

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION**

**MONITORING AND REPORTING PROGRAM NO. R6V-2011-(PROPOSED)
WDID NO. 6B140505002**

**FOR THE
BUREAU OF LAND MANAGEMENT**

**AND THE
CMC METALS LTD, VANCOUVER, CANADA**

_____Inyo County_____

I. WATER QUALITY PROTECTION STANDARD

A. Groundwater

1. Point of Compliance and Monitoring Points

The Point of Compliance, as defined in California Code of Regulations (CCR), Title 27, section 20405, is “a vertical surface located at the hydraulically downgradient limit of the waste management unit that extends through the uppermost aquifer underlying the unit.” Four groundwater monitoring wells, and one water production well have been installed at the Facility and are part of the Detection Monitoring Program (DMP). The wells are located upgradient and crossgradient of the waste management unit (WMU), and at the Point of Compliance (POC). The locations of the groundwater monitoring wells are shown on attachment MRP-1, which is made a part of this Monitoring and Reporting Program. The following table summarizes the well construction

Summary of Existing Groundwater Monitoring Network

Identification	Location	Total Depth (feet below ground surface)	Screened Interval (feet below ground surface)
MW-1	Crossgradient / Downgradient / POC	50	40-50
MW-2	Crossgradient / Downgradient / POC	50	30-50
MW-3	Upgradient	88	58-88
MW-4	Downgradient / POC	53	23-53

2. Groundwater Monitoring Parameters and COC

The monitoring parameters and constituents of concern (COC) are summarized below.

Parameter	Units
Water Level	feet MSL
pH	standard pH Units
Electrical Conductivity	µmhos/cm

COC	Reporting Limit µg/L	COC	Reporting Limit µg/L
bicarbonate alkalinity		Magnesium	500
Aluminum	100	Manganese	5
Antimony*	10	Mercury*	0.2
Arsenic*	5	Molybdenum*	5
Barium*	5	Nickel*	5
Beryllium*	2	Nitrate (as N)	50
Boron	100	Potassium	500
Cadmium*	5	Selenium*	10
Calcium	500	Silver*	5
Chloride	200	Sodium	500
Chromium*	5	Sulfate	500
Cobalt*	5	TDS	10 mg/L
Copper*	5	Thallium*	10
Fluoride	100	Weak Acid Dissociable(WAD) Cyanide	10
Iron	100	Vanadium*	5
Lead*	3	Zinc*	20

Volatile Organic Compounds	USEPA Method 8260	Semi -Volatile Organic Compounds	USEPA Method 8270
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3. Groundwater Concentration Limits

Concentration limits for groundwater COC at the Facility are the background concentrations. The Discharger shall collect sufficient data to develop background water quality data for the monitoring parameters and COC in this Monitoring and Reporting Program. The concentration limit for each man-made constituent that is not proven to have originated from a source other than the Landfill is the laboratory detection limit for that constituent.

4. Background Water Quality Data

See attached Table 1

B. Unsaturated Zone

1. WMU Monitoring Points

The WMU is double lined with a leachate collection and recovery system drainage layer between the two liners. The LCRS drains to a collection sump. The sump, along with one lysimeter installed beneath the sump, and one lysimeter installed in an appropriate background plot (as approved by the Water Board), monitor for potential releases from the WMU. The LCRS and the lysimeter allow for the collection of liquid samples.

2. WMU Lysimeter Monitoring Parameters and COC

The lysimeters shall be monitored for the presence of water. If water occurs, it shall be monitored and sampled for the COC described in Section I.A.2.

3. LCRS Sump Monitoring Parameters and COC

The LCRS sump shall be monitored for the presence of water and, if detected, the flow of water to the sump shall be determined. Depending upon flow rates, additional monitoring may be required as described in section II.C below.

II. MONITORING

A. Operations Monitoring

The Discharger shall inspect the operation weekly for physical evidence of a threatened impact to water quality from the Facility. The inspections shall include observation of all drainage conveyances, waste management unit discharge and containment features, wear sheets, and other features constructed for water quality protection. If an adverse condition is discovered, the Discharger shall record the date of the inspection, problem discovered, and corrective measures taken. The Discharger shall submit to the Water Board the results of the inspection within seven days of the discovery.

The Discharger shall submit a Quarterly Report to the Water Board with a summary of the inspections performed and the following additional information:

- The quantity of ore (tons) placed on the ore pad during each of the previous three (3) months.
- The total quantity of ore (tons) on the ore pad at the beginning and end of the quarter.
- The quantity of ore (tons) processed through the mill during the quarter.
- The cumulative quantity of ore (tons) processed through the mill.
- The volume (tons) of tailings discharged to the waste management unit (WMU) during the quarter and in total.
- The freeboard (vertical distance from the lowest point of a berm to the water surface in a pond) of the as recorded on a weekly basis.

