



Ministry of Environment  
**Inspection Record**

**Environmental  
Protection  
Division**

EP System: <u>AMS</u>	Inspection Status: <u>FINAL</u>
System Number: <u>105809</u>	Inspection No: <u>17567</u>
EP System Status: <u>Active</u>	Inspection Date: <u>2014-05-29</u>
Region: <u>West Coast</u>	Office: <u>Nanaimo</u>
Trigger: <u>Planned</u>	<b>Incidents of Non-Compliance Observed: <u>Yes</u></b>
Non-Compliance Decision Matrix Level: <u>Level 1</u>	Non-Compliance Decision Matrix Category: <u>Category A</u>
Inspector Name(s): <u>Laura Hunse</u>	Risk Ranking: <u>1 to 2 = Medium</u>
Audit: <u></u>	Total Non-Compliance(s): <u>3</u>
<b>Regulated Party:</b> <u>Cobble Hill Holdings (BC0754588)</u>	
Regulated Party Contact(s): <u>Marty Block</u>	
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Contact Email: <u>marty.sia@shaw.ca</u>	
<b>Location Description or Site Address:</b> <u>640 Stebbings Road, Shawnigan Lake</u>	
Latitude: <u>48.5511</u> <u>N</u>	Longitude: <u>123.6066</u> <u>W</u>
Receiving Environment(s): <u>Air, Land &amp; Surfacewater</u>	

## Summary

### MONITORING AND REPORTING REQUIREMENTS

Inspection Period:

**From:** 2013-08-21

**To:** 2014-05-29

#### Requirement Source:

Permit

Activity: On Site

Waste Type: Effluent

#### Inspection Summary:

This permit was issued in August 2013 and immediately stayed by the Environmental Appeal Board. The stay was amended to allow for limited works to be undertaken, and operation commenced Feb 2014 when dredge soils were delivered containing concentrations above CSR RL/IL standards for metals, hydrocarbons and salt. As no discharge to the environment was yet taking place at the time of inspection, much of the permit was not yet applicable in terms of compliance verification. Items for follow-up include installation of a flow measuring device for the settling pond, implementation of Tracking ID system for future projects, and clarification on collection/destination for all non-contact waters in a manner such that all permit requirements are to be met.

#### Response:

Advisory

Compliance Summary	In	Out	N/A	N/D
Discharge	3	0	6	0
Operations	18	2	4	2
Reporting	2	1	1	1
Monitoring	3	0	1	3

## Inspection Details

### Requirement Type: Discharge

#### Requirement Description:

1.1 Authorized Discharges \_\_\_\_ General Conditions

This section applies to the discharge of refuse from a contaminated soil treatment and to the landfill facility.

1.1.1 The combined maximum rate of discharge from the treatment and to the landfill facility if 100000 tonnes/yr. Estimated density of soil accepted at the site ranges from 1.5 to 1.8 t/m<sup>3</sup> for the purpose of sampling incoming soil or treated soil for characterization. The above density estimate may be modified at any time with a scientific sampling method approved by the Director.

#### Details/Findings:

Landfill facility not completed yet. Cell 1 construction is in progress but soil disposal has not begun. Clay base liner thickness to be applied to 1000 mm instead of 300 - 500 mm. QA/QC report and as-built drawings to be submitted to MOE for acceptance.

**Compliance:** Not Applicable

### Requirement Type: Operations

**Requirement Description:****1.2 Authorized Discharge \_\_\_\_ Treatment Facility**

This section applies to the discharge of refuse from a soil treatment facility. The site reference number for this discharge is E292169.

1.2.1 The authorised works are a lined asphalt paved soil management and bioremediation treatment area of approximately 1800 m<sup>2</sup>, temporary soil holding area (as described under Subsection 2.3), biocell, berm, primary and secondary containment detection and inspection sumps and associated cleanout ports, catch basins, groundwater monitoring wells (as described under Subsection 3.3), management works and related appurtenances approximately located as shown on Figure A of the permit.

**Details/Findings:**

These appear to be in place, though not all works were viewed on site. As-built reports for the Soil Management Area (SMA) and Water Treatment Plant (WTP) were submitted in Oct and Dec 2013, respectively. Updated site plan to reflect altered settling pond footprint following partial excavation in the 5 m buffer zone submitted early June 2014.

**Compliance:** In**Requirement Type:** Discharge**Requirement Description:****1.2.2 The characteristics of the discharge must be equivalent to or better than:**

soil suitable for industrial land use, as described by the Generic and Matrix Numerical Soil Standards in Schedule 4, 5, 7 and 10 (Column IV "Commercial, Industrial Soil Standard") of the CSR, including the most stringent applicable site specific factors as defined in the Environmental Procedures Manual (EP) referred to in Subsection 2.13, considering intake of contaminated soil, toxicity to soil invertebrates and plants and groundwater flow to surface water used by freshwater aquatic life for the authorized soil treatment and discharge parameters as specified in Subsection 1.2.3.

**Details/Findings:**

No soil discharge is taking or has taken place yet. Construction of permanent encapsulation cell not yet completed. Some unsuitable material was delivered for base material but has since been removed. As-built summary report will be submitted on completion. Cell also requires final approval from Ministry of Energy and Mines (MEM) prior to movement of soil from the SMA to here.

**Compliance:** Not Applicable**Requirement Type:** Operations**Requirement Description:**

1.2.3 The types of soil that can be bio-remediated at the treatment facility are soils contaminated with hydrocarbons, specifically soils contaminated with Benzene, Toluene, Ethylbenzene, Xylene (BTEX), Styrene, Methyl Tertiary Butyl Ether (MTBE), Volatile Petroleum Hydrocarbons (VPHs), Light and Heavy Extractable Petroleum Hydrocarbons (LEPHs/HEPHs), Polycyclic Aromatic Hydrocarbons (PAHs), Chlorinated Hydrocarbons, Phenolic Substances, Chloride, Sodium and Glycols as defined in Schedules 4 and 5 of the CSR.

