
Lahontan Regional Water Quality Control Board

July 22, 2014

Rocky Smith
Managing Director, Mountain Pass Operation
Molycorp Minerals, LLC
rocky.smith@molycorp.com

John Espinoza
HES Manager
Molycorp Minerals, LLC
john.espinoza@molycorp.com

Aren Hall
Environmental Specialist
Molycorp Minerals, LLC
Aren.hall@molycorp.com

Geoff Bedford, CEO
Molycorp Minerals, LLC
5619 Denver Tech Center Pkwy, Suite 1000
Greenwood Village, CO 80111

CLEANUP AND ABATEMENT ORDER NO. R6V-2014-0062

I am issuing the enclosed Cleanup and Abatement Order (CAO) to address past and ongoing unauthorized discharges of mine tailing waste to groundwater from historical operations at the Mountain Pass Mine Site in San Bernardino County. The CAO requires Molycorp Minerals, LLC, to, among other requirements:

- Submit a work plan describing additional actions to meet the existing interim groundwater extraction system standard if the standard cannot be met.
- Continue a groundwater monitoring and response program.
- Submit an Engineering Feasibility Study for corrective action to the Water Board by August 30, 2014.

Based on comments received on the proposed CAO, I have corrected some factual errors, and removed Chevron as an additional Discharger in this CAO. Because Molycorp Minerals, LLC has significantly improved its monitoring and reporting efforts and has voiced its willingness to openly communicate and collaborate, I am confident that compliance will be achieved with this CAO and that the unauthorized waste discharge will be appropriately addressed.

If you have questions or comments regarding this matter, please contact Christy Hunter at (760) 241-7373 or Patrice Copeland at (760) 241-7404.

Patty Z. Kouyoumdjian
PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

Enclosure: Cleanup and Abatement Order No. R6V-2014-0062

ecc: Lahontan Regional Water Quality Control Board Advisory Team
Lahontan Regional Water Quality Control Board Prosecution Team
Brian P. Bergeron, Chevron Environmental Management
Sheldon Byde, Kern River Gas Transmission Company
Shirley Bramham, Department of General Services
Amy Gaylord, Pillsbury Winthrop Shaw Pittman LLP
Robert Foley, Pillsbury Winthrop Shaw Pittman LLP

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

**CLEANUP AND ABATEMENT ORDER NO. R6V-2014-0062
WDID NO. 6B362098001**

**REQUIRING MOLYCORP MINERALS, LLC, TO CLEAN UP AND ABATE THE EFFECTS
OF WASTE DISCHARGES
TO WATERS OF THE STATE LOCATED IN THE
IVANPAH AND AMARGOSA HYDROLOGIC UNITS,
MOUNTAIN PASS MINE AND MILL SITE**

San Bernardino County

A. FINDINGS

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

1. Molycorp Minerals, LLC, a wholly-owned subsidiary of Molycorp Incorporated (Molycorp Inc.), owns and operates an open pit mine, mill, and ore processing facilities (Mine) for the economic extraction of lanthanide elements in Mountain Pass. Molycorp Minerals, LLC, has been actively remediating this Site since 2008. The Mine is located within an area (2,223 acres) of land that is in sections 11, 12, 13, 14, and 15, Township 16 North (T16N), Range 13 East (R13E), and sections 30 and 31, T16N, R14E, San Bernardino Baseline and Meridian, in San Bernardino County, California, hereafter referred as the "Site." The mailing address is: HC1, Box 224, Mountain Pass, CA 92366. For the purposes of this Cleanup and Abatement Order (Order), Molycorp Minerals, LLC, is hereafter referred to as the "Discharger."
2. Recent site ownership:
 - a. In 2005, Chevron Mining, an indirect subsidiary of Chevron Corporation, acquired Unocal Corporation (at the time, the indirect parent company of Molycorp Inc.). On August 31, 2007, Molycorp Inc. was merged into Chevron Mining.
 - b. From September 2007 to September 2008, Chevron Mining owned the Mine and Mill Site and operated the Mine from September 2007 to September 2008, when Molycorp Minerals, LLC purchased the Mine and Site.
3. This Order is issued to the Discharger based on provisions of California Water Code, sections 13304 and 13267, which authorize the Executive Officer of the Water Board to issue a Cleanup and Abatement Order where a discharger has caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the state and United States and to require said discharger to submit technical and monitoring reports.