The Discharger shall maintain and retain written records onsite for a minimum of three (3) years. This period of retention shall be extended during the course of any unresolved litigation regarding a discharge or when requested by the Water Board.

B. Ore Monitoring

In the Quarterly Report, the Discharger shall report all laboratory analytical results for geochemical characterization of ore received at the mill during the quarter.

C. LCRS Monitoring

The LCRS sump installed in the WMU shall be monitored weekly and the findings submitted to the Water Board in the Quarterly Report.

If liquids are detected in LCRS sumps, the Discharger shall respond as set out in the Action/Response plans below:

ACTION/RESPONSE LEVELS – LCRS FOR WMU	
Flow	Action/Response
<0.3 gpm	No action required. Record weekly flow rate and submit recorded flow rates with the Quarterly Report.
>0.3 and <0.6 gpm	Notify the Water Board immediately. Record daily flow rate and watch for trends. Collect samples weekly for field screening of pH and electrical conductivity. Submit recorded flow rates and parameter data with the Quarterly Report.
>0.6 gpm	Notify the Water Board immediately. Collect samples for laboratory analysis of COC including VOCs and SVOCs. Implement liner inspection and repair plan.

D. Vadose Zone Monitoring

The lysimeters shall be monitored on a quarterly basis in accordance with manufacturer's instructions. If liquid is obtained from the lysimeters, a sample shall be submitted for the COC identified in section I.A.2 of this MRP.

E. Detection Monitoring Program

1. Groundwater

Wells MW-1, MW-2, and MW-4 are the monitoring points for detection monitoring at the point of compliance. Well MW-3 is an upgradient monitoring well that may be used to characterize background concentrations of naturally occurring COC. All four wells shall be sampled on a quarterly basis for the monitoring parameters and COC described in section I.A.2 of this MRP.

During each quarterly detection monitoring program event, groundwater levels shall be measured from monitoring wells MW-1 through MW-4 so the horizontal hydraulic groundwater gradient and the groundwater flow velocity can be calculated and reported in the Quarterly Report. Water quality sampling and analysis shall be completed in accordance with the Quality Assurance/Quality Control requirements of Title 27, section 20415.

Beginning with first quarter after the initiation of waste discharge, and every three years after, the Discharger shall collect samples from all wells for analysis of volatile organic compounds (USEPA Method 8260) and semi-volatile organic compounds (USEPA Method 8270).

The Discharger may propose, for Executive Officer approval, a shorter list of monitoring parameters or a decrease in monitoring frequency if the groundwater quality is sufficiently characterized.

2. Unsaturated Zone

The WMU unsaturated zone detection monitoring points consist of the lysimeters described in section I.B.2. of this MRP. The lysimeters shall be sampled on a quarterly basis and operated in accordance with the manufacturer's instructions. Due to the potential that only a small amount of liquid can be recovered, laboratory analysis shall be prioritized in the following order: dissolved metals, WAD cyanide, sulfate, TDS, alkalinity, bicarbonate, and the monitoring parameters.

III. REPORTING REQUIREMENTS

Pursuant to section 13267 of the California Water Code, the Discharger shall submit scheduled and unscheduled reports as set out below:

A. Scheduled Reports

1. Quarterly Reports

Beginning on **January 30, 2012**, the Discharger shall submit Quarterly Reports for the previous quarterly monitoring period as show below.

Reporting Period	Due Date
January 1 to March 31	April 30
April 1 to June 30	July 30
July 1 to September 30	October 30
October 1 to December 31	January 30

The Quarterly Reports shall include the information required by monitoring requirements (Section II.A through II.E) and the following information:

- Results of groundwater laboratory analyses, including statistical limits for each ground water monitoring point, presented in a data table.
- Results of groundwater field monitoring parameters, including statistical limits for each monitoring point, presented in a data table.
- For each monitoring point, the report shall include the depth to groundwater in feet below ground surface and groundwater elevation in feet above mean sea level in data table(s). The report shall include a horizontal hydraulic groundwater gradient (ft/ft), and the direction and velocity (ft/day) of groundwater flow. A potentiometric map shall be included.
- A map or aerial photograph showing the locations of the groundwater and unsaturated zone monitoring points shall be included.
- The report shall include a discussion of any requirement violations found since the last report was submitted and shall describe actions taken or planned for correcting those violations. If the Discharged has previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence will be satisfactory. If no violations have occurred since the last submittal, this shall be stated in the report.