Soils co-contaminated with hydrocarbons as described in this section and metals or other contaminants not suitable for bioremediation meeting industrial land use standards as defined in Schedules 4 and 5 of the CSR may also be accepted for treatment at the biocell.

**Details/Findings:**

Two shipments of dredge soil were received at the facility, concluding Feb 20, 2014 (Ralmax) and March 6, 2014 (Van Isle Marina). The SMA is at capacity and does not have room to accept more until the existing load has been transferred to permanent encapsulation.

For both sites, the pre-delivery soil characterisation assessment showed incoming soils with some

parameters above CSR Industrial Land Use Standard but below Hazardous Waste levels. QA/QC Soil Arrival samples indicated soil was properly characterized.

**Compliance:** In

**Requirement Type:** Operations

**Requirement Description:**

1.3 Authorized Discharge \_\_\_\_ Landfill Facility

This section applies to the discharge of refuse from a soil treatment facility and from relocated contaminated soil and associated ash. The site reference number for this discharge is E292889.

1.3.1 The authorized works are a landfill, engineered lined landfill cells, perimeter ditches, erosion and sedimentation control infrastructure, primary and secondary containment detection and inspection sumps and associated cleanout ports, catch basins, groundwater monitoring wells, management works and related appurtenances approximately located as shown on Figure A of the permit.

**Details/Findings:**

Construction of the landfill is not yet complete. Requires further input from Ministry of Mines prior to completion. See 1.1, above.

**Compliance:** Not Applicable

**Requirement Type:** Discharge

**Requirement Description:**

1.4 This section applies to the discharge of effluent from the water treatment system (WTS). The site reference number for the WTS discharge is E292170.

1.4.1 The annual average rate of the WTS discharge is 12.1 cubic metres per day.

**Details/Findings:**

Per 7.7 of the EPM, effluent from the WTS will not be discharged to the settling pond until it meets quality requirements. According to the permittee, the plant was commissioned from Feb 2014 and concluded at the end of March 2014. MOE requested that no discharge occur from the WTS until the commissioning report is received, reviewed, and accepted by MOE. A commissioning report dated April 7 2014, and MOE followed up with an April 14, 2014 letter in which Active Earth Engineering (AEE) was asked to submit a revised report, including responses to questions raised by MOE, in particular regarding expectations for compliance water quality standards and cause of and prevention for the WTS deficiencies as well as questioning the ability of the plant to treat all contaminants of concern including metals and chlorides. This report has not yet been received therefore should continue to operate in a closed loop until receipt, review, and acceptance by MOE of the follow-up report.

**Compliance:** Not Applicable

**Requirement Type:** Discharge

**Requirement Description:**

1.4.2 The maximum rate of the WTS discharge is 274 cubic metres per day.

**Details/Findings:**

No discharge should occur from the WTS until the commissioning report is received, reviewed, and accepted by MOE.

**Compliance:** Not Applicable

**Requirement Type:** Discharge

**Requirement Description:**

1.4.3 The authorized discharge period is continuous.

**Details/Findings:**

No discharge should occur from the WTS until the commissioning report is received, reviewed, and accepted by MOE.

**Compliance:** Not Applicable

**Requirement Type:** Discharge

**Requirement Description:**

1.4.4 The characteristics of the discharged treated effluent must be equivalent to or better than the most stringent of those British Columbia Approved Water Quality Guidelines (BCAWQG) and A Compendium of Working Water Quality Guidelines for British Columbia (BCWWQG) for Freshwater Aquatic Life (AL) protection and Drinking Water (DW) uses for the parameters of concern: Inorganic Substances including metals, VPHw, LEPhw, VHw6-10, EPHw10-19, PAHs, BTEX, Styrene, Chlorinated Hydrocarbons, Phenolic Substances, Chloride, Sodium, Glycols, pH and Oil & Grease.

Dioxins and Furans analysis must be conducted at a laboratory and using an analytical method agreed to by the Director and results must be below detection limit at all times.

The source of the discharge must be limited to site stormwater runoff and water from the primary and secondary containment systems authorized under Subsections 1.2.1, 1.3.1 and 1.4.5.

The Director may specify different standards and other substances in writing for the protection of human health or the environment.

**Details/Findings:**

According to the commissioning report, during that period potential issues arose with chloride, dissolved aluminum and total zinc and all three exceeded the more stringent standard at the WTS, but not in the settling pond following dilution. The more stringent of drinking water and aquatic life standards are to be met at the WTS discharge, and aquatic life standards are to be met at the settling pond discharge point. MOE is still awaiting the requested follow-up to the commissioning report further addressing these concerns, and no discharge should occur from the WTS until the commissioning report is received, reviewed, and accepted by MOE.

**Compliance:** Not Applicable

**Requirement Type:** Operations

**Requirement Description:**

1.4.5 The authorized works are surface runoff collection and diversion ditches associated with the WTS, WTS (including pH control and flocculent injection system, settling tank, bag and activated carbon filters), leachate and leak detection reservoirs, flow measurement device, monitoring and sampling equipment, reservoirs and related appurtenances approximately located as shown on Figure A of the permit.

**Details/Findings:**

Required works appear to be in place.

**Compliance:** In

**Requirement Type:** Operations

**Requirement Description:**

1.4.6 The authorized works must be complete and in operation while discharging.

**Details/Findings:**

Not yet authorized to discharge. No discharge should occur from the WTS until the commissioning report is received, reviewed, and accepted by MOE.

**Compliance:** Not Applicable

**Requirement Type:** Discharge

**Requirement Description:**

#### 1.5 Ancillary Discharge \_\_\_\_ Settling Pond

This section applies to the discharge of stormwater from the settling pond. The site reference number for the settling pond outlet is E292898.

1.5.1 The rate of the settling pond discharge is 42,500 cubic metres per day for up to 1 in 10 year return period flood event of 24 hour duration.