4. Groundwaters in the Ivanpah Valley and Upper Kingston Valley Groundwater Basins and surface waters (including ephemeral springs) in the Ivanpah Hydrologic Unit that are tributary to Wheaton Wash have been polluted by waste discharges from unlined tailings ponds and unlined product storage ponds used in lanthanide mining dating back to the 1950s.
5. This Order requires the Discharger to clean up and abate groundwater contaminated by mining operations; to submit technical and monitoring reports; and to maintain adequate financial assurances.

Sources

6. Site investigations show that groundwater beneath the Site and adjacent areas are polluted with TDS, nitrate (as nitrogen), barium, strontium, radium, and uranium. Additionally, mercury and sodium lignin sulfonate are observed in groundwater at levels above background water quality conditions. Radium is also detected in some wells east of the Site, beneath Wheaton Wash, at concentrations that are above state maximum contaminant levels (MCLs) (2001, Site Investigation Report). The discharges have contaminated groundwater and comeled with groundwater contaminated by waste discharges from other locations at the Site, causing conditions of pollution in some areas. Contaminated and polluted groundwater is located beneath the Site (on-site) as well as outside of the Site boundaries (off-site [see Attachment]). Off-site, groundwater contamination is located primarily beneath federal lands under management of the U.S. Bureau of Land Management (BLM) and potentially beneath National Park Service (NPS) lands.
7. The ongoing (residual) and past waste discharges to groundwater from: (a) closed North Tailings Pond P-16, (b) the drainages that were used for product and waste storage, and (c) closed West Tailings Pond P-1, violate waste discharge requirements (WDRs) in Board Order Nos. 6-00-74 and R6V-2004-0042 for this Site and the *Water Quality Control Plan for the Lahontan Region* (Basin Plan).¹
8. Interim Corrective Actions
 - a. Pond P-16
 - i. Currently, discharges from Pond P-16 occur due to the settlement and drainage of free water from the historical tailings solids. To augment the tailings seepage collection system (initiated in 1994), an enhanced system of capture was installed in 2000 (extraction wells 2000-4RW and 2000-5RW). This is referred to as the Pond P-16 Interim Remedial Measures (IRM).

¹ The Basin Plan is available at:

http://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/references.shtml

- ii. Mathematical modeling was conducted to assess the effectiveness of the Pond P-16 collection system in 2002, which indicated that the extraction system was capturing greater than 90 percent of the discharges from Pond P-16. From 2005 through 2008, system effectiveness declined, falling below the 85 percent performance standard required by CAO No. 6-98-19A1. The Discharger performed an evaluation of the extraction system and submitted a report *Recovery Well Performance Evaluation*, dated December 1, 2008. That report provided an assessment of the Pond P-16 extraction system and the work that was performed to rehabilitate several extraction wells, resulting in an increased extraction rate that met the performance standard. Based on this assessment, the extraction system appears to have the capacity for greater groundwater capture.

b. Pond P-1

Discharge of tailings to Pond P-1 ceased in 1985. From 1985 through 1996, Pond P-1 received various mining wastes from other onsite storage ponds as they were clean closed. Final closure and post-closure monitoring was implemented in 2006. Interim corrective action for the leakage from Pond P-1 to groundwater was implemented and has been operating since 2001. In 2004, groundwater monitoring confirmed a release of mercury, a previously undetected constituent of concern, into groundwater. A subsequent site investigation revealed mercury was used in ore processing in the 1980s, and mercury-containing waste streams had been discharged to Pond P-1. The mercury plume has been determined to extend west outside of mine property, but no farther than monitoring well WD-1, about 4,400 feet west of the mine property boundary. Groundwater is extracted and in the past sent to the onsite evaporation ponds; however, within the past year, the Discharger has implemented wastewater recycling such that groundwater extracted from the Pond P-1 system of recovery wells is currently treated at the newly built onsite Water Treatment Plant for recycling and re-use onsite.

c. Pond P-20A

Soils contaminated with TDS, nitrate and strontium were removed as an interim remediation to abate the effects of groundwater pollution for the Pond P-20A hot spot during 2006. Groundwater monitoring has shown that this removal action was ineffective for groundwater pollution. Therefore, a groundwater extraction well was installed in 2012 as a pilot project to determine the feasibility of implementing source control at the Pond P-20A hot spot. Further evaluation of this system is expected in 2014.

