

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

**BOARD ORDER NO. R6V-2011-(TENTATIVE)
WDID NO. 6B140505002**

WASTE DISCHARGE REQUIREMENTS

**FOR THE
BUREAU OF LAND MANAGEMENT**

**AND THE
0877877 BC LTD, VANCOVER, CANADA**

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

Inyo County

The California Regional Water Quality Control Board, Lahontan Region (Water Board) finds:

1. Discharger

CMC Metals Ltd (CMC Metals) operating as 0877877 BC Ltd (a subsidiary of CMC Metals) plans to re-activate the existing Bishop Mill as an independent mill located approximately one mile west of State Highway 6 on Ruldoph Road in Inyo County. The project will process up to 96 tons per day of gold-bearing ores transported from off-site mining locations. The ore will be processed through the existing gravity mill.

The project facilities will be located on federal land administered by the Bureau of Land Management (BLM). For the purposes of this Board Order (Order), CMC Metals (Owner and Operator), and the BLM (Landowner) are collectively referred to as the "Discharger."

Naming the BLM as a Discharger in this Order is consistent with past determinations made by the Regional Water Boards and the State Water Resources Control Board (State Water Board). Hereinafter, the term "Discharger" is used to assign primary responsibility to CMC Metals and secondary responsibility to the BLM. If CMC Metals fails to meet the requirements of this Order, the BLM will become the primary responsible party for complying with the requirements of this Order. The requirements may include cleanup and abatement of the effects of any pollution, threatened pollution, or nuisance associated with waste discharges at the Facility.

2. Order History

This is a new Order.

3. Reason for Action

The Water Board is adopting new WDRs to impose requirements for the operation of the Bishop Mill. These requirements include monitoring and reporting.

4. Facility Location

The Facility is located approximately one mile west of State Highway 6 on Ruldoph Road in Inyo County within the SW¼ of Section 4, T6S, R33E, Mount Diablo Baseline and Meridian. Attachment A of this Order shows the Facility location.

5. Facility

Existing facilities at the Bishop Mill consist of an access road, perimeter fence, power lines, main mill building, warehouse, garage, trailer (office and laboratory), four monitoring wells, a production well (also used for monitoring), propane tank and an existing inoperable tailings pond. For the purposes of this Order, the Bishop Mill is referred to as the "Facility". Attachment B of this Order shows the general site layout.

6. Existing Site Conditions/Land Use

Currently, the primary land use in the immediate vicinity (five-mile radius) is ranching, mining, and open space predominantly covered with native vegetation.

7. Description of Existing Facility Components

- a. Main Mill Building
- b. Warehouse
- c. Garage
- d. Concrete Ore Patio

Approximately 100 tons of tailings previously deposited in the existing tailings disposal area were excavated and temporarily placed on the Ore Patio (Attachment B). A 40-mil liner underlies and covers the temporary tailings stockpile. An earthen berm diverts stormwater run-on and contains stormwater run-off from the temporary tailings stockpile. CMC Metals will reprocess these tailings during re-commissioning of the mill.

- e. Monitoring wells 1 through 4 and production well PW-3
- f. Existing Tailings Disposal Area
- g. Fuel Storage

An existing portable-stand mounted 500-gallon above ground fuel tank will be used to store diesel fuel for use in site equipment. The tank will be double-walled designed to the standards required by the Unified Program implemented by the Inyo County Environmental Health Services. Fuel will be received in bulk and lubricants will be received in steel drums or plastic. CMC Metals, Ltd. will prepare a Spill Prevention Control and Countermeasure Plan to be kept at the tank location. Propane is stored in a 1,000-gallon above ground tank.

- h. Power

Electric power is supplied by Southern Edison via an existing above ground power line. The mill operates on 440 volt, three-phase power. Otherwise, the Facility will operate on 220- and 110-volt power.

- i. Water Supply

Water for mill operations is supplied by the onsite production well, PW-3.

- j. Sanitary and Solid Waste

No sanitary facilities will be located at the Facility. Instead, portable toilets will be used, approximately one for every five employees. Authorized personnel will remove wastes on an as-required basis and disposed of in an approved manner.

Reagent, solvents, waste oil, contaminated fuel and other similar residues resultant from Mill operations will be collected in proper containers and stored in a small roll-off bin or other trash bin. Handling and disposal of solid waste produced on site will be in accordance with all applicable regulations. Authorized personnel will remove wastes on an as-required basis and disposed of in an approved manner.

8. Description of Ore Process Steps

a. Sources of Ore

Sources of ore will be generally from the Gold Bug Mine, Radcliffe Mine and Darwin Mine in the Ballarat Mining District in south-central Inyo County and other areas within Inyo County.

b. Importation of Ore

Incoming ore of up to 100 tons per day will arrive in over-the-highway haul trucks and will be off-loaded at the existing concrete ore patio and/or the temporary ore stockpile area northwest of the ore patio.

c. Processing of Ore

The proposed Bishop Mill facility will process raw ore using screening, grinding, flotation and gravity circuits within the Mill building. The main components of the processing operations include: primary/secondary crushers, Krupp screen mill, ball mill, rake classifier, flotation cells, and a concentrate leaf/disk filter. Attachment C of this Order shows the flow diagram for the mill process circuit.

The raw ore will be loaded into the ore feed bin (25-ton capacity) by a front end loader, then gravity fed to the mill at the rate of approximately 4 tons per hour, or approximately 96 tons per 24-hour shift.

The ore will be crushed and milled to minus approximately 10 mesh. The material will then go through a jigging concentration process where the coarse concentrates are dried and bagged for off-site refining. The tailings from the jigging process will be mixed with water and flotation reagent chemicals (Xanthate 350 or an equivalent general collector, Aero 208 or an equivalent free gold collector, and Aero 31 or an equivalent sulfide collector) creating a chemically charged ore slurry that is 30 percent solids. Soda ash will also be added to maintain a near neutral pH.