##### **Details/Findings:**

Constructed adjustments were made to the settling pond boundary to meet setback limits of 5 m from the property boundary. Updated survey drawing submitted.

##### **Compliance:** In

##### **Requirement Type:** Discharge

##### **Requirement Description:**

1.5.2 The authorized discharge period is continuous.

##### **Details/Findings:**

Settling pond was dry at time of inspection.

##### **Compliance:** In

##### **Requirement Type:** Discharge

##### **Requirement Description:**

1.5.3 The characteristics of the settling pond discharge effluent (SW-1) must be equivalent to or better than the most stringent of those BCWQO and BCWWQO for Freshwater Aquatic Life uses and Total Suspended Solids (TSS) must not exceed 25 mg/L for up to 1 in 10 year return period flood event of 24 hour duration.

For flood events greater than 1 in 10 year return period flood event of 24 hour duration, the characteristics of the settling pond discharge must not exceed background concentrations (SW-4).

The source of the discharge must be limited to non contact site stormwater runoff and treated effluent released from the WTS described in Subsection 1.4.

The Director may specify different standards and other substances in writing for the protection of human health or the environment.

##### **Details/Findings:**

There was only one discharge period during the WTS commissioning stage, and all parameters met AW standards.

##### **Compliance:** In

##### **Requirement Type:** Operations

##### **Requirement Description:**

1.5.4 The authorized works are surface runoff collection and diversion ditches, leachate, surface runoff and leak detection control reservoirs, one surface settling pond, flow measurement device, monitoring and sampling equipment, emergency overflow and related appurtenances approximately located as shown on Figure A of the permit.

##### **Details/Findings:**

A permanent flow measuring device that meets the BC Field Sampling Manual is not yet in place. Refer to Section E: Effluent Flow Measurement, for more information  
[http://www.env.gov.bc.ca/epd/wamr/labsys/field\\_man\\_pdfs/effl\\_meas.pdf](http://www.env.gov.bc.ca/epd/wamr/labsys/field_man_pdfs/effl_meas.pdf)

The supporting information for the permit, including the EPM and Technical Assessment Report, have all non-contact surface water channelled to the settling pond, though at the inspection, the swales allow for

non-contact water to channel off property along the southwest boundary. If this option it to be explored, implement best practices as described in 2.8 and the appropriate documents will require amendment.

**Compliance:** Out

**Requirement Type:** Operations

**Requirement Description:**

1.5.5 The authorized works must be complete and in operation while discharging.

**Details/Findings:**

Flow measurement device meeting required.

**Compliance:** Out

**Requirement Type:** Operations

**Requirement Description:**

1.5.6 Settled solids which have accumulated in the settling pond must be removed as required to maintain a minimum water depth below the pond decant of 0.5 metre. The removed solids must be disposed of in a manner approved by the Director.

**Details/Findings:**

Settled solids have not needed to be removed yet.

**Compliance:** Not Applicable

**Requirement Type:** Operations

**Requirement Description:**

2.1 Soils and Associated Ash Unacceptable for Treatment

The following types of waste must not be accepted for treatment at the site:

- 1) Hazardous waste as defined in the HWR;
- 2) Soils contaminated with any substances not included in Subsection 1.2 above with concentrations exceeding relevant standards specified in Schedule 4 and 5 of the CSR;
- 3) Soils and associated ash that cannot be treated or landfilled successfully in the opinion of the Director; and
- 4) Liquid waste or soil and associated ash with a water content exceeding those described in the Soil Acceptance Plan.
- 5) Restricted wastes listed in the Soil Acceptance Plan described in Subsection 2.2 of this permit.

**Details/Findings:**

In compliance

**Compliance:** In

**Requirement Type:** Operations

**Requirement Description:**

2.2 Screening and Acceptance of Soil

The Permittee must submit a Soil Acceptance Plan prepared by a Qualified Professional to the satisfaction of the Director for screening soil and associated ash for all potential contaminants of concern prior to receiving any material at the facility. No changes must be made to the plan without prior approval by the Director. The Director may amend the plan for the protection of human health or the environment.

Those soils suspected to be unacceptable must be either rejected immediately or placed in a holding area (as defined in Subsection 2.3) within the soil management area waiting further re-characterization by a Qualified Professional in accordance with Technical Guidance Document #1 (Site Characterization

and Confirmation Testing)). If further characterization confirms soils as unacceptable for treatment or landfilling (as defined in Subsections 1.2 and 1.3) the soil must not be mixed with any other soil and must be removed from the facility in accordance with the requirements of the Environmental Management Act and of the CSR

**Details/Findings:**

A Soil Acceptance Plan, prepared by a Qualified Professional, has been submitted to the satisfaction of the Director. The plan details the procedure for accepting soil and includes the submission of a waste approval application form prior with a Soil Characterization Assessment report, and filling out a soil arrival form upon acceptance and conducting QA/QC Soil Arrival sampling

The above documents have been submitted for review as requested.

1. QEP reviewed Waste Approval Application and possible project-specific geotechnical plan as described in 6.1 of EPM  
-- Testing on the dredgeate samples resulted in recommendations to further stabilize the soil to achieve 2.5H: 1V internal stability upon final deposition.
2. Sampling results of suspect soils as described in 6.2 and for QA/QC in 6.5 of EPM  
-- Received
3. Soil Arrival Forms for each load per 6.3 of EPM  
-- One SAF was provided for each of the two sources of dredgeate. Each referenced attached scale slips for details of the transporter and mass of load.
4. A tracking ID issued prior to importing soil unique to the source site and contaminant levels, noted on each soil arrival form, per 6.4 of EPM  
-- Tracking ID's not listed on this occasion but extensive records were kept tracking the source and quality of the soil.

**Compliance:** In

**Requirement Type: Operations**

**Requirement Description:**

2.3 Holding Area for Soil and Associated Ash Suspected/Determined to be Unacceptable

The Permittee must designate a holding area within the soil management area for short term storage of soil waiting for re-characterization or shipment to an appropriate management site as determined by a Qualified Professional. Short term storage must not exceed 30 days from the day of the delivery or as agreed by the Director. The soil must be kept separate from the soil treatment area and be protected from the weather at all times.

