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**Lahontan Regional Water Quality Control Board**

November 7, 2012

WDID No. 6B154520005

TO: ATTACHED MAILING LIST

**TENTATIVE RESCISSION WASTE DISCHARGE REQUIREMENTS FOR BILLITON MINERALS USA AND SHELL OIL COMPANY, STANDARD HILL PROJECT, KERN COUNTY**

Enclosed are tentative Waste Discharge Requirements for the above subject. The California Regional Water Quality Control Board requests that you review the enclosed documents and provide us with your written comments no later than **December 8, 2012**. Comments received after that date cannot be given full consideration in preparation of the recommended Board Order to be presented to the Regional Board for adoption at the meeting scheduled for **January 16 and 17, 2013**.

You can review the agenda 10 days before the meeting on our web site at: [www.waterboards.ca.gov/lahontan](http://www.waterboards.ca.gov/lahontan) and click on agenda. If you need further information regarding this meeting, please contact our office at (760) 241-6583.

If you need further information regarding this tentative Order, please contact Christy Hunter at (760) 241-7373.

Sincerely,



Rebecca Phillips  
Office Technician

Enclosures (2): Tentative Board Order  
Comment form

cc: Mailing List

**Notice**  
**Submittal of Written Material for Regional Board Consideration**

In order to ensure that the State of California Lahontan Regional Water Quality Control Board has the opportunity to fully study and consider written material, it is necessary to submit it at least ten (10) days before the Regional Board Meeting. Pursuant to Title 23 of the California Code of Regulations, Section 648.2, the Regional Board may refuse to admit written testimony into evidence unless the proponent can demonstrate why he or she was unable to submit the material on time or that compliance with the deadline would otherwise create a hardship. If any other party demonstrates prejudice resulting from admission of the written testimony, the Regional Board may refuse to admit it.

COMPLETE FORM AND RETURN

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To: CA Regional Water Quality Control Board, Lahontan Region  
14440 Civic Drive, Suite 200  
Victorville, CA 92392  
ATTN: Christy Hunter

**TENTATIVE RESCISSION OF WASTE DISCHARGE REQUIREMENTS FOR  
BILLITON MINERALS USA AND SHELL OIL COMPANY, STANDARD HILL  
PROJECT, KERN COUNTY**

\_\_\_\_\_ We concur with proposed requirements

\_\_\_\_\_ We concur; comments attached

\_\_\_\_\_ We do not concur; comments attached

\_\_\_\_\_ (Sign)

\_\_\_\_\_ (Type or print name)

\_\_\_\_\_ (Organization)

\_\_\_\_\_ (Address)

\_\_\_\_\_ (City and State)

\_\_\_\_\_ (Telephone)

Tim Franceschini, Environmental Eng  
Shell Exploration & Production– Americas  
C438-C  
150C N. Dairy Ashford Road  
Houston, TX 77079

CAL EPA - DTSC  
8800 CAL CENTER DRIVE  
SACRAMENTO CA 95826-3200

Clorissa Utley  
Shell Exploration & Production  
Email only  
([clorissa.utley@shell.com](mailto:clorissa.utley@shell.com))

LESLIE GRAVES, LAND DISPOSAL  
PROGRAM  
SWRCB - CWP  
1001 I ST, 16<sup>TH</sup> FL  
SACRAMENTO CA 95812-0100

Richard Lloyd  
Kern County Engineering & Survey  
Services Dept  
2700 "M" Street, Suite 570  
Bakersfield, CA 93301  
([richardl@co.kern.ca.us](mailto:richardl@co.kern.ca.us))

CA EPA DTSC  
1011 N GRANDVIEW AVENUE  
GLENDALE CA 91201

Fred W. Blickle, P.E., V.P.  
Conestoga-Rovers & Associates (CRA)  
Email only  
([fblickle@croworld.com](mailto:fblickle@croworld.com))

CHRISTY HUNTER  
ENGINEERING GEOLOGIST  
CRWQCB – REGION 6  
14440 CIVIC DR, SUITE 200  
VICTORVILLE CA 92392

Randall Porter, Geologist  
Bureau of Land Management  
– Ridgecrest Resource Office  
300 S. Richmond Rd  
Ridgecrest CA 93555  
([rporter@BLM.gov](mailto:rporter@BLM.gov))