The ore slurry will be transferred to flotation cells where Aero Froth or an equivalent flotation agent, is added to facilitate recovery of metallic particles. The flotation cells, and frothing agent create an agitated air-infused froth bringing the metallic particles to the surface of the cells. Each cell in the system collects the frothed metallic particles and transports them to the concentrate thickener tank.

The concentrate containing the processing reagents and precious metals will be piped to the concentrate thickener tank and dewatered, which will allow

most of the additive chemicals to be re-circulated back into the processing system for re-use. The concentrate is further dewatered at the Leaf/Disk filter. The concentrate filter material is dried to reduce the moisture content to around 10 percent and is then loaded in drums or flexible intermediate bulk container sacks for shipping off-site to a refinery.

The tailings from the flotation cells will be passed from the last flotation cell to the Launderer tray where a surfactant (Shaklee's Basic H or an equivalent) will be added. The Basic H breaks down any remaining flotation reagents, allowing the heavy metal particles to sink and prepare the ore slurry for the Diester gravity recovery shaker table. The shaker table will recover metallic particles that were too large or heavy to be recovered by the flotation process. The table concentrates are sent to the concentrate thickener tank to be dewatered, filtered, and sent through the concentrate dryer. The dried concentrate will then be shipped off-site for refining. The rejects from the Deister table are the solid tailings that are piped to the proposed waste management unit (WMU). The tailings piped to the pond are allowed to settle and the water recirculated to the mill for reuse.

d. Dust Suppression

Air quality permit will be obtained for process components (as required) and land disturbance requiring permits from the Great Basin Unified Air Pollution Control District. In general, dust control measures include application of water to roads and other disturbed areas, as required. Fugitive emissions in the process area will be controlled at the crusher and conveyor drop points using water sprays and /or negative air pressure dust collection where necessary. Pollution control equipment will be installed, operated and maintained in good working order to minimize emissions.

9. Description of Ore

a. Ore Source Description

The mining district that incorporates the Gold Bug and Radcliffe Mine is underlain by schist, dolomitic limestone, and gneiss of Precambrian age, which in places have been cut by granitic dikes. The ore deposits consist of quartz veins containing free gold and occasionally abundant sulfide.

b. Ore Mineralogy

The Gold Bug mine consists of two distinct vein systems and mineralogies. The lower vein system contains vein quartz and consists of free gold in an iron-stained white quartz with calcite and trace copper carbonates, manganese oxides and barite. The upper vein system contains sulfide ore

containing free gold and silver, lead, copper and iron sulfide.

Because mining at the Radcliffe mine has not advanced into the gold bearing vein, descriptions of the ore are not yet available. However, it is expected that the gold bearing veins will be similar to that described for the Gold Bug mine.

The Darwin ore is associated with a copper bearing skarn that hosts a high-grade copper-silver-zinc deposit. The primary sulfides are mostly argentiferous galena, sphalerite and pyrite with less amounts of pyrrhotite and chalcopyrite. Scheelite is also common.

c. Geochemical Characterization of Ore

A representative sample for each source and/or lithologic variant of ore hauled to the Facility will be collected prior to processing. The geochemical characteristics of the ore proposed for processing will be evaluated prior to transport to the Facility to ensure that the ore is compatible with the existing process.

10. Description of WMU

Because the process solution is classified as a Group A mining waste pursuant to section 22480, Title 27, CCR, the WMU has been designed and will be constructed to contain Group A mining waste (section 22490, Title 27, California Code of Regulations [CCR]). The WMU, as proposed, will be approximately 185 feet by 240 feet at its crest and approximately 25 feet deep with 2H:1V side slopes. Attachment D shows the proposed WMU design.

The side slopes and base of the WMU will be constructed with locally-derived soil, and compacted to a minimum of 90 percent of the maximum dry density at \pm 2 percent of optimum moisture content as determined by ASTM D1557, modified proctor testing.

The design configuration provides capacity for storage of approximately 550,000 cubic feet of tailings up to the required freeboard level of two feet below the side slope crest. The estimated total capacity of dry tailings is approximately 24,000 tons, assuming a dry density of 85 pounds per cubic foot.

The design includes an engineered liner system with a leachate collection and recovery system (LCRS).

11. Description of WMU Liner System

The discharger has provided an engineered alternative liner system for the WMU

pursuant to section 22470(a), Title 27, CCR. Prior to construction of the WMU, the Discharger will collect confirmation soil samples to insure that all preexisting tailings are removed. The final compacted soil liner will be smooth rolled, and any material that could rupture the liner will be removed. From the top down, the liner system will consist of the following components:

- 1) 80-mil thick (where 1 mil equals 0.025 millimeters), smooth, high-density polyethylene (HDPE) geomembrane upper liner, and either:
- 2) geotextile fabric overlying a 60-mil lower HDPE Agru Super Gripnet Liner (which incorporates both drain media and liner)
- 3) a geonet overlying a 60-mil smooth HDPE lower liner
- 4) 1-foot thick compacted soil subliner

All liner seams will be wedge welded and tested for any leaks. The liner will be chemically compatible with all process solutions and tailings discharged to the WMU.

12. Tailings Discharge

The tailings will be deposited as a slurry via direct discharge from the mill at a constant level of approximately three feet below the top of the WMU embankment. Discharge locations will be varied to maximize areal distribution and depositional densities within the WMU. HDPE wear sheets (80-mil HDPE) will be used at all discharge locations to protect the primary liner. Wear sheets will be anchored at the pond crest by welding to the existing liner or constructing a second anchor trench outside the pond crest.

The discharge pipe from the Mill to the WMU will be constructed as pipe-in-pipe such that the outer leak detection pipe will gravity drain back into the WMU. Wear sheets will be inspected weekly and replaced as necessary to protect the primary WMU liner.

