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SALT SPRING ISLAND LIQUID WASTE DISPOSAL LOCAL SERVICE COMMISSION
Notice of Meeting on Monday, October 4, 2021 at 12:00 PM
SSI Library Meeting Room, 129 McPhillips Ave, Salt Spring Island, BC

Gary Holman	Mary Richardson Jodie Miller (r)	Laura Travelbeau	Rob Pingle	Sandra Ungerson

(r = regrets)

1. Territorial Acknowledgement / Call Meeting to Order

2. Limited Space Meeting Resolution

That this resolution applies to the Salt Spring Island Liquid Waste Disposal Local Service Commission for the meeting being held on October 4, 2021, and that the attendance of the public at the place of the meeting cannot be accommodated in accordance with the applicable requirements or recommendations under the Public Health Act, despite the best efforts of the SSI Administration, because:

a. The available meeting facilities cannot accommodate more than (20) people in person, including members of the commission and staff, and
b. There are no other facilities presently available that will allow physical attendance of the Commission and the public in sufficient numbers; and

That the Commission is ensuring openness, transparency, accessibility and accountability in respect of the open meeting by the following means:

a. By making the meeting agenda, as well as the other relevant documents, available on the CRD website, and directing interested persons to the website by means of the notices provided in respect of the meeting,
b. By making the minutes of the meeting available on the CRD website following the meeting.

3. Approval of Agenda **1-2**

4. Adoption of Minutes of October 27, 2020 **3-5**

5. Delegations/Presentations - None

6. Director and Chair Reports

7. New Business

7.1 2022 Operating and Capital Budget **6-10**

That the Salt Spring Island Liquid Waste Disposal Commission:

1. Approve the 2022 operating and capital budget as presented and recommend that the 2021 actual surplus or deficit be balanced on the 2021 transfer to the Capital Reserve Fund; and

To ensure quorum, advise Shayla Burnham 250 537 4448 if you cannot attend.

2. Recommend that the Electoral Area Services Committee recommend that the CRD Board approve the 2022 Operating and Capital Budget and the five-year Financial Plan for the Salt Spring Island Liquid Waste Disposal Local Service as presented.

8. Outstanding Business

8.1 Burgoyne Septage Treatment Facility Environmental Review **11-15**

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

9. Adjournment

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Minutes of the of the Salt Spring Island Liquid Waste Local Service Commission
Held October 27, 2020, Lions Hall, 103 Bonnet Ave, Salt Spring Island, BC

DRAFT

Present: **CRD Director:** Gary Holman
Commission Members: Mary Richardson, Rod Scotvold, Sandra Ungerson
Staff: Karla Campbell, Senior Manager, Salt Spring Electoral Area; Allen Xu, Manager Engineering; Lia Xu, Manager, Financial Services; Dan Robson, Manager, Saanich Peninsula and Gulf Islands Operations; Tracey Shaver, Recording Secretary
Absent: Rob Pingle
Present: Call Mills (1:47pm), Gail Sjuberg

1. Territorial Acknowledgement / Call Meeting to Order

Chair Richardson provided a Territorial Acknowledgement and called the meeting to order at 1:22 pm. The agenda will be flexible in order to accommodate the participation of the registered delegation.

2. Limited Space Meeting Resolution

MOVED by Director Holman, **SECONDED** by Commissioner Scotvold
That this resolution applies to the Salt Spring Island Liquid Waste Disposal Local Service Commission for the meeting being held on October 27, 2020, and that the attendance of the public at the place of the meeting will be limited in accordance with the applicable requirements or recommendations under the Public Health Act, despite the best efforts of the SSI Administration, because:

a. The available meeting facilities cannot accommodate more than (30) people in person, including members of the commission and staff, and
b. There are no other facilities presently available that will allow physical attendance of the Commission and the public in sufficient numbers; and

That the Commission is ensuring openness, transparency, accessibility and accountability in respect of the open meeting by the following means:

a. By making the meeting agenda, as well as the other relevant documents, available on the CRD website, and directing interested persons to the website by means of the notices provided in respect of the meeting,
b. By making the minutes of the meeting available on the CRD website following the meeting.

CARRIED

3. Adoption of Minutes of January 30, 2020

MOVED by Commissioner Richardson, **SECONDED** by Commissioner Scotvold,
That the Salt Spring Island Liquid Waste Local Service Commission Minutes of January 30, 2020 be approved.