PATRICE COPELAND  
SENIOR ENGINEERING GEOLOGIST  
CRWQCB – REGION 6  
14440 CIVIC DR, SUITE 200  
VICTORVILLE CA 92392

BOB PIEROTTI  
STATE DEPT OF WATER RESOURCES  
770 FAIRMONT AVENUE  
GLENDALE CA 91203-1035

JAMES POMPY, ENVIR PROG MGR  
DEPT OF CONSERVATION REC. UNIT  
801 K STREET MS 09-06  
SACRAMENTO CA 95814

CURT TAUCHER REGIONAL MANAGER  
DEPT OF FISH AND GAME  
4665 LAMPSON AVE., STE J  
LOS ALAMITOS, CA 90720

GEORGE NOKES REGIONAL  
MANAGER  
STATE DEPT OF FISH AND GAME  
1234 EAST SHAW AVENUE  
FRESNO CA 93710

SCOTT DENNEY  
KERN COUNTY PLANNING DEPT  
2700 M STREET STE 100  
BAKERSFIELD CA 93301

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

**BOARD ORDER NO. R6V-2013-[TENTATIVE]  
WDID NO. 6B154520005**

**RESCISSION OF WASTE DISCHARGE REQUIREMENTS  
BOARD ORDER NO. 6-00-19  
FOR**

**BILLITON MINERALS U.S.A. AND SHELL OIL COMPANY  
STANDARD HILL PROJECT**

\_\_\_\_\_Kern County\_\_\_\_\_

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

1. Discharger

Billiton Minerals U.S.A., a Division of Shell Oil Company, owns and formerly operated the heap leaching facility called the Standard Hill Project. For the purposes of this Water Board Order (Order), Billiton Minerals U.S.A., (Owner/Operator) is referred to as the "Discharger." The Discharger has requested that Waste Discharge Requirements, Board Order No. No. 6-00-19 be rescinded based on post-closure groundwater monitoring data, soil leach test results, and vadose zone transport modeling. Closure activities have been documented in previous annual progress reports during closure activities of the lined containment units.

2. Facility Location

The Facility is located approximately three miles south of the town of Mojave, in Kern County, in the SW corner of Section 28 and the SE part of Section 29, T11N, R12W, San Bernardino Baseline & Meridian, as shown on the Vicinity Map, Attachment "A," which is made part of this Order.

3. Facility

The Standard Hill Project is a former heap leach operation that applied a cyanide solution to ore on a lined pad, to extract gold. During leaching operations, the Standard Hill Project Facility consisted of a lined Leach Pad (Leach Pad), a lined pregnant solution pond (Pregnant Pond), a lined barren solution pond (Barren Pond) and a lined emergency storage pond (Overflow Pond). The lined Leach Pad area consists of the original "test pad" and the "expansion pad," which together form a single Leach Pad that is 15.3 acres in size. The Leach Pad is double lined, with a 40-mil thick lower secondary High Density Polyethylene

(HDPE) liner on the test pad and expansion pad areas, and a 40-mil thick upper primary HDPE liner on the test pad area and 60-mil thick upper primary synthetic liner on the expansion pad area. A blanket seepage detection system is installed between the synthetic liners and drains. Each of the three lined surface impoundments were double-lined with two 40-mil thick HDPE. A blanket seepage detection system was installed between the synthetic liners. For the purpose of this Order, the Leach Pad and the former surface impoundments (Pregnant Pond, Barren Pond and Overflow Pond) are referred to as the "Facility," which is shown in the Facility Map (Attachment "B"), which is made part of this Order. During mining operations, the Standard Hill Mine Project included the mined area (pits), Group B mining waste in the lined facilities (Leach Pad, and Ponds), waste dumps (overburden rock), and plant facility areas. The waste dumps are not regulated by Waste Discharge Requirements. The mined area and waste dumps are located on both public and private lands. Reclamation oversight for these areas are administered by the Bureau of Land Management (public) and Kern County (private), lead agency under the State Mining and Reclamation Act.

The Leach Pad and overlying mining waste (Heap Waste) has been closed in place. Heap Waste slopes have been graded so that they have a two (horizontal) to one (vertical) ratio (2:1) or less. The Heap Waste surface has been hydroseeded, and erosion-control measures have stabilized the Heap Waste slopes. The Heap Waste is 92 feet above ground surface and covers an area about 15.5 acres. The three lined surface impoundments (Ponds) have been clean closed in accordance with approved work plans.