13. Overliner Seepage Collection System

An overliner seepage collection system consisting of a perforated pipe with overlying sand and gravel drain wrapped in geotextile will be installed over the primary liner to dewater the deposited tailings and maximize deposited tailings densities. The perforated pipe will drain into an overliner sump. Liquids collected in the sump will be pumped via submersible pump onto the surface of the WMU to be evaporated or returned to the mill to use as process water. Attachment D of this Order shows details for the overliner drain system layout.

14. Description of Leachate Collection and Recovery System

The WMU will use a double-lined system that incorporates an LCRS between the liners with sufficient capacity to allow for monitoring of leakage through the primary liner. The upper liner will consist of an 80-mil HDPE flexible membrane liner. The drainage layer and lower liner will consist of either:

- geotextile fabric overlying a 60-mil HDPE Agru Super Gripnet geomembrane, or
- geonet overlying a 60-mil smooth HDPE flexible membrane liner.

The Agru Super Gripnet incorporates drain media into the liner so no other fluid transmission medium is needed. The Gripnet geomembrane or the geonet will drain to a 10-foot by 10-foot by 2-foot deep gravel-filled sump constructed between the upper and lower liners. A 6-inch diameter riser pipe extends from the sump to the top of the WMU berm. Attachment E of this Order shows details for the LCRS.

15. Description of Vadose Zone Monitoring System

Before the WMU receives any waste, two single suction cup lysimeters will be installed beneath the LCRS sump and at an appropriate background location to be determined.

16. Description of the Groundwater Monitoring System

Groundwater quality will be monitored by using monitoring wells MW-1 through MW-4. MW-1 is a monitoring well cross-downgradient to the WMU; MW-2 and MW-4 are downgradient wells; and MW-3 an upgradient well. Attachment MRP-1 shows the existing wells locations. The groundwater monitoring program is further described in Monitoring and Reporting Program R6V-2011-(**TENTATIVE**), which is made part of this Order.

17. Stormwater Discharges

Run-on flow from the west will be diverted around the WMU to both the north and the south in a v-ditch diversion channel designed to accommodate the 100-yr, 24-hour design storm. Stormwater run-on will be regulated under the requirements contained in the General Construction and Industrial Activities Stormwater Permits as set out in Section II.B of this Order (Requirements and Prohibitions, Stormwater Discharges).

Waste in discharges of storm water must be reduced or prevented to achieve the best practicable treatment level using controls, structures, and management practices.

18. Waste Classification

The processed ore will be deposited in the WMU that will be constructed for Group A mine waste. This classification is in accordance with the definitions of mining waste contained in section 22480, Title 27, California Code of Regulations.

19. Authorized Disposal Site

The only authorized disposal site for the processed tailings and waste process solutions is the Group A WMU.

20. Water Quality Protection Standards

A Water Quality Protection Standard (WQPS) is required for the Facility by this Order, and consists of constituents of concern (COC), concentration limits, monitoring points, and the Point of Compliance. The WQPS applies over the active life of the Facility, the closure and post-closure maintenance period, and the compliance period. The COC, concentration limits, monitoring points, and Point of Compliance are described in the Monitoring and Reporting Program, which is made part of this Order.

21. Closure and Post-Closure Maintenance

a. Closure and Post-Closure Maintenance Plan

A Closure and Post-Closure Maintenance Plan is required in accordance with section 22510(b) or Title 27, CCR . The discharger will submit a Final Closure and Post-Closure Maintenance Plan upon notification of closure, no later than 180 days before beginning any final closure activities. If new methods are proven prior to development of the Final Closure and Post-Closure Maintenance Plan, the Discharger may revise the current proposal to incorporate such technologies.

b. Regrading, Revegetation, and Roads

Slopes will be regraded with mobile equipment (dozers, trucks, loaders, and scrapers) to blend with the natural surroundings topography to facilitate re-vegetation, where practicable.

c. WMU

After approximately 5 years of operation, the WMU will be closed as a landfill in accordance with Title 27, CCR, sections 21410 and 21090.

d. Miscellaneous Disturbed Areas

All process equipment will be removed upon final site closure. Permanent structures will be dismantled and removed or converted to another use compatible with the accepted closure. Foundations will be broken up and covered with clean fill to a minimum depth of one foot. All surplus materials and storage containers will be recycled or disposed offsite. Disturbed areas will be ripped with a dozer, or scarified with a grader, and seeded.

Once monitoring is no longer required, the monitoring wells and vadose wells will be destroyed according to applicable regulations.

22. Reasonably Foreseeable Release

The Discharger is required to provide financial assurance for remediation of a reasonably foreseeable release. This Order requires the Discharger to prepare: (a) a plan for initiating and completing corrective action for a known or reasonably foreseeable release from the Facility and (b) a lump sum estimate of the costs to carry out the actions necessary to perform the corrective action.

23. Financial Assurance

Section 22510, Title 27, CCR requires the Discharger to provide funds to cover the costs of closure, post-closure maintenance, and remediation of a reasonably foreseeable release at the Facility.

24. Topography

The existing topography at the Facility is generally flat to moderately sloped to the east. Elevations range from 4,250 feet above mean sea level (MSL) along the western perimeter fence line to 4,325 at the existing concrete ore pad.

25. Climate

The climate is semi-arid. The average daily temperatures at the Bishop Airport station range from a high of 97.7 °F in July to a low of 21.8 °F in January.

Monthly precipitation is in the range of 0.12 (August) to 1.15 (January) inches (data from Bishop Airport, NOAA meteorological data station [period of record 1948-2009]) with an annual precipitation of 5.28 inches. Evaporation data are not recorded at the Bishop or Benton climate stations. The maximum expected 100-year, 24-hour storm precipitation is 4.0 inches.

26. Wind

Data recorded at the Bishop Airport show monthly average wind speeds ranging from 6.8 miles per hour (mph) in January to 10.4 mph in April. The prevailing wind direction in the area of the facility is primarily from the north, except in July and August when the winds are primarily from the south-southeast.