**Details/Findings:**

No suspected unacceptable soil was stored in a short term storage area at the time of inspection and SMA was full. If soils are anticipated to be received, this holding area must be kept available and demarcated.

**Compliance:** Not Determined

**Requirement Type: Operations**

**Requirement Description:**

2.4 Bedrock Integrity Inspection and Risk Assessment

A bedrock integrity inspection and risk assessment report must be submitted to the Director prior to the construction of any landfill cells. For any abnormalities (open fractures, presence of water, percolation, etc) identified during the inspection, the Permittee must notify the Director immediately and issue a structural report within 30 days following the inspection. The report must be submitted to the satisfaction of the Director and prepared by a suitably Qualified Professional and must include, but is not limited to:

- a) all relevant information collected during the inspection and detailing the abnormality;
- b) an explanation and/or interpretation of the abnormality;



- c) a risk assessment in regards to the risk to human health and the receiving environment; and  
d) remedial action planned and/or taken to control the risks.

**Details/Findings:**

This report has been submitted to the satisfaction of the director.

**Compliance:** In

**Requirement Type: Operations****Requirement Description:****2.5 Soil Aeration**

a) Where the thickness of contaminated soil within the soil treatment facility is greater than 30 cm, the Permittee must periodically conduct mechanical soil aeration. Soil aeration must only be done under the following conditions to prevent nuisance to potential receptors:

- i. Ventilation index for Southern Vancouver Island for the day of soil turning is forecast as good;
- ii. No sooner than three hours after sunrise and no later than two hours before sunset but within the authorized discharge period defined under Subsection 1.1.2;
- iii. Favorable weather conditions (considering temperature and wind direction, etc.)

b) Prior to every soil aeration event the Permittee must record the ventilation index forecast, time of sunrise and sunset, time and duration of aeration, and ambient temperature. Records must be tabulated along with soil volumes aerated and chemical characteristics in the biocell at the time of aeration.

**Details/Findings:**

Soil aeration was planned in the next few days following the inspection.

**Compliance:** Not Determined

**Requirement Type: Operations****Requirement Description:****2.6 Soil Amendment and Prohibition of Blending**

Bioremediation must be undertaken without blending/mixing of contaminated soil with cleaner soils for the purpose of dilution to meet the required standards.

Soil amendments which will enhance remediation potential, including bulking materials such as sawdust or straw, may be added prior to or during treatment. Should water be required to enhance soil treatment, contact water generated at the facility must be used in priority.

**Details/Findings:**

To ministry knowledge, no unauthorized blending/mixing for dilution has taken place.

**Compliance:** In

**Requirement Type: Operations****Requirement Description:****2.7 Weather Protection**

The Permittee must cover the soil treatment piles, soil holding area and active landfill areas completely from November to April when not actively worked on and provide sufficient weather protection and containment for nutrients stored at the site for the protection of human health and the environment.

The Permittee must cover any soil stored within the holding area at all times.

**Details/Findings:**

Soil in the soil management area was tarped at the time of inspection. There was no precipitation at the time of inspection.

**Compliance:** In

**Requirement Type:** Operations

**Requirement Description:**

2.9 Odour Control

There must be no objectionable hydrocarbon odour evident outside the property boundaries. The Permittee must, at a minimum, implement contingency measures if the ambient air quality sampling results exceed the air quality standards defined under Subsection 3.5. The contingency measures must be defined in the EPM as documented in Subsection 2.13 and include, but are not limited to, reduced soil aeration times and the covering of soil piles.

The Director may amend the permit to require the implementation of additional control measures to limit odour generation.

**Details/Findings:**

There were no observable odour concerns at the time of inspection, and no odour complaints have been received by the ministry.

**Compliance:** In

**Requirement Type:** Operations

**Requirement Description:**

2.10 Dust Control

Fugitive dust created within the operation area must be suppressed. Measured dustfall must not exceed the B.C. Ambient Air Quality Residential Objective of 1.7 mg/(dm<sup>2</sup>-day) over a two week averaging period at the property boundary. The contingency measures must be documented in the EPM as defined in Subsection 2.13 and include, but not limited to, reduced activities, covering or application of dust suppressant on soil piles and exposed areas.

The Director may amend the permit to require the implementation of additional control measures on fugitive dust sources.

**Details/Findings:**

It is anticipated that dust control measures will be implemented as required.

**Compliance:** In

**Requirement Type:** Operations

**Requirement Description:**

2.12 Maintenance of Works and Emergency Procedures

The Permittee must inspect the authorized works regularly and maintain them in good working order. In the event of an emergency or condition beyond the control of the Permittee which prevents effective operation of the authorized works or leads to unauthorized discharge, the Permittee must comply with all applicable statutory requirements, immediately notify the Director, and take appropriate remedial action for the prevention or mitigation of pollution. The Director may reduce or suspend operations to protect human health or the environment until the authorized works have been restored and/or corrective steps have been taken to prevent unauthorized discharges.

The Permittee must prepare and maintain an Emergency Response Plan (ERP) to the satisfaction of the Director that describes the procedures to be taken to prevent or mitigate any discharge in contravention of the EPM. The ERP must be immediately implemented if there is a discharge, or any risk of a discharge in contravention of the EPM. In addition, an up-dated ERP, including a report on any emergency responses, taken in the previous year, must be kept available, on site for inspection, as defined under Subsection 5.1.

The Permittee must review the ERP at least on an annual basis to determine if any changes are required and submit any revisions to the Director for acceptance.

**Details/Findings:**

Regarding the hose connections (quick-release) used between the various components of the WTS -- these quick connects are subject to failure and are easy to tamper with. Considering previous concerns of tampering at the site, it may be prudent to lock the connections or use permanent connections. Tampering scenarios should also be considered in the site emergency plan.

The ERP document has been submitted to the satisfaction of the director.