CARRIED

5. Director and Chair Reports

5.1 Chair Richardson briefly commented on the lagoon report and that she will be at the ASK meeting this Friday representing the Commission as Chair.

6. New Business

6.1 2021 Operating and Capital Budget

MOVED by Commissioner Ungerson, **SECONDED** by Commissioner Scotvold,
That the Salt Spring Island Liquid Waste Disposal Commission approve the 2021 operating and capital budget as presented and recommend that the 2020 actual surplus or deficit be balanced on the 2020 transfer to the Operating Reserve Fund;

CARRIED

MOVED by Director Holman, **SECONDED** by Commissioner Scotvold,
That the Salt Spring Island Liquid Waste Disposal Commission recommend that the Electoral Area Services Committee recommend that the CRD Board approve the 2021 Operating and Capital Budget and the five year Financial Plan for the Salt Spring Island Liquid Waste Disposal Local Service as presented.

CARRIED

4.0 Delegations/Presentations:

4.1 Cal Mills- All Out Septic Pumping re: Burgoyne Bay Septage Facility Operations

- septic haulers have been working with CRD staff to improve operations during the commissioning process of the new storage tanks
- hours of access to the facility not adequate (M-F 7:30 to 4 pm)
- often an emergency based business when septic fields or tanks fail
- penalized for weekends call out or after hours
- newer brushes and a bigger screen have helped the off-loading of thick material
- Sanitary wipes (baby wipes) pose specific challenges.
- Staff to consider ways to mitigate concerns of haulers
- Septic savvy promotion for source control and discourage “wipes”

7. Outstanding Business

7.1 Salt Spring Island Burgoyne Bay Septage Facility – Preliminary Site Investigation

MOVED by Commissioner Ungerson, **SECONDED** by Commissioner Scotvold,
That the Salt Spring Island Liquid Waste Disposal Commission recommend to the Electoral Areas Committee:

1. That the Phase One Preliminary Site Investigation of Burgoyne Bay Septage Disposal Lagoons be received for information; and
2. That a Phase Two Preliminary Site Investigation of Burgoyne Bay Septage Disposal Lagoons in the fall/winter of 2020 be supported and additional budget of $7,700 for CE. 704.8501 be approved.

CARRIED

8. Adjournment

MOVED by Director Holman, **SECONDED** by Commissioner Scotvold,
That the meeting be adjourned at 2:51 pm.

CARRIED

CHAIR

SENIOR MANAGER

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REPORT TO SALT SPRING ISLAND LIQUID WASTE DISPOSAL LOCAL SERVICE COMMISSION
MONDAY, OCTOBER 04, 2021

SUBJECT

To present the 2022 operating and capital budget. In accordance with Bylaw No 2118, "Salt Spring Island Liquid Waste Disposal Additional Service Establishment Bylaw No. 1, 1993" the Commission's approval of the annual budget is required.

BACKGROUND

The Capital Regional District (CRD) is required by legislation under the *Local Government Act* (LGA) to prepare an annual operating and capital budget and a 5-year financial plan including Operating Budgets and Capital Expenditure Plans annually. CRD staff have, therefore, prepared the financial plan shown in Appendix A to this report for the Salt Spring Island Liquid Waste Disposal Local Service.

The Operating Budget includes the regular annual costs to operate the service. The Capital Expenditure Plan shows the anticipated expenditures for capital additions. These may include purchases of new assets or infrastructure as well as upgrades or improvements to existing assets or asset review and study work potentially leading to future capital improvements.

In preparing the Operating Budget, CRD staff considered the following:

1. Actual expenditures incurred between 2020 and 2022
2. Anticipated changes in level of service (if any)
3. Maximum allowable tax requisition
4. Annual Cost per taxpayer and per SFE

Factors taken into consideration in the preparation of the Capital Expenditure Plan included:

1. Available funds on hand
2. Projects already in progress
3. Condition of existing assets and infrastructure
4. Regulatory, environmental and health and safety factors

Adjustments for surpluses or deficits from 2021 may be made in January 2022. The CRD Board will give final approval to the budget and financial plan in March 2022.

The Financial Plan for the years 2023 – 2026 may be changed in future years.