27. Site Geology

a. Setting

The facility is located in the southern part of the Chalfant Valley, which joins the Owens Valley approximately five miles north of Bishop. Chalfant Valley is a narrow alluvial plain bounded on the east by the White Mountains and on the west by the volcanic tableland which grades westerly into the Sierra Nevada Mountains.

The White Mountains are predominantly composed of granitic rocks partially overlain by metasedimentary and metavolcanic rocks. The volcanic tableland is comprised of pyroclastic deposits derived from volcanic explosions in the Long Valley caldera. The White Mountains extend to more than 13,000 feet above mean sea level (amsl), while the volcanic tableland rises to 6,000 feet amsl.

The Chalfant Valley extends north from its junction with the Owens Valley to a geomorphic intersection with the Millner Creek alluvial fan, approximately 4.5 miles north of Chalfant. The Millner Creek alluvial fan dissects the valley and marks the separation of the Chalfant Valley from Hammil Valley to the north.

b. Soils

The Facility soils are generally described as Yaney-Yaney loam associated and Cambic Haplodurids-Type Haplodurids association. The Yaney-Yaney loam is described as a well-drained sand, sandy loam, and sandy loam with various amounts of gravel. The parent material is best described as volcanic ash and/or alluvium derived from mixed sources. The Cambic soil is described as a well drained gravelly to extremely gravelly sandy loam with some cementation at 11 to 18 inches

below ground surface. The parent material is described as alluvium derived from mixed sources.

c. Faulting/Seismicity

The Facility is located within the Eastern California Shear Zone, a broad zone of strike-slip and normal faults distributed across the Owens Valley, Mohave Desert, and eastern Nevada, and northern eastern California.

Several Holocene fault zones run through the valley, including the Fish Slough fault zone, approximately 2 miles west of the facility, and the White Mountain fault zone, approximately 2 miles east of the Facility. However, there are no Holocene faults mapped in the vicinity the Facility and the Facility is not located within an identified Alquist-Priolo Fault zone. Six additional faults are mapped near the Facility with a distance from 5.6 miles to 50 miles from the Facility to the nearest reach of the fault.

The Discharger performed a stability analysis on the proposed WMU. Results of the static and seismic slope stability analyses indicate that the proposed WMU configuration is stable under both static and pseudostatic conditions.

28. Hydrology

a. Surface Water/Springs

There are no surface waters within a one-mile radius of the Facility. The nearest surface water (perennial) is Fish Slough, located approximately 2 miles to the west. The north fork of the man-made, earthen, and ephemeral McNally Canal crosses the southeastern corner of the Facility. The McNally Canal is located more than 1,000 feet south (cross-gradient) of the proposed WMU.

Seven unnamed springs are also located within a five-mile radius of the Facility.

b. Groundwater

The Facility is located in the Owens Valley groundwater basin. The groundwater flow at the Facility is due east with a groundwater gradient at approximately 0.013 feet/foot. Depth of groundwater typically ranges from approximately 35 to 48 feet below ground surface.

Groundwater recharge is primarily derived from snowmelt and precipitation runoff from the adjacent highlands, and from direct precipitation onto the valley floor. Groundwater generally occurs in unconsolidated to semi-consolidated alluvial deposits and flows towards the axis (north-south) of the valley.

29. Basin Plan

The Water Board adopted a Water Quality Control Plan for the Lahontan Basin (Basin Plan), which became effective on March 31, 1995.

30. Receiving Waters

The receiving waters are the ground waters of the Owens Valley Ground Water Basin, Department of Water Resources No. 6-12 and the surface waters of the Owens Hydrologic Unit, Upper Owens Hydrologic Area.

31. Beneficial Uses

The beneficial uses of ground waters of the Owen's Valley Ground Water Basin, as set forth and defined in the Basin Plan, are:

- a. Municipal and domestic supply;
- b. Agricultural;
- c. Industrial Service Supply;
- d. Freshwater Replenishment;
- e. Wildlife Habitat

The beneficial uses of surface water of the Upper Owens Hydrologic Area (McNally Canals) as set forth and defined in the Basin Plan, are:

- a. Municipal and domestic supply;
- b. Agricultural;
- c. Groundwater Recharge;
- d. Water Contact Recreation;
- e. Non-contact Water Recreation;
- f. Commercial and Sport Fishing;
- g. Wildlife Habitat.

32. Water Quality Data Evaluation

Statistical and non-statistical procedures for evaluating detection monitoring data are required to meet section 20415(e)(7), Title 27, CCR and the report titled "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities" (USEPA, March 2009, EPA 530/R-09-007).

33. Other Considerations and Requirements for Discharge

Pursuant to California Water Code section 13241, the requirements of this Order take into consideration:

- a. Past, present, and probable future beneficial uses of water:
This Order identifies past, present and probable future beneficial uses of water as described in Finding No. 32. The discharge will not adversely affect present or probable future beneficial uses of water, including municipal and domestic water supply, agricultural supply, industrial, and freshwater replenishment.
- b. Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto: Finding Nos. 27 and 28 describes the environmental characteristics and quality of water from this hydrographic unit.
- c. Water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect water quality in the area:
The requirements of this Order will not result in groundwater degradation.
- d. Economic considerations:
This Order authorizes the Discharger to implement closure and post-closure maintenance actions at the Facility as proposed by the Discharger. The Order accepts the Discharger's proposed actions as meeting the best practicable control method for protecting groundwater quality from impacts from the WMU.
- e. The need for developing housing within the region:
The Discharger is not responsible for developing housing within the region. This Order provides WDRs for the Facility.
- f. The need to develop and use recycled water:
There is currently no source of recycled water available to the Discharger.

34. California Environmental Quality Act

This project is subject to the provisions of the California Environmental Quality Act (CEQA) and its federal equivalent the National Environmental Policy Act (NEPA). The Water Board is the lead agency responsible for completing CEQA. Because the Facility is located on federal lands, the Bureau of Land Management is the NEPA lead agency.