The Discharger shall notify the Water Board before submitting the Quarterly Report if analytical data are missing, and shall make arrangements at that time for amendments and for updating the Quarterly Report.

2. Annual Reports

By **January 30th** of each year, the Discharger shall submit an Annual Report to the Water Board. The annual report can be combined with the fourth quarterly report also due on January 30th. The annual report shall include the following components.

- The compliance record and the corrective actions taken or planned which may be required to bring the discharge into full compliance with the discharge requirements.
- Monitoring data obtained for the previous year in both graphic and tabular form. Format for tabular data should be designed for ease of review. Specifically, the concentration limit for each COC should be listed immediately beside the measured concentration of that COC at each compliance monitoring point, so the values can be compared directly. Any COC that are over their concentration limit shall be bolded.
- Time series data plots of the last year of groundwater and soil moisture analyses.
- A report on the geochemical testing and ongoing monitoring of ore at the Facility. The report shall also include an indication of the testing and monitoring planned for the upcoming year.
- A review of the Preliminary Closure and Post-Closure Maintenance Plan to confirm that it conforms to the existing operations and that the amount of financial assurance remains adequate.

B. Unscheduled Reports

1. Spill Reports

The Discharger shall report by telephone any seepage, spill, leak, or other breach of the containment system of the WMU immediately after it is discovered. A written report shall be filed with the Water Board within seven (7) days.

If visual inspection and/or laboratory results indicate that the breach of the containment system is or may be a threat to water quality, it will be considered a possible release. In this case, the Monitoring and Reporting

Program may need to be adjusted to include long-term monitoring at the affected point to ensure that repairs and cleanup have been effective.

2. Notice of Possible (Unconfirmed) Releases

If a release is tentatively indicated, the Discharger shall immediately notify the Water Board by email and telephone. The Discharger shall conduct resampling and analysis, as discussed in Section III, Water Quality Monitoring and Response Programs, of the Order to which this MRP is attached, to confirm (or refute) the tentative release.

3. Report of Confirmed Release

If an actual release occurs, or if a tentative release is confirmed, the Discharger shall submit a Report of Release within 90 days of such a confirmation. This report should describe the release, which monitoring points are affected, and how the release was discovered and confirmed. The report shall propose an evaluation monitoring program meeting the requirements in section 20425, Title 27, CCR, or demonstrate to the Water Board that there is a source other than the WMU that caused evidence of a release.

4. Unscheduled Background Update Report

If a release is confirmed by any means other than comparison to the background monitoring, then the Discharger shall, within 30 days, sample for all COCs at all monitoring points, and submit for laboratory analysis. The Discharger shall submit an Unscheduled Background Update Report providing the results within 90 days of the date that all COCs were sampled at all monitoring points.

5. Preliminary Engineering Feasibility Study (PEFS) Report: Corrective Action

The Discharger shall, within 180 days of discovering (or confirming) a release, submit a PEFS Report meeting the requirements in section 20430, Title 27, CCR.

C. Violation

If monitoring data indicate violation of waste discharge requirements, the Discharger shall provide in the Quarterly Report information indicating the cause of violations and action taken or planned to bring the discharge into compliance.

D. General Provisions

The Discharger shall comply with the "General Provisions for Monitoring and Reporting" dated September 1, 1994, set out in Attachment MRP-2, which is made part of this Monitoring and Reporting Program.

IV. MONITORING RECORDS

Records of all monitoring information and copies of all reports required by this Order shall be retained until the WDR is rescinded for the Facility.

These records shall include:

- Site inspection and visual observation records of the WMU.
- Flow measurements, analyses or estimates of discharge into WMU.
- Analytical techniques or methods used and the results of analyses of the raw ore and tailings.
- Raw data sheets and quality assurance/quality control results.
- All calibration and maintenance records of instruments used.
- Date, place, and time of inspections, sampling, visual observations, analyses and/or measurements.
- Name(s) of the individual(s) who performed the inspections, sampling, visual observations, analyses and/or measurements.

V. TIME SCHEDULES FOR SAMPLING PROGRAMS

By **September 30, 2011**, the Discharger shall submit a detailed Sampling and Analysis Program (SAP), for acceptance by the Executive Officer, for the Facility. The SAP shall include a Field Sampling Plan and a Quality Assurance Project Plan.

Ordered by: _____
HAROLD J. SINGER
EXECUTIVE OFFICER

Dated: _____

Attachments: Table 1 Water Quality
MRP-1 Monitoring Locations
MRP-2 General Provisions for Monitoring and Reporting