9. This Order supersedes Cleanup and Abatement Order 6-98-19, issued March 25, 1998, and its amendment, Order 6-98-19A1, issued March 5, 2001, to Molycorp,

Inc., for the cleanup and abatement of TDS, strontium, nitrate, barium, sodium lignin sulfonate, gross alpha, gross beta, uranium, and radium that leaked into groundwater. This Order incorporates outstanding requirements from previous cleanup and abatement orders and sets new compliance dates. The Water Board reserves any and all rights in regards to enforcing Order 6-98-19 and its amendment.

10. The technical reports required by this Order are necessary to identify the corrective actions needed to prevent additional waste discharges to groundwater. Additionally, the technical reports are required to identify continued measures necessary to clean up the waste discharges cited above and to restore the beneficial uses of the groundwaters and surface waters.

B. BENEFICIAL USES AND WATER QUALITY OBJECTIVES

1. The Basin Plan establishes beneficial uses of water and water quality objectives to ensure the protection of those beneficial uses. The Site is located within the Ivanpah and Amargosa Hydrologic Units (HU No. 612.00 and 609.00 respectively), and the Ivanpah Valley and Upper Kingston Valley Groundwater Basins (DWR No. 6-30 and 6-22, respectively).
2. The Basin Plan identifies the present and potential beneficial uses of groundwater underlying the Site, and downgradient of the Site, to include domestic and municipal water supply (MUN), agricultural water supply (AGR), industrial water supply (IND), and freshwater replenishment (FRSH).
3. The present and potential beneficial uses of surface waters of the Ivanpah and Amargosa Hydrologic Units are set forth and defined in the Basin Plan under Minor Surface Waters and Minor Wetlands and include the following: municipal water supply (MUN); agricultural water supply (AGR); groundwater recharge (GWR); freshwater replenishment (FRSH); water contact recreation (REC-1); non-contact water recreation (REC-2); commercial and sport fishing (COMM); warm freshwater habitat (WARM); cold freshwater habitat (COLD); wildlife habitat (WILD); rare, threatened, or endangered species (RARE); water quality enhancement (WQE); and flood peak attenuation/flood water storage (FLD).

THEREFORE, IT IS HEREBY ORDERED that, pursuant to California Water Code, sections 13267 and 13304, the Discharger shall **clean up and abate** the discharges and threatened discharges in violation of waste discharge requirements in Board Orders 6-00-74 and R6V-2004-0042 and the Basin Plan, and shall comply with the provisions of this Order in accordance with the following schedule:

1. **Interim Remediation Performance Measures.** The Discharger shall capture at least 85 percent of the leakage from Pond P-16 during interim remediation. If the existing interim

groundwater extraction system cannot meet the 85 percent standard as evaluated annually in the Interim Remediation Report submitted to the Water Board every March 30th, the Discharger must include a work plan for the Executive Officer's approval describing additional interim corrective action/s that will be implemented to meet the standard. The Interim Remediation Work Plan shall include a schedule for constructing and operating any additional facilities to meet the standard. After the Executive Officer approves the work plan, the Discharger shall implement the work plan.

2. **Quarterly Monitoring and Response Program.** The Discharger shall continue to implement the groundwater monitoring and response program (described in the revised Monitoring and Reporting Program dated May 13, 2009) to adequately monitor groundwater contamination and the effectiveness of interim corrective actions. The Discharger shall submit quarterly reports on April 30, July 30, October 30, and January 30 of every year describing the effectiveness of their response program. The Discharger shall submit annual reports on March 30 of every year summarizing the previous three year's monitoring results. The quarterly reports shall include the following information:
 - a. Monthly flow monitoring data for each groundwater extraction well and infiltration trench system that are part of the Pond P-16 Corrective Action System;
 - b. Quarterly groundwater elevation measurements for each monitoring point listed in the monitoring plan;
 - c. Graphs of groundwater elevations versus time for each monitoring point listed in the monitoring plan;
 - d. Maps showing locations of monitoring wells, contaminant iso-contour lines, groundwater flow direction and groundwater gradient.
 - e. Sampling analyses results for each well included in the monitoring plan for constituents of concern; and,
 - f. Time series graphs of constituents of concern.
3. **Feasibility Study Report.** By **August 30, 2014**, the Discharger shall submit a Feasibility Study Report that assesses remediation strategies implemented at or proposed for groundwater and surface contamination both onsite and offsite. The Feasibility Study Report shall include the following:
 - a. Updated 2002 groundwater modeling results.
 - b. For those remediation strategies that have been implemented throughout the Site, describe the effectiveness of each remediation strategy compared to expected or modeled effectiveness.