BUDGET OVERVIEW

Operating Budget

It is projected that operating expenses in 2021 will be approximately $152,999 over budget. This is primarily the result of higher septage/sludge hauling and disposal fees due to greater than

projected septage/ sludge volumes being disposed of at the facility. Other factors contributing to the operating overage include:

- Corrective maintenance on:
  - the facility receiving station inlet valve actuator gear box
  - wash-down water system mechanical pump

Table 1 below shows the comparison on 2021 Budget vs Est. Actuals for hauling and disposal expense.

Table 1 – Comparison of Hauling and Disposal Expense, 2021 Budget vs. Est. Actuals

Expense	2021 Est. Actual			2021 Budget			Variance
	Rate*	Volume**	Total Expense	Rate*	Volume**	Total Expense	
Hauling& Disposal	$0.390	1,615,282	$629,960	$0.385	1,240,000	$477,400	$152,560

* Rate in $/imperial gallon
** Volume in imperial gallons

The 2021 operating revenue is projected to be approximately $161,740 higher than budget. This additional revenue is also primarily the result of higher septage/sludge volumes being disposed of at the facility.

Table 2 below shows the comparison on 2021 Budget vs. Est. Actuals for Sales of Septage and Sludge.

Table 2 – Comparison of Sales, 2021 Budget vs. Estimated Actuals

Revenue	2021 Est. Actual			2021 Budget			Variance
	Rate*	Volume**	Total Revenue	Rate*	Volume**	Total Revenue	
Sludge (Sewer)	$0.445	574,000	$255,430	$0.445	400,000	$178,000	$77,430
Septage		990,000	$440,550		800,000	$356,000	$84,550
Total		**1,564,000**	**$695,980**		**1,200,000**	**$534,000**	**$161,980**

* Rate in $/imperial gallon
** Volume in imperial gallons

As a result, there is a net operating surplus of approximately $8,471. In order to balance the 2021 operating budget, CRD staff recommend that the operating surplus be transferred to the Capital Reserve Fund (CRF).

The 2022 operating budget has been increased by 12.1% over the 2021 budget. The increase is primarily due to septage/sludge volume projection adjustments in conjunction with a slight increase in the hauling and disposal rate.

Table 3 below shows the comparison of 2022 vs 2021 budget for hauling and disposal expense based on the projected septage/sludge volume and estimated hauling and disposal rate.

Table 3 – Comparison of Hauling and Disposal Expense Budgets, 2022 to 2021

Expense	2022 Budget			2021 Budget			$ Change
	Rate*	Volume**	Total Expense	Rate*	Volume**	Total Expense	
Hauling& Disposal	$0.40	1,395,000***	$558,000	$0.385	1,240,000	$477,400	$80,600

* Estimated rate in $/imperial gallon
** Volume in imperial gallons
*** The volume for hauling and disposal expenditure is 45,000 imperial gallons higher than the volume for revenue due to the addition of wash water as part of the septage receiving facility treatment process.

The 2022 revenue budget has also been increased mainly due to the projected higher septage and sludge volume and proposed higher tipping fee rate. CRD staff propose to increase the tipping fee rate from $0.445 to 0.455 per imperial gallon to fund the increase of operating cost and to offset the requisition increase.

Table 4 below shows the comparison of 2022 vs 2021 budget for sales of septage and sludge based on the projected septage/sludge volume and proposed new tipping fee rate.

Table 4 – Comparison of Septage and Sludge Sales Budgets, 2021 to 2020

Revenue	2022 Budget			2021 Budget			$ Change
	Rate*	Volume**	Total Revenue	Rate*	Volume**	Total Revenue	
Sludge (Sewer)	$0.455	450,000	$204,750	$0.445	400,000	$178,000	$26,750
Septage		900,000	$409,500		800,000	$356,000	$53,500
Total		**1,350,000*** **	**$614,250**		**1,200,000**	**$534,000**	**$80,250**

* Rate in $/imperial gallon
** Volume in imperial gallons
*** The volume for hauling and disposal expenditure is 40,000 imperial gallons higher than the volume for revenue due to the addition of wash water as part of the septage receiving facility treatment process.

Municipal Finance Authority (MFA) Debt:

Loan Authorization Bylaw 3564 to borrow $2,100,000 was approved and adopted in 2008 for Liquid *Waste Disposal Facilities Upgrade* Project. Table 5 below summarizes the detailed information for existing MFA debt issues related to LA3564.