The Water Board circulated an Initial Study for a Mitigated Negative Declaration on April XX, 2011 for a minimum 30-day public review comment period. A draft version of these Waste Discharge Requirements was included as an appendix to the Initial Study report.

35. Notification of Interested Parties

The Water Board has notified the Discharger and all known interested agencies and persons of its intent to adopt new WDRs for the project.

36. Consideration of Interested Parties

The Water Board, in a public meeting on **July 13-14, 2011**, heard and considered all comments pertaining to the discharge of waste.

IT IS HEREBY ORDERED that the Discharger shall comply with the following:

I. DISCHARGE SPECIFICATIONS

A. Nondegradation

State Water Board Resolution No. 68-16 "Statement of Policy With Respect to Maintaining High Quality of Waters In California," known as the Nondegradation Policy, requires maintenance of existing high quality in surface waters, ground waters, or wetlands. Whenever the existing quality of water is better than the quality of water established in the Basin Plan, such existing quality shall be maintained unless appropriate findings are made under Resolution No. 68-16. The project as proposed will not purposefully discharge any waste that will degrade water quality.

B. Receiving Water Limitations

Receiving water limitations are narrative and numerical water quality objectives contained in the Water Quality Control Plan for the Lahontan Basin (Basin Plan) for all surface waters and groundwaters of the Lahontan Region. As such, they are required to be met.

Limitations for Surface Waters of the Upper Owens Hydrologic Area

The discharge of waste to surface waters shall not cause, or contribute to, a violation of the following water quality objectives for waters of the Upper Owens Hydrologic Area.

1. Ammonia

Ammonia concentrations shall not exceed the values listed in Tables 3-1 to 3-4 of the Basin Plan for the corresponding conditions in these tables. Tables 3-1 to 3-4 of the Basin Plan are incorporated into these requirements by reference.

2. Bacteria, Coliform

- i. Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes.
- ii. The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 milliliter (ml), nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml. The log mean shall ideally be based on a minimum of not less than five samples collected as evenly spaced as practicable during any 30-day period. However, a log mean concentration exceeding 20/100 ml or one sample exceeding 40/100 ml, for any 30-day period shall indicate violation of this objective even if fewer than five samples were collected.

3. Biostimulatory Substances

Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect the water for beneficial uses.

4. Chemical Constituents

- i. Waters designated as MUN (a beneficial use of surface water of the Upper Owen's Hydrologic Area) shall not contain concentrations of chemical constituents in excess of the maximum contaminant level (MCL) or secondary MCL based upon drinking water standards specified in provisions of the California Code of Regulations, Title 22, Division 4, Chapter 15, hereby incorporated by reference into these requirements. This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect.
- ii. Waters shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses.

5. Chlorine, Total Residual

For the protection of aquatic life, total chlorine residual shall not exceed either a median value of 0.002 milligrams per liter (mg/L) or a maximum value of 0.003 mg/L. Median values shall be based on daily measurements taken within any six-month period.

6. Color

Waters shall be free of coloration that causes nuisance or adversely affects the water for beneficial uses.

7. Dissolved Oxygen

The dissolved oxygen concentration as percent saturation shall not be depressed by more than 10 percent, nor shall the minimum dissolved oxygen concentration be less than 80 percent of saturation.

8. Floating Materials

- i. Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect the water for beneficial uses.
- ii. The concentrations of floating material shall not be altered to the extent that such alterations are discernible at the 10 percent significance level.

9. Oil and Grease

- i. Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect the water for beneficial uses.
- ii. The concentration of oils, greases, or other film or coat generating substances shall not be altered.

10. Pesticides

- i. For the purposes of these requirements, pesticides are defined to include insecticides, herbicides, rodenticides, fungicides, pesticides and all other economic poisons. An economic poison is any substance intended to prevent, repel, destroy, or mitigate the damage from insects, rodents, predatory animals, bacteria, fungi, or weeds capable of

- ii. Pesticide concentrations, individually or collectively, shall not exceed the lowest detectable levels, using the most recent detection procedures available. There shall not be an increase in pesticide concentrations found in bottom sediments. There shall be no detectable increase in bioaccumulation of pesticides in aquatic life.
- iii. Waters designated as MUN shall not contain concentrations of pesticides or herbicides in excess of the limiting concentrations set forth in the California Code of Regulations, Title 22, Division 4, Chapter 15. This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect.

11. pH

- i. In fresh waters with designated beneficial uses of COLD or WARM, changes, changes in normal ambient pH levels shall not exceed 0.5 pH units. For all other waters of the Region, the pH shall not be depressed below 6.5 nor raised above 8.5.
- ii. The Water Board recognizes that some waters of the Region may have natural pH levels outside of the 6.5 to 8.5 range. Compliance with the pH objective for these waters will be determined on a case-by-case basis.

12. Radioactivity

- i. Radionuclides shall not be present in concentrations, which are deleterious to human, plant, animal, or aquatic life nor which result in the accumulation of radionuclides in the food web to an extent, which presents a hazard to human, plant, animal, or aquatic life.
- ii. Waters designated as MUN shall not contain concentrations of radionuclides in excess of the limits specified by the more restrictive of the California Code of Regulations Title 22 Division 4, Article 5, section 64441 et seq. This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect.

13. Sediment

The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect the water for beneficial uses.

14. Settleable Materials

Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or that adversely affects the water for beneficial uses. The concentration of settleable materials shall not be raised by more than 0.1 milliliter per liter.

15. Suspended Materials

- i. Waters shall not contain suspended materials in concentrations that cause nuisance or that adversely affect the water for beneficial uses.
- ii. The concentration of total suspended materials shall not be altered to the extent that such alterations are discernible at the 10 percent significance level.

16. Taste and Odors

Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish or other edible products of aquatic origin, that cause nuisance, or that adversely affect the water for beneficial uses. The taste and odor shall not be altered.

