

ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT

BEING CHAPTER E-12 R.S.A. 2000 (the "Act")

ENVIRONMENTAL PROTECTION ORDER NO. EPO-2013/34-CR

Coal Valley Resources Inc.
c/o Registered Office
2900, 10180 – 101 Street
Edmonton, Alberta T5J 3V5
("CVRI")

and

Sherritt International Corporation
c/o Registered Office
1133 Yonge Street
Toronto, Ontario M4T 1Y7
("Sherritt")

(collectively, CVRI and Sherritt are hereinafter referred to as "the Parties")

WHEREAS Sherritt is the owner of the Obed Mountain Mine located on 22-53-24-W5M in Yellowhead County in the Province of Alberta (the "Mine");

WHEREAS CVRI is reclaiming the Mine pursuant to an approval issued by Environment & Sustainable Resource Development ("ESRD") under the *Environmental Protection and Enhancement Act* (the "Act") as Approval No. 10119-02-00, on May 13, 2011 (the "Approval");

WHEREAS the Mine includes, amongst other structures, the Green Pit and the Main Tailings Pond;

WHEREAS at approximately 23:37 on October 31, 2013, CVRI reported to ESRD a release of mine wastewater into the environment;

WHEREAS "mine wastewater" is defined in clause 1.1.2 (ee) of the Approval as "any liquids originating from the operation of the mine excluding runoff from undeveloped areas and clean groundwater";

WHEREAS the Parties provided an updated estimate to ESRD on November 12, 2013, that the volume of mine wastewater released into the environment from the Mine was 670,000 m³;

WHEREAS there was a structural failure of the Green Pit that caused most of its volume of mine wastewater to flow into the Main Tailings Pond, which then overtopped and discharged into the environment, while some of the mine wastewater in the Green Pit discharged directly into the environment;

WHEREAS the specific cause of the structural failure of the Green Pit has yet to be determined;

WHEREAS the mine wastewater travelled from the Green Pit and either through or around the Main Tailings Pond into nearby Apetowun Creek and Plante Creek, and then continued flowing from Plante Creek into the Athabasca River;

WHEREAS Apetowun Creek and Plante Creek suffered significant damage as a result of the release of mine wastewater;

WHEREAS Apetowun Creek, Plante Creek and the Athabasca River are all fish-bearing waterbodies;

WHEREAS the mine wastewater released from the Mine has created a plume of suspended mine wastewater solids that is moving further downstream of the Athabasca River;

WHEREAS the Parties have been taking preliminary steps to prevent any remaining mine wastewater in Apetowun Creek and Plante Creek from entering the Athabasca River;

WHEREAS the mine wastewater that was released contains, amongst other things: sediment, total suspended solids (TSS), mercury, heavy metals and polycyclic aromatic hydrocarbons (PAHs) (the "Substances");

WHEREAS Faye Hutchings, Acting District Compliance Manager, Upper Athabasca Region, has been appointed a Director for the purposes of issuing environmental protection and enforcement orders under the Act (the "Director");

WHEREAS the Director is of the opinion that a release of a substance or substances (the Substances) has occurred, and that the Substances that were released have caused, are causing or may cause an adverse effect on the environment, and that remedial work is required to mitigate the adverse effects to the environment, including on Apetowun Creek, Plante Creek and the Athabasca River, affected aquatic and terrestrial habitats (including wetlands), fish and other aquatic species, and to terrestrial wildlife species;

WHEREAS CVRI and Sherritt are each a "person responsible" for the Substances, as defined in section 1(tt) of the Act as the owner(s) of the Mine, the persons responsible for operations at the Mine, and/or as the holder of the Approval;

THEREFORE, I, Faye Hutchings, Acting District Compliance Manager, Upper Athabasca Region, pursuant to section 113 of the *Environmental Protection and Enhancement Act*, DO HEREBY ORDER THAT CVRI and SHERRITT, (THE PARTIES) SHALL DO THE FOLLOWING:

Immediate Requirements

1. **Immediately** take all steps to contain the mine wastewater solids (meaning sediments, coal fines and any suspended solids or other Substances in the mine wastewater) remaining in Apetowun Creek and Plante Creek and prevent any of these solids from entering the Athabasca River.
2. **Immediately** undertake measures to recover the mine wastewater solids from the confluence of Plante Creek and the Athabasca River, and in so doing, ensure that the solids cannot be re-mobilized and enter the Athabasca River.