- c. Estimated cleanup times and costs for each remediation strategy to achieve background concentrations.
 - d. Preferred remediation strategy for the onsite and offsite areas to achieve background levels of water quality.
4. **Financial Assurance Report.** By **August 30, 2014**, the Discharger shall submit a Financial Assurance Report that includes up-to-date cost estimates for corrective actions associated with all known and reasonably foreseeable releases as described in California Code of Regulations, title 27, section 20380. The report shall describe any assumptions made in determining the cost estimates, and whether the current financial mechanisms are adequate to cover these costs. The report shall be prepared by or under the supervision of either a California registered professional engineer or professional geologist.
 5. **Signatory Requirements.** All reports required under this Order shall be signed and certified by the Discharger, or a duly authorized representative of the Discharger, and submitted to Water Board staff. A person is a duly authorized representative only if: (a) the authorization is made in writing by the Discharger, and (b) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)
 6. **Certification.** Include the following signed certification with all reports submitted pursuant to this Order:

I certify under penalty of perjury under the laws of the State of California that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

7. **Report Submittals.** All technical reports required under this Order shall be submitted to:

California Regional Water Quality Control Board – Lahontan Region
14440 Civic Drive, Suite 200
Victorville, CA 92392

8. **Cost Recovery.** Pursuant to Water Code, section 13304, the Water Board is entitled to, and may seek, reimbursement for all reasonable costs actually incurred by the Water Board to investigate unauthorized discharges of wastes and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial actions required by this Order.
9. **California Environmental Quality Act (CEQA) Compliance.** Issuance of this Order is an enforcement action taken by a regulatory agency and is exempt from the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code, section 21000 et seq.), pursuant to California Code of Regulations, Chapter 3, title 14, sections 155308 and 15321, subdivision (a) (2). This Order does not contain any proposed physical changes to the environment. It is premature to speculate whether any work plan submitted would require any physical alteration to the natural world. If implementation of any work plan subject to this Order may result in significant adverse physical impacts to the environment that may need to be evaluated under CEQA, the appropriate lead agency will address CEQA requirements prior to the Discharger implementing the work plan.
10. **Requesting Administrative Review by the State Water Resources Control Board (State Water Board).** Any person aggrieved by an action of the Regional Water Board that is subject to review as set forth in the Water Code, section 13320, subdivision (a), may petition the State Water Board to review the action. Any petition must be made in accordance with the Water Code, section 13320, and the California Code of Regulations, title 23, section 2050 and following. The State Water Board must receive the petition within 30 days of the date the action was taken, except that if the thirtieth day following the date the action was taken falls on a Saturday, Sunday, or state holiday, then the State Water Board must receive the petition by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the internet at http://www.waterboards.ca.gov/public_notices/petitions/water_quality/index.shtml or will be provided upon request.
11. **Enforcement.** Failure to comply with the terms or conditions of this Order may result in additional enforcement action, which may include pursuing administrative civil liability pursuant to Water Code, sections 13268, 13350, and/or 13385, or referral to the Attorney General of the State of California. The Water Board reserves its right to take any enforcement action authorized by law.
12. **No Limitation of Water Board Authority.** This Order in no way limits the authority of this Water Board to institute additional enforcement actions or to require additional investigation and cleanup of the site consistent with the Water Code. This Order may be revised as additional information becomes available.

