

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER R5-2017-0710

FOR

HOMESTAKE MINING COMPANY OF CALIFORNIA
REED MINE AND UPPER DAVIS CREEK, YOLO COUNTY

This Order is issued to Homestake Mining Company of California (hereafter Homestake or Discharger) pursuant to Water Code section 13304, which authorizes the Central Valley Regional Water Quality Control Board (Central Valley Water Board or Water Board) to issue a Cleanup and Abatement Order (CAO), and Water Code section 13267, which authorizes the Water Board to require the submittal of technical reports.

The Executive Officer of the Central Valley Water Board finds, with respect to the Discharger's acts, or failure to act, the following:

1. Homestake owns and controls the Reed Mine and Upper Davis Creek area (Reed Mine or Site) upstream from the Davis Creek Reservoir in Yolo County. Homestake's property includes several legacy mercury mines with associated underground workings, mining waste piles, and the former Reed Mine processing area as shown on Attachment A which is made a part of this order. The Reed Mine District covers approximately 370 acres in Sections 23, 24, 25, and 26, Township 12 N, Range 5 W, Mount Diablo Base and Meridian, and consists of Assessor's Parcel Numbers 018-330-20 and 018-340-21.
2. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Board. This Order is designed to ensure compliance with the Basin Plan.
3. Surface water drainage is to Davis Creek and the Davis Creek Reservoir, which is tributary to Cache Creek and the Yolo Bypass. The beneficial uses of Cache Creek from Clear Lake to Yolo Bypass include municipal and domestic water supply (MUN), agricultural supply (AGR), industrial process and service supply (IND), recreation (REC), freshwater habitat (WARM and potential COLD), spawning (SPWN) and wildlife habitat (WILD).
4. Legacy mercury mines on the Site operated intermittently from 1870 to 1961 with total production of approximately 27,500 flasks (76 pounds of mercury per flask). Primary mercury mining and processing at the Site occurred under the ownership of A.H. Breed between 1870 and 1880 and produced about 10,000 flasks. In 1939, Bradley Mining Company purchased and consolidated the Andalusia, Fusiyaama, and California mines and operated them as the Reed Mine. Between 1940 and 1947, the Reed Mine was reportedly the largest producer of mercury in the Knoxville Mining District, with an output over

16,000 flasks.¹ In 1956, Cordero Mining Company dewatered underground workings and conducted exploration activities. Universal Silver Company leased the property and produced about 1,400 flasks of mercury in 1961.

5. In 1982, as part of the McLaughlin Mine land acquisition, Homestake purchased real property that includes the Reed Mine. In 1984, Homestake built the Davis Creek Reservoir (DCR) shown in the inset on the Attachment A to serve as a source of water for McLaughlin Mine, a nearby gold mine operated by Homestake from 1984 to 2002. Since 1984, Davis Creek Reservoir has substantially contained the movement of sediment eroded from the Reed Mine and Upper Davis Creek.
6. In 1988, Homestake purchased the mineral rights from Bradley Mining Company for the Reed Mine, but never conducted any mining operations.
7. Mining at the Site ended in 1961. Throughout the mining history of the Site, underground and open pit methods were used to develop the ore bodies. The ore was processed on the Site, and the ash and calcine tailings were disposed on the northeast bank of Davis Creek.
8. In about 1965, a concrete plug was constructed at the entrance of Lower Reed Mine Adit to stop drainage from the mine. The plug was only partially successful and mine drainage continued to seep into Davis Creek.
9. In 1987, Central Valley Water Board staff (Staff) inspected the Site and requested a remediation plan from Bradley Mining Company, the owner of mineral rights at the time.
10. In 1988, Homestake purchased mineral rights from Bradley Mining Company and started remedial activities at the Reed Mine, which were completed in 1989. Cleanup work included grouting of the concrete seal in the Lower Reed Mine Adit to contain drainage, stabilization of calcine deposits, and removal of soil and ash piles from the mill site. Grouting of the concrete seal in the Lower Reed Mine adit was performed again in 1993 and 1998. Crushing and milling equipment, mercury condensing coils, furnace, fire damaged buildings, and other equipment associated with mining activities remain in the former Reed Mine processing area shown on Attachment A.
11. Despite Homestake's 1989 remediation work, exposed mercury mining wastes continue to be eroded from the Site and discharged to Davis Creek Reservoir and threaten the beneficial uses of these surface waters. Additionally, some remaining mining waste poses a threat to the environment and to human health through discharge to Upper Davis Creek.
12. U.S. Environmental Protection Agency (EPA) conducted a Preliminary Assessment of the Site in 1988, followed by a Site Investigation in 1993, and a further Preliminary Assessment in 2014. In 1988, EPA identified Reed Mine area as a potentially hazardous site, but concluded that no further action was necessary because the fish were not