17. Temperature

The natural receiving water temperature of all waters shall not be altered unless it can be demonstrated to the satisfaction of the Water Board that such an alteration in temperature does not adversely affect the water for beneficial uses.

18. Toxicity

- i. All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.
- ii. The survival of aquatic life in surface waters subjected to a waste discharge, or other controllable water quality factors, shall not be less

than that for the same water body in areas unaffected by the waste discharge, or when necessary, for other control water that is consistent with the requirements for "experimental water" as defined in the most recent edition of *Standard Methods for the Examination of Water and Wastewater* (American Public Health Association, et al.).

19. Turbidity

Waters shall be free of changes in turbidity that cause nuisance or adversely affect the water for beneficial uses. Increases in turbidity shall not exceed natural levels by more than 10 percent.

Limitations for Groundwaters of the Owens Valley Groundwater Basin

The discharge of waste to groundwaters shall not cause, or contribute to, a violation of the following water quality objectives for waters of the Owens Valley Groundwater Basin.

20. Coliform Bacteria

In groundwaters designated as MUN, the median concentration of coliform organisms over any seven-day period must be less than 1.1/100 milliliters.

21. Chemical Constituents

- i. Groundwaters designated as MUN must not contain concentrations of chemical constituent in excess of the maximum contaminant level (MCL) or secondary maximum contaminant level (SMCL) based upon drinking water standards specified in the provisions of Title 22, Division 4, Chapter 15 of the California Code of Regulations.
- ii. Waters designated as AGR must not contain concentration of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e., agricultural purposes).
- iii. Groundwaters must not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.

22. Radioactivity

Groundwaters designated as MUN must not contain concentrations of radionuclides in excess of limits specified by the more restrictive of the California Code of Regulations, Title 22, Division 4, Article 5, section 64441.

23. Taste and Odor

Groundwaters must not contain taste or odor-producing substances in concentrations that cause nuisance or that adversely affect beneficial uses. For groundwaters designated as MUN, at a minimum, concentrations must not exceed adopted secondary maximum contaminant levels specified in Title 22, Division 4, Chapter 15 of the California Code of Regulations.

C. Authorized Disposal Site

The discharge of process solution, tailings, or any other material associated with milling operations except to the Authorized Disposal Site is prohibited. The Authorized Disposal Site is set out in Finding 19 of this Order.

D. Design and Construction

1. The WMU (as specified in Finding 10, 11, 13, 14, 15, and 16 and the Revised November 2010 ROWD) shall comply with the requirements contained in Chapter 7, Subchapter 1, Title 27, CCR for mining waste management.
2. The engineered alternative upper and lower liners specified in Finding 11 shall have permeability no greater than 1×10^{-7} centimeters/second and shall be chemically compatible with the waste discharged to the WMU.
3. The Discharger shall utilize a replaceable or sacrificial flexible membrane liner, or equivalent method acceptable to the Water Board, over the exposed portions of the upper liner to prevent UV degradation.
4. The Discharger shall follow ASTM (American Society of Testing and Materials) standards, or their equivalent, for liner construction and quality control tests ("ASTM Standards and Other Specifications and Test Methods on the Quality Assurance of Landfill Liner Systems," 1994, ASTM, 1916 Race St., Philadelphia, PA), to verify liner integrity prior to discharge of any waste. Water Board staff may arrange for additional independent testing to verify liner integrity and seam sealing.
5. The one foot prepared soil subliner shall be smooth rolled to eliminate potential damage to the lower liner of the WMU and shall be compacted to a minimum of 90 percent of maximum dry density per ASTM D1557.
6. All facilities used in the milling process and for disposal of waste shall be adequately protected against washout, inundation, structural damage, or a significant reduction in efficiency resulting from a 100-year, 24-hour storm event.

7. The Discharger shall comply, at all times, with the engineering plans, specifications, and technical reports submitted with the complete Report of Waste Discharge and all requirements contained within these orders.

II. REQUIREMENTS AND PROHIBITIONS

A. General

1. The discharge of any type of nonhazardous waste to the Authorized Disposal Site, including garbage, paper, wood, scrap metal, abandoned equipment, and construction materials without prior approval by the Water Board is prohibited.
2. The Discharger shall not cause a release from the Authorized Disposal Site, as indicated by the appropriate statistical or non-statistical data analysis and verification procedures of the Monitoring and Reporting Program. A release is defined as waste materials detected outside the waste management unit.
3. If a release is detected that exceeds the trigger values of the concentration limits of the Monitoring and Reporting Program, the continued use of all or part of an Authorized Disposal Site may be prohibited by the Water Board, until such time as the release is corrected and there is no longer a threat to water quality caused by the release.
4. The Discharger shall be prepared to correct any release from an Authorized Disposal Site, including, but not limited to, shutting off all or part of any related processing facilities; rinsing and neutralizing the affected area; removing partially leached ore and any soil affected; repairing and/or replacing all or part of a leaking liner; and any other corrective measures required to mitigate a potential threat to water quality caused by the release.
5. All chemical and petroleum product storage tanks on site will be constructed with secondary containment structures and/or features.
6. All hazardous material containers shall be properly secured in a storage facility that is not susceptible to the elements or accessible to the public.
7. The Discharger shall use methods approved by the Department of Fish and Game to prevent wildlife exposure to any substances that may prove to be deleterious to wildlife. The Discharger shall grant access to Department of Fish and Game personnel to inspect the Facility for compliance with this general requirement.

B. Stormwater Discharges

Waste in discharges of storm water must be reduced or prevented to achieve the best practicable treatment level using controls, structures, and management practices. The Applicant shall file a Notice of Intent and comply with State Water Board's *Waste Discharge Requirements for Discharges of Storm Water Discharges Associated With Construction Activity, General Permit No. CAS00002* and *Waste Discharge Requirements For Discharges of Storm Water Associated With Industrial Activities, General Permit No. CAS00001* and all subsequent revisions and amendments.