**Compliance:** In

**Requirement Type:** Operations

**Requirement Description:**

2.13 Environmental Procedures Manual

An Environmental Procedures Manual (EPM) must be prepared and submitted by the Permittee to the Director. No soil may be received prior to acceptance of the EPM by the Director. The EPM must be kept current and available for use as a guide at all times at the facility. The manual must cover all typical aspects of an Environmental Management Systems (EMS) relevant to the management of the soil treatment, water treatment and landfill facilities including but not limited to, the following items:

- a) Risk identification and prioritization;
- b) Administrative and engineering controls;
- c) Roles and responsibilities;
- d) Training requirements;
- e) A Soil Acceptance Plan;
- f) A Water Management Plan;
- g) An Environmental Monitoring Plan, including on and off site monitoring locations and the sampling procedures for soil, water, groundwater and air quality, as required;
- h) An Emergency Response Plan, including contingency measures.
- i) Details on the site preparation and the construction of landfill cells;
- j) Operation, inspection and maintenance of the soil management and treatment facility, the landfill facility, the water treatment system, erosion and sediment controls measures, the settling pond and associated appurtenances;
- k) Internal and external EMS audits, and;
- l) Notification, reporting, investigation and corrective and preventive measures.

The Permittee must review the EPM at least on an annual basis to determine if any changes are required and submit any revisions to the Director for acceptance. Annual reviews and submission of revisions are due on March 31 of each year.

**Details/Findings:**

The EPM has been submitted to the director as required.

Training records were not verified on the day but should be available for future inspections.

**Compliance:** In

**Requirement Type:** Operations

**Requirement Description:**

2.14 Advisory Committee

The Permittee must establish an Advisory Committee and develop terms of references to the satisfaction of the Director. The Committee must be composed of one representative of each relevant regulatory agency and one representative from the local government. The Committee must meet annually within 3 months of the submission of the annual report as required under Subsection 5.3 and provide advice to the Director within 30 days of the meeting. Based on advice of the Committee, the

Director may revise the monitoring, sampling and reporting requirements in Sections 3 and 5.

**Details/Findings:**

The advisory committee has not yet been established, but it is noted that the appeal surrounding this permit has not yet concluded.

**Compliance:** Not Applicable

**Requirement Type:**Operations

**Requirement Description:**

2.15 Qualified Professionals

All facilities and information, including works, plans, bedrock integrity and risk assessment, assessments, sampling, monitoring, investigations, surveys, programs and reports, must be conducted and certified by Qualified Professionals.

"Qualified Professional" means a person who

a) is registered to practice in British Columbia with his or her appropriate professional association, acts under that professional association's code of ethics, and is subject to disciplinary action by that professional association, and;

b) through suitable education, experience, accreditation and knowledge may be reasonably relied on to provide advice within his or her area of expertise as it relates to this permit.

**Details/Findings:**

In compliance.

**Compliance:** In

**Requirement Type:**Operations

**Requirement Description:**

2.16 Bypasses

The discharge of contaminants which have bypassed the authorized treatment works is prohibited unless the prior approval of the Director is obtained and confirmed in writing, except those authorized under Subsection 1.2 of this permit.

Temporary storage or accidental deposit of contaminated soil at areas other than the soil management area is considered a bypass.

**Details/Findings:**

In compliance

**Compliance:** In

**Requirement Type:**Operations

**Requirement Description:**

2.17 Process Modifications

The Director must be notified in writing prior to implementing changes to any process that may adversely affect the quality and/or quantity of the discharge.

**Details/Findings:**

No process modifications have been implemented.

**Compliance:** In

**Requirement Type:**Operations

**Requirement Description:**

2.18 Plans - New Works

Plans and specifications of the works must be certified by a Qualified Professional registered to practice in the Province of British Columbia, and submitted to the Director. A Qualified Professional must certify that the works have been constructed in accordance with the plans before discharge commences.

**Details/Findings:**

Replacement plans for altered settling pond footprint have been received.

**Compliance:** In

**Requirement Type:** Monitoring

**Requirement Description:**

3. MONITORING AND SAMPLING REQUIREMENTS

3.1 Incoming Soil and Associated Ash Sampling and Analysis

The Permittee must follow sampling procedures and frequency specified in the approved Soil Acceptance Plan described under Subsection 2.2 to verify soil and associated ash quality. The contaminants must include, but not be limited to, the parameters of concern listed in Subsection 1.3.3, as determined by a Qualified Professional. The Director may require testing of soil and associated ash for additional parameters.

**Details/Findings:**

Testing was conducted as required.

**Compliance:** In

**Requirement Type:** Monitoring

**Requirement Description:**

3.2 Treated Soil Sampling and Analysis

The Permittee must sample and characterize each batch of treated soil in accordance with Technical Guidance #1 Site Characterization and Confirmation Testing or an equivalent sampling protocol approved by the Director. Each batch must be considered to be of suspect waste soil quality. Soil must be analysed prior to disposal as authorised in Subsection 1.2 and 1.3 of this permit. The samples must be analysed for the parameters relevant to the type of contamination for which the soil is undergoing treatment as determined by a Qualified Professional. The appropriate parameters must include, but must not be limited to, the parameters of concern listed in Subsection 1.3.3 as determined by a Qualified Professional.

Confirmation of completion of soil treatment must be obtained in writing from a Qualified Professional prior to discharge, for each stockpile of treated soil.

**Details/Findings:**

This is not required until prior to discharge to the permanent encapsulation cell.

**Compliance:** Not Applicable

**Requirement Type:** Monitoring

**Requirement Description:**

3.3 Groundwater Sampling and Analysis

The Permittee must install and maintain a minimum of seven groundwater sampling facilities (MW-1 (S/D), MW-2, MW-3(S/D), MW-4 and MW-5) as shown on Figure B and obtain groundwater samples once each quarter in a manner satisfactory to the Director. MW-4 and MW-5 must be drilled using a non-destructive method and cores must be logged by a Qualified Professional. The design and location of the wells must be to the satisfaction of the Director. Proper care must be taken in sampling, storing and transporting the samples to adequately control temperature and avoid contamination, breakage, etc.