¹ US Bureau of Mines Information Circular 8252.

harvested and the potential for contaminant migration via air, onsite and groundwater routes appeared minimal. In 1993, the EPA remedial site investigation concluded that the site did not qualify for further remedial site assessment under CERCLA. In 2014, EPA concluded that the Site qualified for further assessment under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), but because Central Valley Regional Water Board already oversaw assessment and remediation of the Site at the time, EPA decided not to pursue further assessment as long as “the responsible parties continue to work cooperatively with the state to address the Site consistent with federal requirements and the National Contingency Plan (40 C.F.R. Part 300, Subpart E).”

13. This Order requires Homestake to prepare an evaluation of remedial alternatives/feasibility study to mitigate the adverse impacts caused by the mining wastes in the Upper Davis Creek drainage, select a remedial alternative, and remediate the mining wastes at the Site to reduce the threat of further erosion and impact to surface waters and the environment.

BACKGROUND

14. On 5 September 2012, a draft Water Code section 13267 Order (Draft 13267 Order) was sent to Homestake requiring it to submit a Remedial Investigation and Feasibility Study/Remedial Options Evaluation Report (RI/FS) for Cache Creek and Davis Creek to describe the quantity and characteristics of the mercury-laden mine sediment that has been deposited in the study area.
15. In November 2013, Homestake submitted the *Draft Remedial Investigation Report for Sediment in Davis and Cache Creeks from Davis Creek to Bear Creek (Draft RI Report)*. To address Staff concerns over the *Draft RI Report*, the parties met on April 10, 2014, and the Mining Unit staff committed to re-review previous characterization data and revisit the Site with Homestake and their consultants.
16. On 20 June 2014, Water Board Staff completed an inspection of the Reed Mine areas accompanied by Homestake representatives. During the Site visit, Staff observed multiple instances of exposed mining waste from historic mining activities in and along Davis Creek near the Reed Mine processing area.
17. After the 20 June 2014 Site visit and a thorough review of the *Draft RI Report*, Staff concluded that additional characterization work was needed to determine if the Reed Mine is continuing to contribute mercury and/or other constituents of concern to Upper Davis Creek and Davis Creek Reservoir. In a 25 August 2014 letter, Staff requested that Homestake prepare an amended work plan to collect the data needed to fulfill the Draft 13267 Order requirements with respect to the Upper Davis Creek, assessing the extent of historic mining waste containing mercury that may threaten to erode into Davis Creek from historic mining operations at the Reed Mine areas upstream from the Davis Creek

Reservoir. Staff 25 August 2014 letter identified actions required of Homestake by this Order.

18. In February 2015, Homestake submitted a *Final Site Characterization Workplan for Reed Mine and Upper Davis Creek (Final Workplan)* to assess the extent of mining waste containing mercury that may threaten to erode into Davis Creek and Davis Creek Reservoir from historic mining operations at the Reed Mine. Staff concurred with the proposed *Final Workplan* activities in a 12 March 2015 letter to Homestake.
19. Homestake completed the Site characterization work as specified in *Final Workplan* and on 24 July 2017 submitted the *Final Site Characterization Report for Reed Mine and Upper Davis Creek (Site Characterization Report)* which was prepared by Burleson Consulting Inc. (Burleson). Burleson characterized and classified the mining waste and provided preliminary recommendations for remedial activities. In a letter to Homestake dated 28 August 2017, Staff concurred with the findings of *Site Characterization Report*.

