process and overall facility.

All necessary permits and regulatory approvals are currently being finalized. Approvals include Vancouver Island Health Authority approval for discharge to the existing field, CRD building permit, electrical permit and Islands Trust land use approval.

Contracted engineering consultant, Dayton and Knight has prepared a pre-design report detailing the major components of the upgrade project; recognizing the approved $1.8 million budget. The report outlines:

1. Design Criteria
2. Septage Receiving and Processing Equipment
3. Septage Storage: Mixing and Dewatering
4. Filtrate Treatment, Storage, Water Re-use
5. Project Implementation Overview and Budget Cost Estimates

The pre-design report provides a comprehensive overview of the upgrades in light of the available budget. The original project plan did not include replacement of the existing storage tanks. A structural engineer has been retained to perform sonic testing to confirm thickness and structural integrity of the steel walls. Staff are also developing alternatives for replacing the existing tanks, which would yield significant benefits for operation of the completed facility.

Each component of the waste treatment process must rely on the others to perform optimally; if one component is undersized, the system's effectiveness is compromised. Critical process components have been identified as follows:

- The existing single channel Fournier rotary press is an obsolete model with restricted output and will need to be replaced to meet 2020 anticipated volumes.
- A new septage receiving head-works is a second crucial component of the treatment process.
- The existing Membrane Bio Reactor (MBR) has also reached the end of its lifespan and needs to be replaced in order to match the increased output of a new Fournier rotary press and to treat effluent to regulatory disposal standards. To minimize costs, staff is investigating the use of a refurbished membrane plant skid mounted unit complete with membranes.

Process design options are being developed and will be presented to SSILW once all the costs to purchase the new equipment and structural analysis of the existing storage tanks have been received.

Components of the project common to all options will include:

- building structures
- mechanical and electrical works
- new receiving head-works
- new Fournier rotary press
- refurbished Membrane Plant skid mounted unit complete with new membranes
- bin loading area (contained concrete pad)
- sludge screw conveyor
- septage sludge mixing technology

The following four options are under consideration for septage, pressate and treated water storage:

1. 2 bolted glass fused tanks; volumes = 2 x 90 m^3
2. 1 bolted glass fused tank; volume = 180 m^3
3. Used tanks: stainless steel; volume = 3 x 100 m^3
4. Retrofit existing tanks (after satisfactory structural assessment)

Each above listed option will require a reallocation of a portion of the composting budget to complete. Final detailed alternatives and a recommendation will be presented to SSILW at a subsequent meeting for consideration of final scope of work and approved budget.

The original planned budget of $1,800,000 assumed refurbishing the current rotary press equipment, and maintaining and retrofitting the existing tanks. Rebuilding the existing single channel Fournier rotary screen press to meet increased discharge capability is not recommended as the cost savings over a new dual channel press is minimal, and the marginal cost of a new press will be offset in operating cost savings due to shorter interruption of operation for plant construction.

ALTERNATIVES

1. That the Salt Spring Island Liquid Waste Disposal Local Service Commission receive this report for information.

2. That the Salt Spring Island Liquid Waste Disposal Local Service Commission receive this report and request further information of staff.

IMPLICATIONS

The projected cost to provide engineering design, install new head-works and replace all equipment and tanks with new equipment falls outside of the commission approved budget of $1,800,000. To augment the budget shortfall, a portion of the project contingency fund and the available $300,000 composting budget could be reallocated to the dewatering upgrade works to purchase new tanks, leaving reduced funding for the construction of a composting facility. A fifteen percent contingency amount is incorporated in the budget for the dewatering upgrade project. Any surplus contingency remaining after completion of the works would be available for the composting portion of the overall project.

A staff report for the next meeting of SSILW will consider the implications of use of funds earmarked for composting on the plan to implement composting. Preliminary options and costs for composting will be provided.

SUMMARY

The original project plan and $1.8 million budget for dewatering facility upgrades included the installation of mixers to the existing sludge and pressate tanks, but did not include replacement of the tanks. A completely new facility would be ideal for long-term satisfactory operation and maintenance; however, budget cost estimates for a completely new facility exceed the available budget, therefore is not feasible. Design alternatives and funding implications to meet the needs of the service within the available budget will be presented at the next meeting of SSILW. The completed facility will more efficiently and cost-effectively dewater current and projected quantities of sludge, septage and grease trap waste in full compliance with current BC regulations.

RECOMMENDATION

That the Salt Spring Island Liquid Waste Disposal Local Service Commission receive this report for information.

Gary Pleven AScT
Engineering Technician 5

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Colwyn Sunderland, AScT
Local Services Engineering Coordinator
Concurrence