These requirements do not preclude the Applicant from requirements imposed by municipalities, counties, drainage districts, and other local agencies regarding discharges of storm water to separate storm sewer systems or other water, conveyances and water bodies under their jurisdiction.

C. Detection Monitoring Program

The Discharger shall maintain a Detection Monitoring Program pursuant to section 20385(a) (1), Title 27, California Code of Regulations.

D. Evaluation Monitoring Program

The Discharger shall establish an Evaluation Monitoring Program whenever there is evidence of a release from any portion of the Facility, including the Authorized Disposal Site, pursuant to section 20420(k)(5) and 20425, Title 27, California Code of Regulations.

E. Corrective Action Program

The Discharger shall institute a Corrective Action Program when required pursuant to section 20385(a) (4), Title 27, California Code of Regulations.

III. WATER QUALITY MONITORING AND RESPONSE PROGRAMS

A. Water Quality Protection Standard

1. The Discharger shall propose to the Water Board any new constituents of concern proposed for discharge to the Facility at least 180 days before discharge. Before a new discharge commences, the Discharger shall estimate the concentrations for such constituents within the waste stream

and submit written statistical method(s) in order to detect a release of such constituents.

2. At any given time, the concentration limit for each monitoring parameter constituent of concern shall be equal to the background value of that constituent.
3. If the Discharger or Executive Officer determines that concentration limits were or are exceeded, the Discharger may immediately institute verification procedures upon such determination as specified below or submit and amended Report of Waste Discharge within 90 days of such determination in order to establish an evaluation monitoring program.
4. Monitoring wells MW-1, MW-2, and MW-4, or replacements, shall be used to define the Point of Compliance and monitor for a release from the Facility to ground water.
5. The lysimeter beneath the LCRS sump shall be used to monitor for a release from the Facility to the vadose zone.

B. Statistical Methods

1. The Discharger shall use statistical data analysis methods, acceptable to the Executive Officer, to evaluate detection monitoring data in order to determine statistically significant evidence of a release from the Facility.
2. The Discharger shall determine, within 45 days after completion of sampling, whether there is statistically significant evidence of a release from the Facility at each Monitoring Point. The analysis shall consider all monitoring parameters and constituents of concern. The Executive Officer may make an independent finding that there is statistically significant evidence of a release or physical evidence of a release.
3. If there is statistically significant evidence of a release, the Discharger shall immediately notify the Water Board by email and telephone. Subsequently, the Discharger may immediately initiate verification procedures as specified below whenever there is a determination by the Discharger or Executive Officer that there is a statistically significant evidence of a release.
4. If the Discharger does not use verification procedures to evaluate evidence of a release, then there is confirmation that there is a statistically significant evidence of a release. The Discharger is required to submit, within 90 days of such confirmation, an amended RoWD in order to establish evaluation monitoring or make a demonstration to the Water

Board that there is a source other than the Facility that caused evidence of a release.

C. Non-statistical Methods

The Discharger shall determine whether there is physical evidence of a threatened impact to water quality from the Facility. Significant physical evidence may include unexplained volumetric changes in the Facility, unexplained stress in biologic communities, unexplained changes in soil characteristics, visible signs of leachate migration, concentration of constituents of concern in soil gas which may pose a threat to groundwater quality, or any other change to the environment that could reasonably be expected to be the result of a threatened impact to groundwater quality from the Facility. If there is evidence of a release, the Discharger shall immediately notify the Water Board by email and telephone.

D. Verification Procedures

1. The Discharger shall immediately initiate verification procedures, as specified below, whenever there is a determination by the Discharger or Executive Officer that there is evidence of a release. If the Discharger declines the opportunity to conduct verification procedures, the Discharger shall submit a technical report, as described below (E), under the heading Technical Report Without Verification Procedures.
2. The verification procedure shall only be performed for the constituent(s) that has shown a statistically significant evidence of a release and shall be performed for those Monitoring Points at which a release is indicated.
3. If a determination is made that there is evidence of a release using the Prediction or Tolerance Interval Method, the Discharger may, within 30 days of such determination, update the Upper Tolerance Limit and reevaluate Point of Compliance data in order to verify evidence of a release from the facility. The Discharger must also collect three additional samples from the affected Monitoring Points and compare the results to the updated Upper Tolerance Limit.
4. The Discharger shall either conduct a composite retest using data from the initial sampling event with all data obtained from the resampling event or shall conduct a discrete retest in which only data obtained from the resampling event shall be analyzed to verify evidence of a release.
5. The Discharger shall submit to the Water Board the results of the verification procedure, as well as all concentration data collected for use in the retest, within seven days of the last laboratory analysis.

6. If the Discharger or Executive Officer verify evidence of a release, the Discharger is required to submit, within 90 days of such determination, a technical report pursuant to Section 13267(b) of the California Water Code. The report shall propose an evaluation monitoring program or demonstrate to the Water Board that there is a source other than the Facility that caused evidence of a release.

E. Technical Report Without Verification Procedures

If the Discharger chooses not to initiate verification procedures after there has been a determination made for evidence of a release, a technical report shall be submitted pursuant to Section 13267(b) of the California Water Code. The report shall propose an evaluation monitoring program or attempt to demonstrate that the release did not originate from the Facility.

III. PROVISIONS

A. Standard Provisions

The Discharger shall comply with the "Standard Provisions for Waste Discharge Requirements," dated September 1, 1994, as set out in Attachment F, which is made part of this Order.

B. Monitoring and Reporting

1. Pursuant to section 13267 of the California Water Code, the Discharger shall comply with and implement Monitoring and Reporting Program No R6V-2011-XXX.
2. Pursuant to the Monitoring and Reporting Program, the Discharger shall maintain a Quality Assurance/Quality Control Plan (QA/QC Plan) for sampling and analysis.
3. Pursuant to section 20405, Title 27, CCR, the COC shall not exceed their respective concentration limits at each compliance monitoring point. The concentration limits will be proposed by the Discharger based on assessment of background conditions and must be acceptable to the Executive Officer prior to the discharge of any waste.