4. Waste Discharge Requirements

The Water Board previously adopted Revised Waste Discharge Requirements (WDRs) for the Facility under Board Order No. 6-96-157, on November 8, 1996, to document the cyanide detoxification status of the Heap Waste on the Leach Pad and to comply with administrative requirements to update the WDRs. WDRs adopted on March 9, 2000, under Board Order 6-00-19, specified closure requirements for the Leach Pad and lined surface impoundments. That Board Order required: (1) closure activities be performed in accordance with the approved closure plan, and reclamation activities be performed in accordance with the approved reclamation plan; (2) post-closure monitoring and maintenance activities; and, (3) data collection during the post-closure maintenance period to confirm that the remaining waste materials no longer pose a threat to groundwater quality.

5. Reasons for Action

On February 8, 2010, and April 30, 2012, the Discharger submitted a Final Closure Document Report and Closure Report Addendum, respectively. Based

on site conditions and depth to groundwater, the Heap Waste does not pose a threat to water quality. Groundwater monitoring data indicate past operations have not impacted water quality. Information to support this finding comprise 25 years of groundwater monitoring that includes 6 years of post-closure monitoring, soil leach tests results, and vadose zone transport modeling. The Water Board finds that the Heap Waste no longer poses a threat to water quality and it is appropriate to rescind Board Order No. 6-00-19 for the Standard Hill Project.

6. Reclamation, Closure, and Post Closure Activities

Ore on the Leach Pad has been detoxified of cyanide to concentrations below numerical limits previously established by the Water Board in Board Order No. 6-00-19 for Soluble Weak Acid Dissociable (WAD) Cyanide, Soluble Total Cyanide, and Total Cyanide. The Discharger completed closure activities of this Facility in accordance with the Closure Plan (approved in Order No. 6-00-19). The Discharger has conducted post-closure monitoring of the Facility since 2006. Reclamation of the Facility, mined area, and waste dumps were completed in phases, beginning in 2001 and ending in 2006, in accordance with the reclamation plan as approved by Kern County Planning Department and under a Surface Mining and Reclamation Act (SMARA) Permit. The Discharger has complied with Waste Discharge Requirements for closure and post closure, Section I., Discharge Specifications, in Board Order No. 6-00-19. Reclamation of the Heap Waste has been completed in accordance with the reclamation plan.

7. Unsaturated Zone Modeling

The Discharger submitted a *Closure Report Addendum-Standard Hill Mine Site, Mojave, California*, prepared by Conestoga-Rovers & Associates, dated April 2012, which presents modeling results of the dissolved metals in the Heap Waste to help determine if the waste pose a threat to groundwater due to surface water infiltration. The evaluation utilized widely recognized vadose zone transport modeling software<sup>1</sup> and conservative metal adsorption coefficients<sup>2</sup> to estimate the fate and transport of dissolved metals in soil pore water. The model predicts that dissolved metals in pore liquid within the Heap Waste will be attenuated in the unsaturated zone to very low levels below MCLs and does not pose a threat to water quality.

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<sup>1</sup> U.S. EPA VLEACH, a One-Dimensional Finite Difference Vadose Zone Leaching Model (Ravi and Johnson, 1997; Harter, 2006; and Stacy et.al., 2007) that describes the vertical movement of contaminants through the vadose zone soil profile.

<sup>2</sup> Metal speciation, solubility equilibria, and sorption were modeled using Visual MINTEQ, which was originally coded by the USEPA called MINTEQA2. Visual MINTEQ is an equilibrium speciation model that can be used to calculate the equilibrium composition of dilute aqueous solutions in the laboratory or in natural aqueous systems.

8. California Environmental Quality Act (CEQA)

This action is being taken by the Water Board to rescind WDRs issued pursuant to the California Water Code, and as such, is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000 et seq.) in accordance with the California Code of Regulations (CCR), title 14, section 15321, subsection (a)(2).

9. Right to Petition

Any person aggrieved by this action of the Water Board may petition the State Water Board to review the action in accordance with California Water Code, section 13320, and CCR, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board 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](http://www.waterboards.ca.gov/public_notices/petitions/water_quality), or will be provided upon request.

10. Public Notification

The Water Board has notified the Discharger and interested agencies and persons of its intent to rescind WDRs for the Facility. The Water Board, in a public meeting, heard and considered all comments pertaining to the rescission of these WDRs.

**IT IS HEREBY ORDERED** that Board Order No. 6-00-19 be rescinded.

I, Patty Kouyoumdjian, Executive Officer, do hereby verify 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 January 16, 2013.