3. **Immediately** develop and implement a comprehensive short-term sampling and monitoring plan (the "Immediate Sampling and Monitoring Plan") which shall include:
 - a. the locations and frequencies of all samples that will be taken,
 - b. confirmation that standard test methodology with a detection limit below the *Surface Water Quality Guidelines for Protection of Aquatic Life in Alberta* (ESRD, as revised) will be used,
 - c. field collection protocols,
 - d. all samples will be analyzed at CAEL-accredited laboratories, by qualified taxonomists, or by other specialists appropriate to the sample type, and
 - e. a list of water quality, sediment, and non-fish biota parameters that will be analyzed.
4. The Immediate Sampling and Monitoring Plan containing at a minimum all of the requirements in Clause 3, shall be submitted to the Director no later than **November 26, 2013**.
5. Any sampling or monitoring data or analytical reports that result from activities conducted under the Immediate Sampling and Monitoring Plan shall be provided to the Director as soon as the information is received by the Parties.

Solids Recovery Plan

6. A solids recovery plan shall be submitted to the Director on or before **November 29, 2013** (the "Solids Recovery Plan").
7. The Solids Recovery Plan shall be prepared by a qualified professional.
8. The Solids Recovery Plan shall include:
 - a. details on how any deposited solids that were contained within the mine waste water will be recovered from all affected areas (the "Recovered Solids") and stored until they are disposed of in accordance with this Order,
 - b. the volumes of Recovered Solids that are collected,
 - c. the plan for disposing of the Recovered Solids in accordance with the Waste Management Plan, below, and
 - d. a schedule of implementation for the Solids Recovery Plan for approval by the Director.
9. The Parties shall implement the Solids Recovery Plan in accordance with the schedule of implementation as approved by the Director.
10. On or before **December 20, 2013**, the Parties shall submit to the Director a report of the solids recovery work, detailing all of the outcomes of the items contained in the Solids Recovery Plan (the "Solids Recovery Report").

Impact Assessment Plan

11. An impact assessment plan shall be submitted to the Director on or before **December 13, 2013** (the "Impact Assessment Plan").
12. The Impact Assessment Plan shall be prepared and implemented by qualified environmental professionals.
13. The Impact Assessment Plan shall include a plan for how the following will be carried out:
 - a. full horizontal and vertical delineation of the adverse impacts to all affected waterbodies and associated terrestrial habitats, including the bed and shore of all waterbodies,
 - b. the delineation shall consider impacts to: vegetation, soil, aquatic life (fish and fish habitat),
 - c. identify areas of high impacts from any deposited mine wastewater solids,
 - d. steps that will be taken to prevent further adverse impacts to any of the above identified receptors or habitats from the deposited mine wastewater solids, and
 - e. a schedule of implementation for the Impact Assessment Plan for approval by the Director.
14. The Parties shall implement the Impact Assessment Plan in accordance with the schedule of implementation as approved by the Director.
15. On or before **January 17, 2014**, the Parties shall submit to the Director a report of all data collected (including references to data collection locations), and all conclusions regarding the impacts to the receptors and habitats as identified during implementation of the Impact Assessment Plan (the "Impacts Report").
16. The Impacts Report shall be prepared and signed off by the same environmental professionals who prepared the Impact Assessment Plan.

Long-Term Sampling and Monitoring Plan

17. A long-term sampling and monitoring plan shall be submitted to the Director on or before **December 13, 2013** (the "Long-Term Sampling and Monitoring Plan").
18. The Long-Term Sampling and Monitoring Plan shall be prepared and implemented by qualified environmental professionals.
19. The Long-Term Sampling and Monitoring Plan shall include:
 - a. a plan for monitoring the longer-term impacts to the environment, and sampling of all affected areas including both terrestrial and aquatic habitats,
 - b. sampling plans and methods, analytical methodology, rationale for site selection, diagrams, photos, criteria, and sampling frequencies,

- c. full horizontal and vertical delineation of the adverse impacts to all affected waterbodies (including water, sediment, algae, benthic invertebrate and fish monitoring), and terrestrial habitats, (including the bed and shore of all waterbodies),
 - d. an aquatic sampling and monitoring network in Apetowun Creek, Plante Creek and the Athabasca River which shall include: monitoring locations, sampling frequency, methodology, a complete list of parameters to be measured in the field and/or analyzed by laboratories (including detection limits), a list of laboratories and taxonomists to be used, data assessment methods, and data sharing and reporting frequencies (the "Athabasca River Monitoring Network"),
 - e. the Athabasca River Monitoring Network must include real-time ambient monitoring capability with monitoring intervals of no greater than 50 kilometres from the point of entry of the mine wastewater into the Athabasca River to Fort Chipewyan,
 - f. a description of how any future plumes that may enter the Athabasca River will be monitored, including qualitative analysis, and
 - g. a schedule of implementation for the Long-Term Sampling and Monitoring Plan for approval by the Director.
20. The Parties shall implement the Long-Term Sampling and Monitoring Plan in accordance with the schedule of implementation as approved by the Director.
21. Any sampling or monitoring data or analytical reports that result from activities conducted under the Long-Term Sampling and Monitoring Plan shall be provided to the Director on a daily basis, until otherwise authorized in writing by the Director.

