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 MCE permit (Lot 23)
  - Historical records related to Lot 21
- Assess, interpret & report on data/results
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

1) Compliance & Monitoring Summary
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

1) Compliance & Monitoring Summary
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

1) Compliance & Monitoring Summary
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

1) Compliance & Monitoring Summary
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 BC contaminated sites (metals, hydrocarbons, etc.)
- Analysis done at accredited labs
- Results interpreted by comparing with soil standards listed in CSR Schedules 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/
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 Creek – possibly related to road runoff
- U/S-D/S differences in Shawnigan Creek 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