

# Findings of Monitoring and Compliance Activities conducted May 13, 2015 at the Cobble Hill Holdings (Lot 23) & South Island Aggregates (Lot 21) sites

Ministry of Environment  
Ministry of Energy and Mines  
July 16, 2015

# Presentation Outline

- Purpose of MOE site visit
- General actions taken
- Brief summary of reports
  1. Compliance and Monitoring Summary
  2. Historical Records Review
  3. Limited Surficial Soil Sampling
- Review of key findings
- Conclusions & next steps

# Purpose of MOE Site Visit



- Assess compliance with EMA permit requirements at soil treatment facility & landfill on Lot 23
- Collect receiving environment data to:
  1. Verify permittee-submitted data
  2. Augment baseline datasets
- Follow up on concerns related to historical activities on Lot 21

# General Actions Taken (1)




- Develop multi-media sampling plan in consultation with CVRD
- Conduct site visit - 15 prov. staff & CVRD rep
  - Detailed inspection of works/activities on Lot 23
  - Sampling plan
    - Groundwater
    - Surface water
    - Sediment
    - Soil
  - Visual observations & inspection on Lot 21

# General Actions Taken (2)

- Office review of records & reports
  - Reports & data submitted as per MOE permit (Lot 23)
  - Historical records related to Lot 21
- Assess, interpret & report on data/results

July 16, 2015




**Ministry of Environment**  
*Information Sheet*  
on  
**Cobble Hill Holdings/ South Island Aggregates**

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**Summary of Compliance with Permit 105809**

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This Information Sheet provides a summary of compliance with Environmental Management Act Permit 105809 issued to Cobble Hill Holdings Ltd. The permit was assessed for compliance by Ministry of Environment (MOE) staff on May 13, 2015 and July 10, 2015.

**What are the requirements that must be met?**

- Permit 105809 lists requirements for the design, operations, discharge, monitoring and reporting associated with the acceptance, treatment, and landfilling of contaminated soil within the area defined by the permit (generally understood as within Lot 23). A copy of the current permit can be viewed online and additional information about permit requirements can be found on Information Sheet *Summary of Permit 105809*.
- The MOE permit does not include requirements from other regulators such as Ministry of Energy and Mines or Cowichan Valley Regional District. It also does not apply to areas outside of the permit boundaries (such as the area generally referred to as Lot 21).

**How was compliance with the permit assessed?**

- On May 13, 2015, the site and operations covered by the permit were assessed for compliance.
- The period covered by this inspection was from June 2014, up to and including the date of inspection.
- MOE staff and company representatives inspected the site, including the soil management area (where soil is held prior to landfilling), the future landfill area (still under construction), the effluent treatment plant, settling pond, and the discharge point to the ephemeral (seasonal) stream which leads to a tributary of Shawnigan Creek.
- Staff also collected samples of groundwater and surface water at and around the site in established monitoring locations. Details of the findings can be found in the Information Sheet *South Shawnigan Creek Receiving Environment Monitoring*.

**Who was involved in conducting the assessments?**

- MOE officers from the Compliance and Authorizations Sections conducted the assessment of works, operations and discharges. Groundwater and surface water monitoring experts from the provincial government conducted receiving environment monitoring. CVRD by-law staff attended portions of the site inspection. MOE Land Remediation Section staff carried out sampling at Lot 21, which is outside of the MOE permit area and not included in this compliance assessment.

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For copies of reports and more information: <http://www.env.gov.bc.ca/epd/regions/central/central.htm>

# Reports Produced

As a result of the May 13, 2015 inspection & sampling activities and records review, 3 reports and accompanying *Information Sheets* were produced:

1. Compliance and Monitoring Summary
2. Historical Records Review
3. Limited Surficial Soil Sampling

## General

- Authorized works appear to have been completed, except the landfill facility
- 600 tonnes of soil received during inspection period
- All soil held in Soil Mgmt Area
- No discharge of soil to the landfill facility
- No discharge of water to the environment during inspection period

## Treatment Plant Commissioning

- Closed-loop system (no discharge)
- Commissioning now completed; report issued May 1
  - All parameters met BC drinking water guidelines
  - 3 parameters (Zn, Al, chloride) exceeded BC aquatic life guidelines at the treatment plant
    - Zn and Al issues are now resolved
    - Exploring options to ensure Chloride meets requirements



## Compliance assessment:

- 45 permit clauses assessed for compliance
  - 19 clauses in compliance
  - 21 clauses N/A
    - Not all activities commenced (e.g. landfill not yet constructed)
    - No discharge to landfill or from sediment pond
  - 5 clauses out of compliance
    - Background monitoring well not functional
    - Minor discrepancy implementing Soil Acceptance Plan
    - Sampling & reporting not conducted during appeal period

## Receiving Environment Results- Groundwater

- Sampled 3 of 7 onsite wells
- Tested for metals, anions & physical parameters
- Dissolved As exceeded both aquatic life & drinking water standards
- Some other parameters exceeded drinking water standards in total but not dissolved fractions; many of these are known to be naturally elevated
  - Likely a result of well disturbance during sampling