Table 5 – Existing Debt Summary

MFA Issues	Term	Borrowing Year	Retirement Year	Refinance Year	Original Interest Rate	Current Interest Rate	Principal	Principal Payment	Interest Payment	Total Annual Debt Cost
LA3564-105	15	2009	2024	2019	4.90%	2.25%	$280,000	$13,983	$6,300	$20,283
LA3564-106	15	2009	2024	2019	4.13%	2.25%	$400,000	$19,976	$9,000	$28,976
LA3564-110	15	2010	2025	2020	4.50%	1.28%	$650,000	$34,893	$8,320	$43,213
LA3564-126	15	2013	2028	2023	3.85%	3.85%	$770,000	$38,455	$29,645	$68,100
Total							**$2,100,000**	**$107,307**	**$53,265**	**$160,572**

Operating Reserve Fund

The Operating Reserve Fund is used to undertake maintenance activities that typically do not occur on an annual basis. Typical maintenance activities include power line maintenance and inspection, access road maintenance and septage storage tank inspection and maintenance. The operating reserve also funds the procurement of equipment and supplies that are not purchased on an annual basis. Additionally, the operating reserve could be used for emergency unplanned repairs.

It is proposed that transfers to the Operating Reserve Fund be set at $4,000 for 2022-2026. There is $9,000 of planned maintenance over the next 5 years. The Operating Reserve Fund balance at the end of 2021 is projected to be $13,710.

Capital Reserve Fund:

The Capital Reserve Fund is to be used to pay for capital expenditures that are not funded by other sources such as grants, operating budget or debt.

It is proposed that transfers to the Capital Reserve Fund increase to $34,500 in 2022 to fund significant capital expenditures proposed for 2022 and 2023 (see 5-yr capital plan and details below). The balance at the end of 2021 is projected to be $169,309.

Capital Expenditure Plan

The 5-year plan includes $2,382,500 of expenditures to be funded by a combination of capital reserve funds, grants and new debt following a public engagement and referendum process planned in 2023. The new debt will fund the design and construction of a new treatment and disposal facility.

Table 6 below provides the future debt servicing cost estimation based on the capital program planned. The estimated debt cost is for analytical purpose only with the indicative interest rate provided by MFA at the time of simulation.

Table 6 – Future Debt Simulation

Future Borrowing(s) Estimation	Term	Borrowing Year	Retirement Year	Refinance Year	Estimated Interest Rate	Principal	Principal Payment	Interest Payment	Total Annual Debt Cost
	15	2024	2039	2034	2.90%	$2,000,000	$113,577	$58,000	$171,577

At the commencement of each loan, 1% of the gross amount borrowed is withheld and retained by MFA as Debt Reserve Fund (DRF). In order to provide the full amount to fund the capital project, this 1% DRF amount is budgeted in operating budget in the year of borrowing. However, there is no principal payment required in the year of borrowing.

Capital Project Funds

As specific capital projects are approved, the funding revenues for them are transferred into this Capital Project Fund. Whenever possible, any funds remaining upon completion of a project are transferred back to the Capital Reserve Fund for use on future capital projects. The “Burgoyne Bay Site Investigation” project (CE.704) was completed in 2021.

Parcel Tax and User Charge

The parcel tax and disposal user charge (tipping fee rate) fund the service. All properties within the local service area are responsible for the parcel tax while users of the facility pay the disposal rate.

Table 7 below summarizes 2022 over 2021 changes for parcel tax and tipping fee rate.

Table 7 – Parcel Tax and Tipping Fee Rate Summary

Budget Year	Parcel Tax	Taxable Folios Numbers	Parcel Tax per Folio*	Tipping Fee Per Imperial gallon
2021	$356,696	5,842	$64.26	$0.445
2022	$375,745	5,853	$67.57	$0.455
Change ($)	$19,049	11	$3.31	$0.010
Change (%)	**5.34%**	**0.19%**	**5.15%**	**2.25%**

* Includes the 5.25% admin fee charged by the Ministry of Finance (not CRD revenue)

RECOMMENDATION

That the Salt Spring Island Liquid Waste Disposal Commission:

1. Approve the 2022 operating and capital budget as presented and recommend that the 2021 actual surplus or deficit be balanced on the 2021 transfer to the Capital Reserve Fund; and

2. Recommend that the Electoral Area Services Committee recommend that the CRD Board approve the 2022 Operating and Capital Budget and the five-year Financial Plan for the Salt Spring Island Liquid Waste Disposal Local Service as presented.