Molycorp Minerals LLC
Mine and Mill Site
San Bernardino County

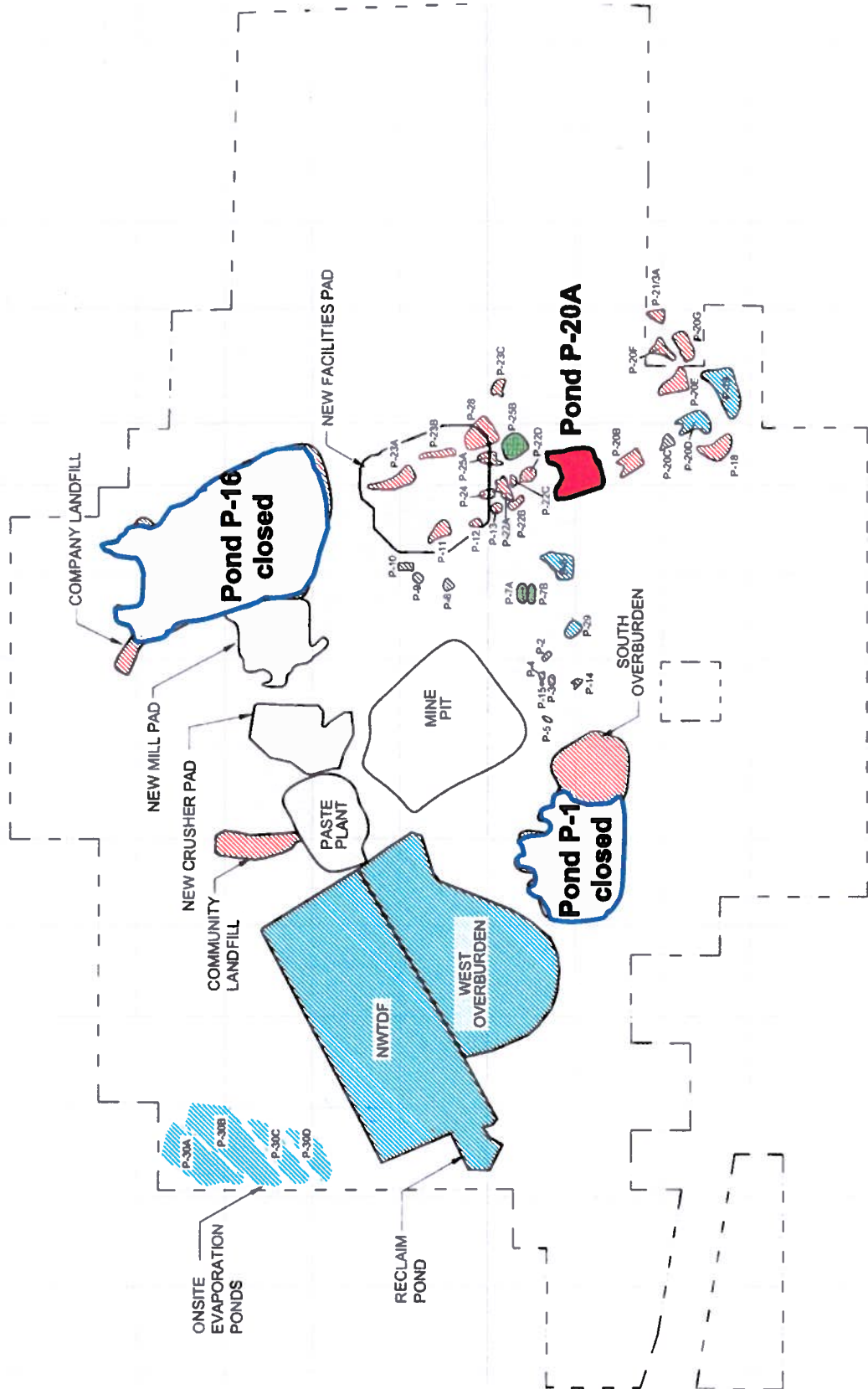
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CLEANUP AND ABATEMENT ORDER
NO. R6V-2014-0062
WDID NO. 6B362098001

Ordered by: Patty Z. Kouyoumdjian
PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

Dated: July 22, 2014

Attachment: Mountain Pass Mine Site – Waste Units



PROJECT: MOLYCORP MINERALS, LLC
FACILITY: MOUNTAIN PASS MINE