## 1) Compliance & Monitoring Summary

## Receiving Environment – Surface Water & Sediment:



### 1) Compliance & Monitoring Summary

## Receiving Environment Results – Surface Water:

- Tested for metals, chloride & physical parameters
- All WQ results met BCWQ guidelines and draft updated WQ objectives
- Metals results from Shawnigan Cr consistent with data collected by MOE in 2013
- Lot 23 sampling conclusions consistent with those from the permittee, based on 2015 sampling

### 1) Compliance & Monitoring Summary

## Receiving Environment Results— Sediment

- Sediments collected and analyzed for grain size, total metals, TOC & PAHs
- Similar results between background site & D/S discharge site
  - Elevated levels of Cr, Fe and Ni reflect natural conditions
- Elevated levels of some metals & PAHs in lower Shawnigan Crk
  - Possibly related to road runoff?
- U/S-D/S differences in Shawnigan Crk may be partially attributable to different particle size composition
  - More fines at downstream site

## Purpose

- Evaluate if soils deposited on the site meet applicable standards from CSR

## Approach

- Company produced records from 2008-2013
- MOE conducted review of records:
  - Determine origin of arriving soil
  - Identify where soil was deposited on site
  - Evaluate quality of soil received & compare to standards

## 2) Historical Records Review

## Findings

- Records did not explicitly list SIA/CHH company names
- Many records didn't contain details about soil sources & deposit locations
- Records contained analyses for 120 samples
  - No exceedances for hydrocarbons; infrequent exceedances for Cr, Pb, Zn
  - Most exceedances were Schedule 7(relocation) and not Schedules 4/5 (protection of health/environment at receiving site)
- No significant risks identified
- Records cannot be relied on for full characterization of site conditions; need to rely on soil sampling

## 2) Historical Records Review

## Purpose

- Evaluate if soils deposited on the site meet applicable standards from CSR

## Approach (Study Design)

- Sample plan based on 50m x 50m grid (sample block)
- 3 random samples from each block
- Surface and shallow (0.5m) sub-surface
- Total of 46 samples including 10 field duplicates

## 3) Limited Surficial Soil Sampling



# Approach (Study Design)



## Approach (Cont'd)

- Sampled for most common substances seen at BCcontaminated sites (metals, hydrocarbons, etc.)
- Analysis done at accredited labs
- Results interpreted by comparing with soil standards listed in CSRSchedules 4, 5 & 7.



## 3) Limited Surficial Soil Sampling

## Findings

- Isolated and infrequent locations may marginally exceed relocation standards for Pb & Zn
- No exceedance of standards for protection of health & environment
- No further sampling is warranted
- Recommend that if soil is relocated from the site in the future, assess for metals

### 3) Limited Surficial Soil Sampling

For copies of reports and information sheets:  
[http://www.env.gov.bc.ca/epd/regions/vanc\\_island/env-mgt/](http://www.env.gov.bc.ca/epd/regions/vanc_island/env-mgt/)

# Review of Key Findings....

## Inspection Summary

- 45 permit clauses assessed for compliance
  - 40 clauses in compliance or N/A
  - 5 clauses out of compliance – mostly monitoring/reporting
- Inspection report & advisory issued to permittee
- No major environmental concerns
- Follow-up actions initiated (or complete)

## Groundwater (3 wells)

- Dissolved As exceedance of BCWQ guideline
- Exceedances of total but not dissolved fractions of some other parameters, many of which are known to be naturally elevated
  - Likely a result of well disturbance during sampling
- This additional baseline data will inform future monitoring & impact assessment

**Key Findings – Receiving Environment (1)**

## Surface Water (4 sites)



- All results met BCWQ guidelines/objectives
- Results comparable to background and/or previous conditions
- Conclusions consistent with permittee data

Key Findings – Receiving Environment (2)



## Sediment



- Similar results between background site & D/S discharge site
- Elevated levels of some metals and PAHs on Shawnigan Crk – possibly related to road runoff
- U/S-D/S differences in Shawnigan Crk may be partially attributable to different particle size composition

**Key Findings – Receiving Environment (3)**

## Records Review

- Historical records alone are insufficient to fully characterize site conditions,
- Infrequent exceedances of only 3 metals do not suggest concerns

## Soil Sampling

- Infrequent instances where soil marginally exceeds relocation standards
- No significant exceedance of standards to protect human health or environment;
- No further work is warranted

# Next steps

- Continued follow-up with the company to assess compliance with permit conditions according to Ministry Policy
- Ongoing review of monitoring data submitted by permittee
- Completion of Shawnigan watershed updated Water Quality Objectives

# Q&A and Discussion

Receiving Environment Monitoring

Ministry of Environment Permit and Compliance

Land Remediation Section – Lot 21 & Contaminated Sites

Ministry of Energy & Mines