Submitted by:	Karla Campbell, BPA, Senior Manager, Salt Spring Island Electoral Area
Submitted by:	Matthew McCrank, MSc., P.Eng., Senior Manager, Infrastructure Operations
Submitted by	Rianna Lachance, BCom, CPA, CA, Senior Manager, Financial Services
Concurrence	Robert Lapham, MCIP, RPP, Chief Administrative Officer

MMc/KC/RL:sb

Attachment: 2022 SSI Liquid Waste Disposal Service Budget

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REPORT TO SALT SPRING ISLAND LIQUID WASTE DISPOSAL LOCAL SERVICE COMMISSION
MEETING OF MONDAY, OCTOBER 4, 2021

SUBJECT BURGOYNE SEPTAGE TREATMENT FACILITY ENVIRONMENTAL REVIEW

ISSUE

To provide information collected during an environmental review Salt Spring Island septage facility. The information contained in this report will be used to close historical permits and address the outstanding requirement for site investigation listed on the BC Site Registry.

This report documents historical and current soil and groundwater quality data collected during a Phase 2 Preliminary Site Investigation. This report summarizes the following:

- Background (Site Use)
- Regulatory Context
- Soil and Groundwater Quality Investigation (historical and current data)
- Recommended next steps at the Site

BACKGROUND

The Burgoyne Bay Septage Disposal Facility (the Site) is located at 133 Burgoyne Bay Road, Salt Spring Island, BC. The Site is currently used as a septage transfer facility where local septage trucks deposit their septage waste into underground holding tanks on Site. The waste is then trucked for disposal to SPL Wastewater Recovery Center (SPL) in Victoria.

Historically, the Site was used for septage disposal to ground, using various site configurations. On-site lagoons at the southwest portion of the Site operated from 1988-1995 under Ministry of Environment and Climate Change Strategy (ENV) Permit PE-7955, which was never formally closed. The three new lagoons were completed in the centre of the Site in late 1994. Effluent breakouts and seepage problems were evident with these new lagoons, eventually causing them to be abandoned. The material from the new lagoons was removed and disposed of at the Hartland Landfill, Victoria, BC, and the site was restored by late 1995.

From 1995-1997, most of the septage was disposed of at the regional septage facility in Victoria. From 1997-2002, the CRD had an arrangement with Canadian Wastewater Corporation to operate the Site, with dewatered material being trucked to the Hartland Landfill for disposal and filtrate being treated and disposed of at an on-site weeping field. Since 2002, the Site has been operated by the CRD. In 2003, the CRD purchased the property from Texada Logging Corporation. In 2012, the mechanical dewatering system reached its end of life, and current underground holding tanks were installed.

The Site is approximately 7.7 ha and currently contains a warehouse building, and underground septage disposal infrastructure. The Site is otherwise vacant and the majority is forested.

Based upon the current and historical site use as a septage disposal site, the potential contaminants of concern are metals, nutrients, and petroleum hydrocarbons. The list of analytical parameters includes nitrate, nitrite, chloride, sodium, benzene, ethylbenzene, toluene, and xylenes (BETX), volatile petroleum hydrocarbons (VPH), extractable petroleum hydrocarbons (EPH), polycyclic aromatic hydrocarbons (PAHs), and metals.

Regulatory Context

The BC Contaminated Site Regulation (CSR) 1 contains Schedule 2, which lists activities that are considered more likely to result in contamination. When such activities have occurred at a site, ENV requires the initiation of environmental investigations if any changes occur at the Site (eg. development, zoning, etc.).

The CRD's review of current and former site uses confirms that Schedule 2 activities have occurred at the Site, as summarized in the following table.

Schedule 2 Activities – Burgoyne Septage Disposal Facility Site

Schedule 2 Activity	Location
H16 – Septic tank pumpage storage or disposal	Central portion of the Site
H17 – Sewage lagoons or impoundments	Central portion of the Site

Applicable Soil and Groundwater Standards

Site data has been compared to the standards and guidelines contained within the following provincial regulations:

- Contaminated Sites Regulation (CSR), B.C. Reg. 375/96 includes amendments up to 116/2018, March 11, 2021 by B.C. Reg. 64/2021; and
- Hazardous Waste Regulation (HWR), B.C. Reg. 63/88 includes amendments up to B.C. Reg. 243/2016, November 1, 2017.