Groundwater samples must be analysed for all potential contaminants of concern. The contaminants may include, but not be limited to, the parameters of concern listed in Subsection 1.3.3, as determined by a Qualified Professional. The groundwater quality must be compared to the standards described in Schedules 6 and 10 of the CSR or any additional standards specified by the Director in writing.

The Permittee may be required to install additional groundwater sampling facilities upon request. The location and structural details of these sampling facilities are subject to the approval of the Director.

**Details/Findings:**

Wells are installed as required. As the site is operational, albeit minimally, sampling is expected to be carried out as required by the permit.

**Compliance:** In

**Requirement Type:** Monitoring

**Requirement Description:**

3.4 Surface Water Sampling and Analysis

The Permittee must sample the water treatment system effluent (WTS) and the settling pond discharge point (SW-1) monthly and every 2000 m<sup>3</sup> for the water treatment system discharge effluent in a manner suitable to the Director. Proper care must be taken in sampling, storing and transporting the samples to adequately control temperature and avoid contamination, breakage, etc.

Turbidity of the settling pond discharge effluent (SW-1) must be monitored bi-weekly between November to April and after every event greater than 1 in 10 year return period flood event of 24 hour duration.

Surface water samples must be analysed for all potential contaminants of concern. The contaminants may include, but not be limited to, the parameters of concern listed in Subsection 1.3.3, as determined by a Qualified Professional. The surface water quality results must be compared to the standards set out in Subsection 1.4.4 and 1.4.5.

**Details/Findings:**

MOE is still awaiting follow-up report to WTS commissioning.

**Compliance:** Not Determined

**Requirement Type:** Monitoring

**Requirement Description:**

3.5 Air Quality Monitoring

The Permittee must collect monthly ambient air samples during the active season (i.e. between April and November, inclusive) at the down-wind property line using a Summa\_\_ Canister. Ambient air samples must also be collected using a Summa\_\_ Canister if and when soils with measurable volatile contaminant concentrations exceeding the established thresholds are being managed or treated at the soil treatment facility at the location and as documented in the EPM.

The ambient air sample must be analysed for the all potential contaminants of concern, as determined by a Qualified Professional, and results must be compared to the CSR Schedule 11 RL standards. In the event that results exceed the standards, the Permittee must follow the requirements stated under Subsection 2.9.

**Details/Findings:**

The site is operational and it is expected that samples will be taken in accordance with the permit.

**Compliance:** Not Determined

**Requirement Type:** Monitoring

**Requirement Description:**

### 3.6 Receiving Environment Sampling

The Permittee must implement a receiving environment monitoring program for the receiving groundwater and surface water summarized in the table below and as defined under the EPM:

The following Groundwater sites to be sampled quarterly:

Up Gradient (MW-4) Southeast corner of the site Quarterly  
Down Gradient (MW-1(S/D)) On site  
Down Gradient (MW-2) Property boundary  
Down Gradient (MW-3(S/D)) Property boundary  
Down Gradient (MW-5) North of the site

The following Surface Water sites to be sampled 5 in 30, which refers to at least 5 weekly samples taken in a period of 30 days, 2 times/year, conducted during fall first flush event and in the spring freshet. Due to the ephemeral nature of some of the creeks, the first 5 in 30 sample should be collected when the ground has first been saturated.

Up Gradient (SW-4) Shawnigan Creek  
Up Gradient (SW-2) Ephemeral Creek 1  
Down Gradient (SW-5) Shawnigan Creek  
Down Gradient (SW-3) Ephemeral Creek 2

Flow measurements must be collected from all surface water monitoring locations at the time of sampling.

Based on the results from the receiving environment monitoring program, the monitoring requirements may be extended or altered by the Director.

#### **Details/Findings:**

Re: groundwater results: Exceedences at MW1S/D noted in the Jan-April monitoring report have not been clearly explained

Re: surface water monitoring: first fall flush 5 in 30 sampling is anticipated for this fall. Results to date have provided background info prior to deposition of soils at the site.

#### **Compliance:** In

#### **Requirement Type:** Monitoring

#### **Requirement Description:**

##### 3.9 Quality Assurance

- a) The Permittee must obtain from the analytical laboratory (ies) their precision, accuracy and blank data for each sample set submitted as well as an evaluation of the data acceptability, based on the criteria set by the laboratory.
- b) A duplicate sample must be prepared and submitted for analysis for each parameter sampled for each monitoring period.
- c) The analytical laboratory (ies) must be registered in accordance with the Canadian Association of Laboratory Accreditation (CALA) unless otherwise instructed by the Director.

#### **Details/Findings:**

Ensure these quality assurance measures are met.

#### **Compliance:** Not Determined

#### **Requirement Type:** Operations

#### **Requirement Description:**

#### 4. SECURITY REQUIREMENTS

##### 4.1 Closure Plan

The Permittee must submit a closure plan to the satisfaction of the Director in 6 months after the issuance of this permit. Based on monitoring results or changes in the operation, the Director may require amendment of the plan for environmental protection.

The closure plan must include, but may not be limited to investigations of soil, sediments, surface water and groundwater quality and treatment, identification and assessment of any residual contamination. If any residual contamination is identified, the Permittee will be required to remediate the site to meet the applicable soil, surface water and groundwater standards and objectives, as determined by the Director.

The closure plan must be reviewed at least every five (5) years to inform the security adjustment defined in Subsection 4.2.

##### **Details/Findings:**

Submitted as required.

##### **Compliance:** In

##### **Requirement Type:**Operations

##### **Requirement Description:**

##### 4.2 Posting of Security and Costs

The Permittee must submit a cost estimate for maintenance, monitoring, remediation and closure of the landfill for the active life of the site and a minimum twenty-five year post-closure period based on the current updated Closure Plan referred to in Subsection 4.1. The cost estimate must be prepared or reviewed by a suitably qualified, independent third party. The cost estimate is subject to the Director's approval.