Wildlife Mitigation Plan

22. A wildlife mitigation plan shall be submitted to the Director on or before **December 13, 2013** (the "Wildlife Mitigation Plan").
23. The Wildlife Mitigation Plan shall be prepared and implemented by a qualified professional, and shall address both terrestrial and aquatic species.
24. The Wildlife Mitigation Plan shall describe the condition of the aquatic and terrestrial communities prior to the release using all available data.
25. The Wildlife Management Plan shall also include the following actions to restore the aquatic and terrestrial communities to an equivalent condition as existed prior to the release:
- a. for fish and other aquatic organisms:
 - i. recovery of fish habitat, including substrate composition, channel configuration (including width, depth, sinuosity, gradient, maximum pool depth) and large woody debris,
 - ii. recovery of fish communities, including the elements of community composition, density, length/frequency distribution, recruitment of endemic species, and contaminant tissue burdens, and

- iii. recovery of other aquatic organisms, including elements of community composition and identification of invertebrate species to the highest level possible.
 - b. for terrestrial species:
 - i. recovery of riparian habitat, including native plant species and successional trajectory, and
 - ii. recovery of terrestrial species, including the elements of community composition, recruitment of all endemic species, and contaminant tissue burdens.
 - c. a schedule of implementation for the Wildlife Mitigation Plan for approval by the Director.
26. The Parties shall implement the Wildlife Mitigation Plan in accordance with the schedule of implementation as approved by the Director.

Remediation Plan

27. A detailed remediation plan shall be submitted to the Director on or before **December 13, 2013** (the "Remediation Plan").
28. The Remediation Plan shall have as its objective the restoration of all impacted aquatic, riparian and terrestrial habitats to an equivalent capability and condition as existed prior to the release of mine wastewater.
29. The Remediation Plan shall contain sub-plans to address remediation and restoration of the following impacted areas from the release:
- a. waterbodies/aquatic environment of Apetowun Creek, Plante Creek, the Athabasca River and any other affected waterbodies,
 - b. riparian and fisheries habitat of Apetowun Creek and Plante Creek,
 - c. riparian and fisheries habitat of the portions of the Athabasca River that have been directly impacted by the release of mine wastewater, and
 - d. all impacted terrestrial habitats, including any wetlands, along or adjacent to Apetowun Creek and Plante Creek.
- (collectively, these will be hereinafter referred to as the "Sub-Plans")
30. The Remediation Plan, including the Sub-Plans, shall be prepared and implemented by appropriate environmental professionals.
31. The Remediation Plan, including each Sub-Plan, shall each include the following general requirements:
- a. a description of how the plan will meet the objective of remediation and restoration of the affected habitats to an equivalent capability and condition as existed prior to the release of mine wastewater,

- b. An assessment of the capability and condition of each habitat that existed prior to the release of mine wastewater using all available data,
- c. A list of the methodology, including the sampling, analytical and monitoring methods that will be applied during the remedial work, and the proposed standards that will be applied,
- d. details of toxicity testing for any deposited sediments to assess potential or actual impacts on fish, aquatic organisms, amphibians, terrestrial species, soils and vegetation,
- e. the methods, materials and equipment that will be used during the active phase of the remedial work, including plans for erosion and sediment control to ensure that no further damage is done during the implementation of the remedial work, and
- f. the plan for conducting long-term monitoring of the success of the implementation of the plan (to all impacted soils, waterbodies, aquatic organisms and terrestrial species), including timelines,
- g. plans for evaluating the data collected from monitoring of the remedial work, and steps that will be taken to conduct additional remedial work where required following updated impact assessments, and
- h. a schedule of implementation for the Remediation Plan and the Sub-Plans for approval by the Director.