Based on the above, and the referenced regulations, the following standards are considered applicable at the Site:

- CSR Industrial Land use (IL) standards for soil and vapour;
- HWR Standards for soil;
- Vancouver Island background values, as published in BC MOE Protocol 4 Establishing Background Concentrations in Soil, Version 12, dated, May 13, 2021;
- CSR Aquatic Life (AW) (freshwater) standards for groundwater; and
- CSR Drinking Water (DW) standards for groundwater.

The Site-specific factors that apply at the site are listed in the table below:

Site-Specific Factors	Applicability	Rationale
Intake of contaminated soil	yes	Applicable at all sites
Groundwater used for drinking water	yes	Applicable at all sites, unless future use can be disproven
Toxicity to soil and invertebrates and plants	yes	Applicable at all sites
Groundwater to surface water used by freshwater aquatic life	yes	There is an intermittent stream at the southwest portion of the site flowing towards Burgoyne Bay
Groundwater used for livestock watering	yes	There are agricultural properties within a 1.5 km radius of the Site
Groundwater used for irrigation	yes	There are agricultural properties within a 1.5 km radius of the Site

Historical Soil and Groundwater Quality Investigations

Historical soil and groundwater investigations were conducted at the site beginning in 1994. The CRD's Geo-Environmental program reviewed historical environmental reports and documents related to the Site, which are listed in the references. Relevant historical data, boreholes logs, groundwater monitoring and analytical data (soil and groundwater) were reviewed.

- In 1994, 16 test pits were advanced throughout the site, though no soil samples were submitted to the lab. These test pits appear to have been to explore the subsurface stratigraphy.

- In March 1994, 18 boreholes were drilled into the subsurface soil and groundwater monitoring wells were installed in 16 of the 18 holes. Subsequent groundwater samples were collected from select wells historically from 1994 to 2006.

- In 2000, 14 auger holes were collected from the two abandoned lagoons. Fourteen auger holes were advanced and 28 soil/sediment samples were collected. Ten soil/sediment samples analyzed for BETX, VPH, EPH, PAHs, metals, total nitrogen, fecal coliform, total polychlorinated biphenyls (PCBs), and toxicity characteristic leaching procedure (TCLP) for metals. Historical soil data currently remains on site and has been re-tabulated to current standards.

- Select groundwater was previously sampled in 1994, 1995, 1998, 1999 and April 2006. Samples were collected for BETX, VPH, EPH, inorganics (ammonia, nitrate, nitrite, chloride, sodium, and sodium), and dissolved metals.

Current Soil and Groundwater Quality Investigations

To confirm soil and groundwater quality at the Site, an initial site reconnaissance was conducted in December 2020. The CRD found five of the original 1994 wells intact. These five wells were developed and sampled in December 2020.

In June 2021, a drilling program was conducted using a track-mounted Acker auger rig operated by Drillwell Enterprises Ltd. (Drillwell). On June 1, 2021, four boreholes were advanced (BH21-17 through BH21-20) to a maximum depth of 7.2 m below ground surface (bgs). The drilling investigation program was carried out along the western property line, in the inferred downgradient groundwater direction. BH21-17 and BH21-20 met refusal due to shallow bedrock before groundwater was encountered and were not completed as groundwater wells. At ground surface, BH21-18 and BH21-19 were completed with a stick-up steel monument. The borehole logs with soil conditions and monitoring well (MW) construction details are filed with Environmental Protection. Soil samples were collected at the depth of encountered groundwater where possible contamination is most likely and sent to an approved laboratory for analysis of the potential contaminants of concern.

Monitoring wells (MW21-18 and MW21-19) were installed to allow for collection of water samples and measurement of groundwater levels. Detailed well installation information is shown on the borehole logs. The new groundwater wells were developed and sampled on June 8 and 9, 2021. The MW locations are shown on the attached drawings, and a groundwater monitoring report has been kept on file.