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PATTY Z. KOUYOUMDJIAN  
EXECUTIVE OFFICER

Attachment: A. Vicinity Map  
Attachment: B. Facility Map

Attachment A – Vicinity Map

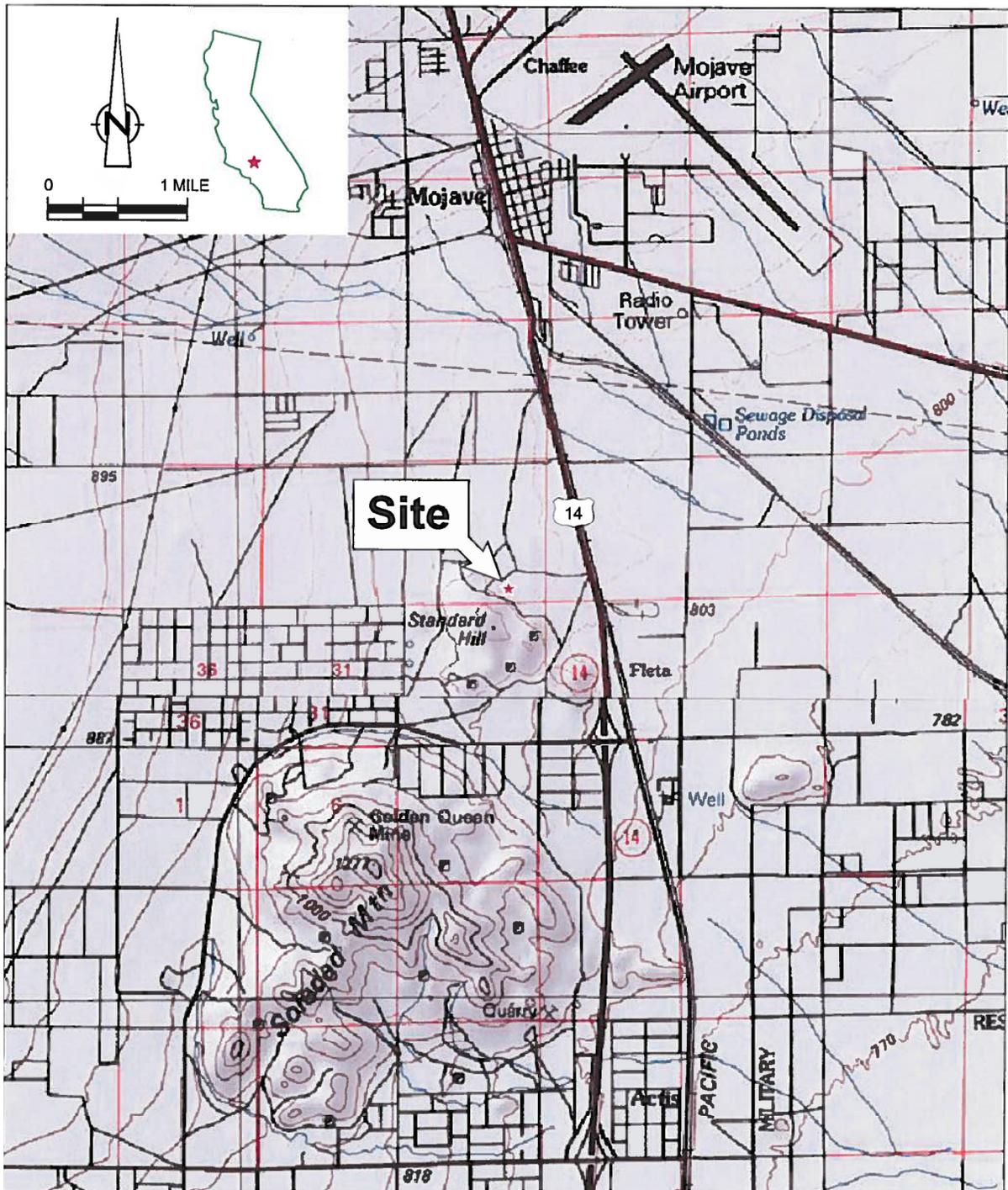


Figure 1  
VICINITY MAP  
SHELL EXPLORATION & PRODUCTION COMPANY  
STANDARD HILL MINE  
Mojave, California