4. Compliance Period

The compliance period is the number of years equal to the active life of the Unit plus the closure period. The estimated active life of the Facility is five years and the closure period is five years.

a. Release

Each time the concentration limits are exceeded (i.e., a release above the concentration limit is discovered), a Compliance Period for the affected WMU shall begin on the date the Executive Officer directs the Discharger to begin an Evaluation Monitoring Program.

b. Automatic Extension

The Discharger shall implement its Corrective Action Program in a timely manner. Pursuant to section 20410, Title 27, CCR, if the Discharger's Corrective Action Program has not achieved compliance by the scheduled end of the Compliance Period, the Compliance Period shall be automatically extended until the affected WMU has been in continuous compliance for a least three consecutive years.

C. Closure and Post-Closure Maintenance Plan (Closure Plan)

1. The WMU at the Facility shall be closed pursuant to a Final Closure Plan prepared in accordance with all applicable requirements of Title 27 and Title 14, CCR, submitted to and approved by the Water Board.

a. Closure Plan

The Closure Plan submitted with the Report of Waste Discharge shall be updated/modified by the Discharger if there is a substantial change in operations, or if requested by the Water Board. Each Annual Report shall confirm that the Closure Plan conforms to the existing operations at that time.

b. Final Closure Plan

The Final Closure Plan shall be submitted at least 180 days prior to beginning any partial or final closure activities. The Final Closure Plan shall be prepared by or under the supervision of either a California Registered Civil Engineer or a Certified Engineering Geologist.

2. The Discharger shall provide and maintain adequate financial assurance for closure and post-closure maintenance per Finding 23 of this Order.

D. Closure of WMU

Closure and post-closure maintenance of the WMU at the Facility shall be in compliance with section 22510, Title 27, CCR.

E. Financial Assurance

1. This Order requires that proof of financial assurances that complies with section 22510(f) Title 27, CCR is in a form acceptable to the Executive Officer and that updated cost estimates be submitted to the Water Board annually.
2. Before waste is discharged, the Discharger shall provide and maintain financial assurance in an amount and form acceptable to the Executive Officer to ensure that funds are available for closure and post-closure maintenance as required in section 22510(f), Title 27, CCR, for all constituents of concern, for all classified wastes, and for the WMU.
3. Before waste is discharged, the Discharger shall provide and maintain financial assurance in an amount and form acceptable to the Executive Officer to ensure that funds are available to complete corrective action for a reasonably foreseeable release, as required in section 20380, Title 27, CCR, for all constituents of concern, for all classified wastes, and for the WMU.
4. The Discharger shall submit evidence annually that adequate financial assurance pursuant to the requirements of this Order has been obtained or continued. Evidence may include a copy of the renewed financial instrument or a copy of the receipt for payment of the financial instrument. The Discharger shall adjust the amount of financial assurance as required to reflect changes in operation, regulatory requirements, the Closure Plan, or other unforeseen events with the Executive Officer's approval.

F. Other Provisions

1. The Discharger shall have in place adequate emergency response plans in order to clean up any spill or release of any waste at the Facility.
2. The discharger must ensure that storm water discharges and non-storm water discharges do not cause or contribute to an exceedance of any applicable water quality standards.

IV. TIME SCHEDULE

A. Closure and Post Closure Maintenance Plan (Closure Plan)

The Preliminary Closure Plan and cost estimates shall be updated and submitted to the Water Board annually, beginning on **November 15, 2011**. The Preliminary Closure Plan shall include an itemized and lump sum estimate of the costs of carrying out all actions necessary to close the Facility, to prepare detailed design specifications, to develop the Final Closure Plan, until reclamation activities are deemed completed pursuant to applicable section 20950, Title 27, California Code of Regulations.

B. Reasonably Foreseeable Release Plan

1. A Reasonably Foreseeable Release Plan shall be submitted to the Water Board by **November 15, 2011**, and shall include the information required by section 20420 through 20430, Title 27, California Code of Regulations.
2. An itemized and lump sum estimate of the costs of carrying out all actions necessary as set out in the Reasonably Foreseeable Release Plan, pursuant to applicable State Water Board promulgated requirements of section 22207, Title 27, CCR shall be submitted to the Water Board by **November 15, 2011**.
3. The Reasonably Foreseeable Release Plan and Lump Sum Estimate shall be updated and submitted to the Water Board annually, beginning on **November 15, 2012**.

C. Financial Assurance

1. A separate Financial Assurance Instrument(s) providing adequate funding, secured by other means than corporate guarantees, for the Preliminary Closure and Post-Closure Maintenance Lump Sum Estimate in V.A. of this Order shall be submitted to the Water Board, pursuant to section 22207, Title 27, CCR by **November 15, 2011**.
2. A separate Financial Assurance Instrument(s) providing adequate funding for the Reasonably Foreseeable Release Lump Sum Estimate in V.B.2. of this Order shall be submitted to the Water Board, pursuant to section 22212 Title 27, CCR by **November 15, 2011**.

3. Lump Sum Estimates shall be revised annually and submitted to the Water Board for approval as set out in V.A. and V.B. of this Order. Each Financial Assurance Instrument(s) shall be updated accordingly and submitted to the Water Board annually, beginning on **November 15, 2012.**

I, Harold J. Singer, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Lahontan Region, on July 13, 2011.

HAROLD J. SINGER
EXECUTIVE OFFICER

- Attachments:
- A. Facility Location
 - B. Site Layout
 - C. Flow Diagram of Mill Circuit
 - D. Overliner Drain System Layout
 - E. Leak Collection and Recovery System (LDCS) Design
 - F. Standard Provisions for Waste Discharge Requirements

Monitoring and Reporting Program No. R6V-2011-(**TENT**)
MRP-1 Location of Monitoring Points
MRP-2 General Provisions for Monitoring and Reporting