Current and Historical Soil and Groundwater Results

- The results of the historical groundwater and soil data was tabulated to current standards.
  - The soil historical results indicate:
    - Each auger sample collected from the old lagoons in 2000 exceeded the standard or the detection limit for some of the following parameters: BETX, VPHs, LEPH and HEPH, selenium, silver, and zinc.
    - Most auger holes had only one sample analyzed, and, therefore, contamination is un-delineated vertically and laterally within the old lagoons.
  - The historical groundwater results indicate the following:
    - Many dissolved metals parameters exceeded the current standards in most wells because the laboratory detections limits were greater than the current standards. These parameters included dissolved antimony, beryllium, cadmium, chromium, lithium, lead, selenium, silver, thallium, and vanadium. Substance concentrations from wells that are still intact and re-sampled in 2020 were all less than the applicable standards.
    - Groundwater samples collected from MW94-6 exceeded current applicable Aquatic Life (AW) standards for dissolved copper (29 mg/L vs. a current standard of 20 mg/L) and dissolved mercury (0.32 mg/L vs. a current standard of 0.25 mg/L). MW94-6 was subsequently destroyed and could not be re-sampled.
    - MW94-14 exceeded the nitrate standard (12.9 mg/L vs. a current standard of 10 mg/L). Subsequent samples collected in 2020 have nitrate results below standards.
- The results of the current groundwater and soil data was tabulated to current standards.
  - Groundwater wells were monitored on two separate occasions: December 10, 2020 and June 8, 2021. Seasonally, groundwater elevations fluctuated approximately one to two meters lower in the summer. Generally, the groundwater flow direction is to the west towards Burgoyne Bay. The CRD also plotted historical groundwater elevation data and groundwater flow direction was corroborated to the west.
  - The current soil results indicate:
    - A soil sample was collected from the water table in BH21-18 (4.9-5.1 m bgs) and BH21-19 (6.7-7.0 m bgs) and submitted to a certified laboratory for analysis of BETX, VPH, LEPH, HEPH, PAHs, VOCs, and inorganics. The results were less than standards for all parameters analyzed.
    - Seven surface soil samples were collected from the bottom of the exterior side of the old lagoons at depths of 0.1 m to 0.2 m bgs. Each sample was submitted to a certified laboratory for analysis of BETX, VPH, LEPH, HEPH, PAHs, VOCs, and inorganics. The results were less than standards for all parameters analyzed.
  - The current groundwater results indicate:
    - In December 2020, the CRD developed and sampled the following historical monitoring wells: MW94-1, MW94-11, MW94-12, MW94-13 and MW94-14. The samples were submitted to a certified laboratory for analysis of BETX, VPH, LEPH, HEPH, dissolved metals, PAHs, and inorganics. The results were compared to current CSR standards and the results were less than standards for all parameters analyzed.

  - In June 2021, the CRD developed and sampled the following recently installed monitoring wells: MW21-18 and MW21-19. The samples were submitted to a certified laboratory for analysis of BETX, VPH, LEPH, HEPH, dissolved metals, PAHs, and inorganics. The results were compared to current CSR standards and the results were less than standards for all parameters analyzed.
  - Monitoring wells MW94-14 and MW21-18 are located in the downgradient direction of the destroyed MW94-6. The results of samples recently collected from MW94-14 and MW21-18 confirm no exceedances of dissolved copper and mercury that were historically found in MW94-6.
- Borehole logs, monitoring reports, potentiometric drawings and laboratory reports are filed with Environmental Protection.

CONCLUSION

In 2020/2021, the CRD completed a Phase 2 Preliminary Site Investigation. Minor historical soil contamination was identified in the old lagoons in the fill material. Surficial soil investigations surrounding the lagoon did not identify contamination.

Though some historical groundwater results were greater than the current standards, no groundwater contamination was identified in any of the wells sampled during the recent Stage 2 investigation. Groundwater samples collected on the downgradient property line were all less than standards.

Raw data, analytical results and other documents referred to herein of the Phase 2 Preliminary Site Investigation can be provided to the Commission upon request.

As BC CSR Schedule 2 activities are still taking place at the Site, the CRD does not recommend further investigations; and that this Stage 2 investigation be used to provide the necessary information to close historical permits, and address the outstanding requirement for site investigation listed on the BC Site Registry.

RECOMMENDATION

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

Submitted by	Dean Olafson, P.Eng, Manager of Engineering, Salt Spring Island Electoral Area
Concurrence	Karla Campbell, BPA, Senior Manager, Salt Spring Island Electoral Area

DO