Attachment B – Facility Map

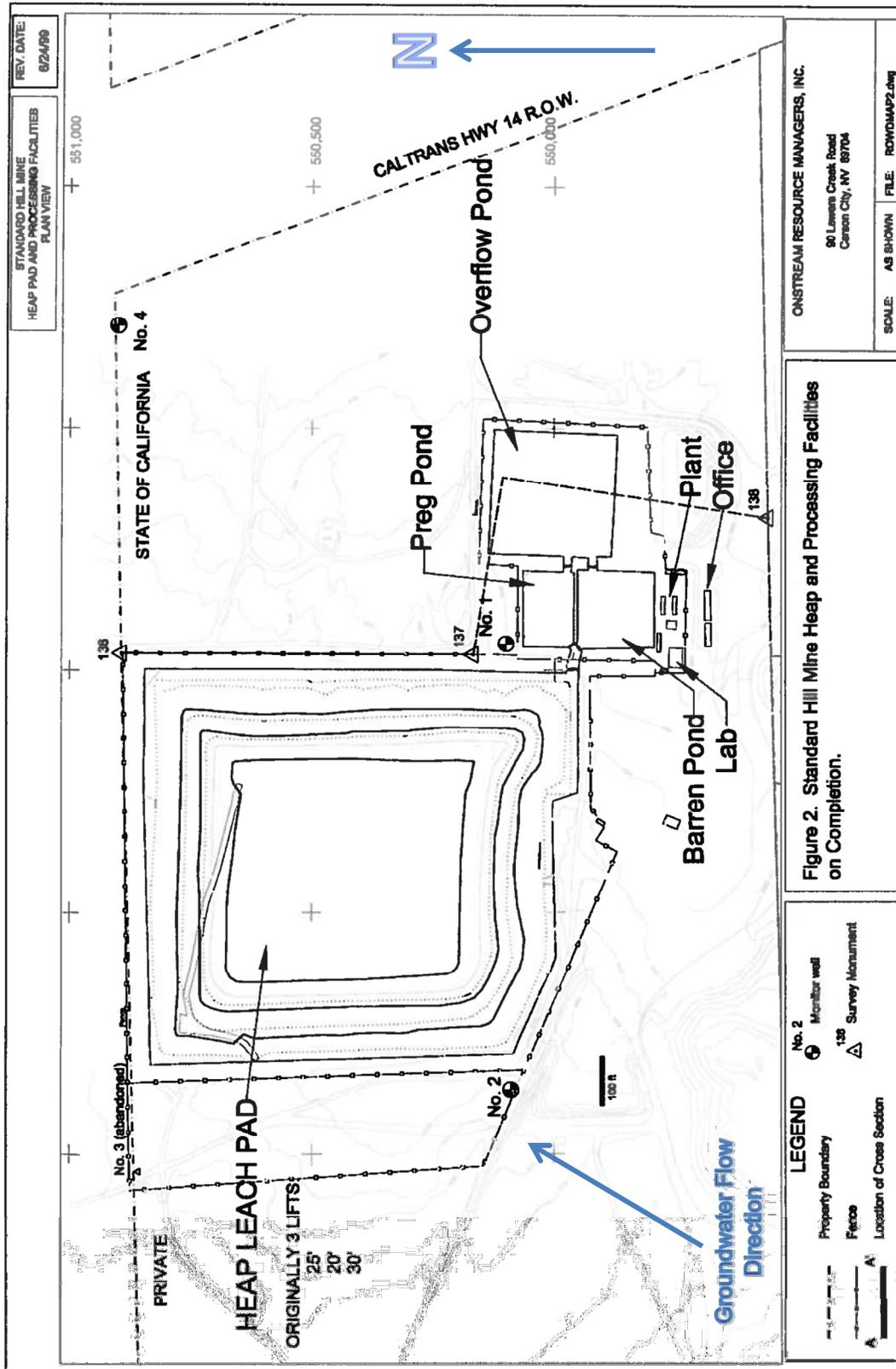


Figure 2. Standard Hill Mine Heap and Processing Facilities on Completion.

**LEGEND**

- Property Boundary
- Fence
- Location of Cross Section
- No. 2 Monitor well
- 138 Survey Monument

ONSTREAM RESOURCE MANAGERS, INC.  
 90 Lowers Creek Road  
 Carson City, NV 89704

SCALE: AS SHOWN FILE: ROWDMAP2.dwg

REV. DATE:  
 6/24/99

STANDARD HILL MINE  
 HEAP PAD AND PROCESSING FACILITIES  
 PLAN VIEW