32. The Sub-Plans shall also contain the following specific requirements:

For waterbodies/aquatic environment of Apetowun Creek, Plante Creek, the Athabasca River and any other affected waterbodies:

- a. details on restoring impacted aquatic habitat in the two Creeks,
- b. information on any activities that may occur in the aquatic habitat and mitigation measures to ensure that no further adverse effects are created, and
- c. details on methodologies for assessing the success of restoration of impacted aquatic habitat.

For riparian and fisheries habitat of Apetowun Creek and Plante Creek:

- a. details on re-establishing native vegetation for erosion control along the banks of the Creeks,
- b. methods for stabilizing the damaged banks of the Creeks, and
- c. erosion control measures that may be required before, during and after conducting any remedial work.

For riparian and fisheries habitat of the Athabasca River that were directly affected:

- a. details on re-establishing native vegetation for erosion control along the banks of the Athabasca River,
- b. methods for stabilizing the damaged banks of the Athabasca River, and
- c. erosion control measures that may be required before, during and after conducting any remedial work.

For terrestrial habitats along or adjacent to Apetowun Creek and Plante Creek (including wetlands):

- a. details of soil sampling to assess any contaminants remaining in the soil or wetlands from the deposited mine wastewater solids,
 - b. methods, materials and applicable standards that will be employed to remove and remediate any contaminants in the soil or wetlands,
 - c. details on methods that will be used to re-establish all affected native vegetation, including planting, re-seeding, and
 - d. any other steps that will be taken to stabilize and restore affected vegetation and habitats.
33. The Parties shall implement the Remediation Plan and Sub-Plans in accordance with the schedule of implementation as approved by the Director.

Waste Management Plan

34. A waste management plan shall be submitted to the Director on or before **November 29, 2013** (the "Waste Management Plan").
35. The Waste Management Plan shall include:
- a. identification of all waste generated on and off the Mine site that is directly associated with the release of the mine wastewater,
 - b. records of the volumes of all the Recovered Solids collected in accordance with the Solids Recovery Plan, and
 - c. details of how all the waste will be characterized, temporarily stored (if required), and disposed of in accordance with all applicable regulatory requirements.
 - d. a schedule of implementation for the Remediation Plan and the Sub-Plans for approval by the Director.
36. The Parties shall implement the Waste Management Plan in accordance with the schedule of implementation as approved by the Director.

Mine Wastewater Management Plan

37. A mine wastewater management plan shall be submitted to the Director on or before **November 29, 2013** (the "Mine Wastewater Management Plan").
38. The Mine Wastewater Management Plan shall confirm that all mine wastewater will be discharged only in accordance with the Approval, and shall also include:
- a. Details on how mine wastewater discharges from any approved mine wastewater handling facilities will be managed to meet the discharge limits in the Approval,
 - b. How mine wastewater discharge will be monitored for all parameters in the Approval, at the frequencies as specified in the Approval, or as otherwise authorized by the Director, and

- c. Details on the management of mine wastewater discharges to prevent the re-mobilization of solids into Apetowun Creek and Plante Creek.

Monthly Status Reports to the Director

39. In addition to any other reporting required by this Order, the Parties shall submit to the Director on the first day of each month, commencing on **December 1, 2013**, a status report in writing that contains a summary of all activities undertaken in accordance with this Order in the previous month, and all activities that are planned for the next month (the "Monthly Status Reports").
40. The Monthly Status Reports shall be submitted to the Director until the Director advises otherwise.

Final Report

41. The Parties shall submit to the Director a comprehensive final report within 30 (thirty) days of the completion of all work required in accordance with this Order, summarizing such work completed pursuant to each of the above required plans, and including verification that the work has met all applicable environmental standards and criteria (the "Final Report").

DATED at the City of Edmonton, in the Province of Alberta, this 19th day of November, 2013.

Faye Hutchings,
Acting District Compliance Manager
Upper Athabasca Region

Section 91 of the *Environmental Protection and Enhancement Act* may provide a right of appeal against this decision to the Alberta Environmental Appeals Board. There may be a strict time limit for filing such an appeal. A copy of section 91 is enclosed. For further information, please contact the Board Secretary at #306 Peace Hills Trust Tower, 10011 - 109 Street, Edmonton, Alberta, T5J 3S8; telephone (780) 427-6207; fax (780) 427-4693.

Notwithstanding the above requirements, the Parties shall obtain all necessary authorizations in complying with this Order.

Take notice that this Order is a remedial tool only, and in no way precludes any enforcement proceedings being taken regarding this matter under this Act or any other provincial or federal legislation, or by any other regulator having jurisdiction.