An updated cost estimate must be reassessed and submitted to the Director for approval at least once every five (5) years and the security adjusted accordingly. The Director has the discretion to require reassessment on a more frequent basis.

The Permittee must provide and maintain security in a form and amount specified by the Director. At the discretion of the Director security may be applied, to any of the following:

- \_\_\_ To correct any inadequacy of the works relating to their construction, operation and maintenance;
  - \_\_\_ To correct any non-compliance with this permit or the Environmental Management Act; and
- remediation.

Any money spent from the posted security must be replenished within sixty (60) days or as otherwise specified by the Director.

The operation of the facility without valid security is not authorized.

The Permittee may request the return of security where the title of the works has been transferred to a municipal authority or where the posted amount exceeds the estimated closure and post-closure costs, including remediation. Granting the request is at the discretion of the Director.

##### **Details/Findings:**

Submitted as required.

##### **Compliance:** In

##### **Requirement Type:**Reporting

##### **Requirement Description:**

##### 5. REPORTING REQUIREMENTS



#### 5.1(1-6) Records

Maintain for inspection by Environmental Protection Division staff, a record of the following logs, suitably tabulated:

- 1) Landfill cells construction QA/QC results;
- 2) Maintenance records of pollution control equipment listed as authorized works;
- 3) Facility inspection log with a record of observations of the soil management and treatment and landfill areas (including but not limited to bedrock integrity, liner, cover, stormwater and effluent collection and treatment works inspections), and preventative and corrective actions identified and implemented;
- 4) Current soil and associated ash inventory, including volumes and characteristics of soils and associated ash in the soil management and treatment area and landfill area;
- 5) Tracking ID number linked to soil and associated ash analysis results and the signature of a Qualified Professional who certifies completion of remediation in accordance with the requirements of the CSR and compliance with this permit;
- 6) Location of each batch of soil and associated ash in the soil management and treatment and landfill area on a map;

#### **Details/Findings:**

Copies of records for 3, 5, 6, 7 were requested, and all were provided except for the Tracking ID number. Tracking ID's were not listed on this occasion but extensive records were kept tracking the source and quality of the soil. A unique ID was not assigned to these two shipments, though extensive records on source, quality, volumes and placement in the SMA have been provided.

**Compliance:** Out

#### **Requirement Type: Reporting**

##### **Requirement Description:**

5.1(7-13) Records cont'd from above

- 7) Analyses of screening of incoming soils and associated ash, and associated QA/QC results, as described in Subsection 2.1 and 2.2 of this permit;
- 8) Soil treatment activities including turning records and quantities of nutrients, bacteria seed or amendments added by date;
- 9) Weather conditions during turning events as described in Subsection 2.5 of this permit;
- 10) Results of the vapour and dust monitoring activities as required;
- 11) Analyses of treated soil, and associated QA/QC results, as described in Subsection 1.2 of this permit;
- 12) Quarterly volumes of soil stored in the holding area, awaiting final disposal as described in Subsection 2.3 of this permit;
- 13) A summary of Emergency Response Plan exercises, and incidents, including effluent/soil spills, requiring the Emergency Response Plan implementation.

The above records of analyses for the re-characterization or characterization of incoming soil or treated soil, respectively, must include batch sizes, number of samples collected and analysed per volume.

Records must be kept on site or at another location acceptable to the Director for at least three years and made available upon request.

#### **Details/Findings:**

See above.

**Compliance:** In

#### **Requirement Type: Reporting**

##### **Requirement Description:**

5.2 Environmental Quarterly Reports

The Permittee must submit environmental quarterly reports prepared by a Qualified Professional with all monitoring data and associated QA/QC results, interpretations, conclusions and recommendations in a format acceptable to the Director and post the results online and provide a hard copy to the Director no later than 30 days after the end of each quarter.

**Details/Findings:**

The first quarterly report covered 2014 Jan - Apr . Next anticipated report should cover time period from April - June.

**Compliance:** In

**Requirement Type:**Reporting

**Requirement Description:**

5.3 Environmental Annual Reports

The Permittee must submit an environmental annual report prepared by a Qualified Professional with monitoring data and associated QA/QC results, interpretations, conclusions and recommendations in a format acceptable to the Director no later than March 31 of each year.

The environmental annual report must include, but is not limited to, the following:

- 1) An executive summary;
- 2) Quality and quantity (in tonnes and m3) of soil and associated ash received for treatment, direct landfilling and as direct landfill cover;
- 3) Quality and quantity (in tonnes and m3) of soil and associated ash that could not be treated in the soil treatment facility and soil and associated ash rejected and diverted to other facilities for treatment and/or disposal;
- 4) Updated maps showing the active landfill area, the areas reclaimed and the location of each landfill cells (completed and in progress);
- 5) Landfill operational plan and remaining landfill life and capacity;
- 6) Review of the preceding year of operation, plans for the next year and a summary of any new information or changes to the facilities and plans, assessments, programs and reports;
- 7) Review of any non-compliances with the conditions of this permit, including an action plan and schedule to achieve compliance (as per Subsection 6.1); and
- 8) Results from the Environmental Monitoring Plan with interpretations, conclusions and recommendations.

The Permittee must post the environmental annual report online and provide a hard copy to the local library by March 31 of each year. The Permittee may omit proprietary information from the publically available environmental annual report in accordance with the Freedom of Information and Protection of Privacy Act, as agreed to by the Director.

**Details/Findings:**

Not yet required.

**Compliance:** Not Applicable

**Requirement Type:**Reporting

**Requirement Description:**

6.1 Non-compliance Reporting

For any non-compliance with the requirements of this permit, the Permittee must submit to the Director, Environmental Protection, a written report within 30 days of the non-compliance occurrence. The report must include, but is not necessarily limited to, the following:

- a) all relevant test results related to the non-compliance;
- b) an explanation of the most probable cause(s) of the non-compliance; and

|c) remedial action planned and/or taken to prevent similar non-compliance(s) in the future.

**Details/Findings:**

It is anticipated that this requirement will be met now that site is operational.

**Compliance:** Not Determined

**ACTIONS REQUIRED BY REGULATED PARTY and/or ADDITIONAL COMMENTS:**

This permit was issued in August 2013 and immediately stayed by the Environmental Appeal Board. The stay was amended to allow for limited works to be undertaken, and operation commenced Feb 2014 when dredge soils were delivered containing concentrations above CSR RL/IL standards for metals, hydrocarbons and salt.

The May 29, 2014 inspection was attended by Environmental Protection Officers Laura Hunse and Luc Lachance and Environmental Emergency Officer Dave Pridham, as well as Eddie Taje and Jim Dunckley of MEM and Matt Pye (AEE) and Marty Block representing SIA. Overall, very few concerns regarding compliance were noted at the inspection.

**For SIA's follow-up:**

1. Follow-up on the two non-compliances noted: installation of a flow meter at the settling pond exit site and use of a Tracking ID for any future inbound shipments (details see sections 1.5.4 and 5.1, respectively).
2. As this site is considered operational, albeit in a diminished manner pending the appeal conclusion, it is expected that SIA will conduct all monitoring as required by the permit.
3. It is recommended that best practices be put in place and followed to avoid tampering and spills; consider locks on the flex pipes to further lower these risks (see 2.12).
4. Keep the EPM up to date and ensure any changes continue to meet the requirements of the permit. For example, changes to the Tracking ID number system may require both changes to the EPM as well as to the permit. Ensure MOE receives updated versions of the EPM.
5. Any exceedances or non-compliances related to the permit must be clearly explained in the quarterly report. The quarterly report should include actual numbers in the tables, and include lab analysis as an attachment.
6. The WTS commissioning report follow up has not yet been received -- submit this in a timely manner. It is understood that the WTS will continue to operate in a closed loop system until MOE is satisfied with the report.
7. The supporting information for the permit, including the EPM and Technical Assessment Report, have all non-contact surface water channelled to the settling pond, though at the inspection, the swales allow for non-contact water to channel off property along the southwest boundary. If this option it to be explored, implement best practices as described in section 2.8 of the permit and the appropriate document will need to be updated accordingly. I also draw your attention to the cover letter of the permit, which reminds the permit holder that the permit does not authorize entry upon, crossing over, or use for any purpose of private or Crown land or works, unless authorized by the owners of the lands, and that responsibility for obtaining the authority rests with the permittee. SIA is encouraged to continue to seek resolution with neighbours on any related concerns.
8. Regarding the discussion around meeting standards for chloride at the point of discharge from the WTS vs. the standards being met at the discharge point from the settling pond to the environment, the current standards to meet are listed in the permit and were established following the consultation process. As a general statement, MOE does not condone reliance on dilution to meet standards. It is acknowledged that the dilution discussed at the inspection would theoretically be achieved in the

settling pond, prior to the discharge into receiving environment, but it is also noted that there is currently no mechanism in place to cease the discharge to the environment at the discharge point should the standards exceed the required quality. If SIA is interested pursuing a change in requirements, an amendment to the permit may be required. For technical questions about the requirements, please contact the Coast Region Authorizations Section at 250.751.3100.

Include in the next quarterly report a summary of SIA's response to the above items.

Contact me with any questions at [laura.hunse@gov.bc.ca](mailto:laura.hunse@gov.bc.ca) or 250.751.3224.

**INSPECTION CONDUCTED BY:**

**Signature**

**Date Signed**

Laura Hunse

2014-07-28

**ENCLOSURE(S) TO REGULATED PARTY & DESCRIPTION:**

cc's via email to:

Hubert Bunce, A/Mining Ops Director, Environmental Protection, MOE

Luc Lachance, Sr. Environmental Protection Officer, Environmental Protection, MOE

Eddy Tague, Sr. Inspector of Mines, MEM

Matt Pye, Sr. Hydrogeologist, Active Earth Engineering Ltd.

[CVIS Archives](#)

**REGULATORY CONSIDERATIONS:**

BC Sampling Field Sampling Guide Section E: Effluent Flow Measurement, for more information  
[http://www.env.gov.bc.ca/epd/wamr/labsys/field\\_man\\_pdfs/effl\\_meas.pdf](http://www.env.gov.bc.ca/epd/wamr/labsys/field_man_pdfs/effl_meas.pdf)

Full Guide: [http://www.env.gov.bc.ca/epd/wamr/labsys/field\\_man\\_pdfs/fld\\_man\\_03.pdf](http://www.env.gov.bc.ca/epd/wamr/labsys/field_man_pdfs/fld_man_03.pdf)

Ministry of Environment	West Coast Region Environmental Protection Division	Mailing Address:	Phone: (250) 751-3100
		2080-A Labieux Rd	Fax: (250) 751-3103
		Nanaimo, BC V9T 6J9	Website:
			<a href="http://www.gov.bc.ca/env">http://www.gov.bc.ca/env</a>

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Photo  
1



2 x 180° view of lockblock enclosed Soil Management Area (SMA) looking west (top) and east (bottom)

Photo  
2 & 3



Permanent encapsulation cell under construction





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Photo 4 &amp; 5



SMA. Leak detection observation ports visible along right hand side. Soil pile regulated in agreement with Contaminated Sites group on right (below). This pile unrelated to permit.



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Photo 6 &amp; 7



Surface drainage and leak detection system observation port for SMA





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Photo 8 &amp; 9



SMA holding pond





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Photo 10 &amp; 11



Engineered swale directing non-contact waters to neighbouring lowlands



E

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Photo 12



Inflow from WTS

Outlet to receiving envmt

Water treatment system (WTS) and empty settling pond.

Photo 13



Discharge site



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Photo 14



Outlet from WTS to settling pond

Photo 15



Connections to and from WTS