BASIS FOR CLEANUP AND ABATEMENT ORDER

20. This Order provides a timeframe for the Discharger to propose and select remediation alternatives for mining waste, prepare remediation technical reports and construction quality assurance reports for remediation activities, obtain necessary permits, complete selected remediation alternatives, and propose post-remediation maintenance and monitoring plans for the Reed Mine.

REGULATORY CONSIDERATIONS

21. Water Code section 13304 subdivision (a) states, in relevant part:

Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board, clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts.

22. Water Code section 13267 subdivision (b) states, in relevant part:

In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region ... shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from

the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

The technical reports required by Water Code section 13267 and this CAO are necessary to evaluate compliance with this CAO, and to ensure the protection of water quality. The Discharger owns the facility that discharges waste subject to this CAO.

CEQA CONSIDERATIONS

23. Issuance of this Order is for the protection of natural resources and the environment, and to enforce the laws and regulations the Central Valley Water Board administers, and as such, is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.) in accordance with California Code of Regulations, title 14, sections 15307, 15308, and 15321.
24. This Order generally requires the Discharger to submit studies, plans, and reports in connection with the implementation of cleanup and abatement activities at the Site. Mere submittal of studies, plans, and reports is not subject to provisions of CEQA because submitting those documents will not cause a direct or indirect physical change in the environment and/or is an activity that cannot possibly have a significant effect on the environment. The Discharger has not yet proposed remedial activities, such activities have not been approved by the Central Valley Water Board, and possible associated environmental impacts are currently unknown. Any CEQA review at this time for those activities would be premature and speculative. If the Central Valley Water Board determines that implementation of any plan required by this Order will have a significant effect on the environment that is not otherwise exempt from CEQA, the Central Valley Water Board will conduct the necessary and appropriate environmental review prior to approval of the applicable plan. The Discharger will bear the costs, including the Central Valley Water Board's costs, of determining whether implementation of any plan required by this Order will have a significant effect on the environment and, if so, in preparing and handling any documents necessary for environmental review. If necessary, the Discharger and a consultant acceptable to the Central Valley Water Board shall enter into a memorandum of understanding with the Central Valley Water Board regarding such costs prior to undertaking any environmental review.

IT IS HEREBY ORDERED that, pursuant to Water Code sections 13304 and 13267, the Discharger shall cleanup and abate the Reed Mine mercury mining wastes to prevent further erosion and impact to surface waters in accordance with the scope and schedule set forth below:

1. Cleanup Schedule: The Discharger shall follow the compliance dates set forth in the following table.

<u>Item No.</u>	<u>Task</u>	<u>Compliance Date</u>
A.	Submit Evaluation of Remedial Options/Feasibility Study	30 April 2018
B.	Submit Remediation Design with Construction Drawings and Specifications and Construction Quality Assurance Plans	29 March 2019
C.	Complete Remediation Activities as Specified in Remediation Design	29 October 2021
D.	Submit Post-Remediation Construction Quality Assurance Report	31 January 2022
E.	Submit Final Post-Remediation Monitoring and Maintenance Plan	31 January 2022

2. Semi-annual Summary Reports: On a semi-annual basis, the Discharger shall submit to the Central Valley Water Board a Semi-annual Summary Report documenting its activities completed under the provisions of this Order to comply with the tasks listed above. The report shall be received by the Central Valley Water Board by 31 July and 31 January starting in July 2018 and shall describe:
 - a. Specific actions taken by or on behalf of the Discharger during the previous six months to comply with the tasks listed above and the status of ongoing activities;
 - b. Summary of actions expected to be undertaken during the upcoming six months; and
 - c. Any problems or anticipated problems in complying with this Order.
3. Extension Requests: If the Discharger is unable to perform any activity or submit any document in compliance with the schedule set forth herein, or in compliance with any work schedule submitted pursuant to this Order and approved by the Assistant Executive Officer, the Discharger may request, in writing, an extension of the time specified. The extension request shall include justification for the delay. Any extension request shall be

submitted as soon as a delay is recognized and prior to the compliance date. An extension may be granted by revision of this Order or by a letter from the Assistant Executive Officer.

4. As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all reports shall be prepared by, or under the supervision of, a California Registered Engineer or Professional Geologist and signed by the registered professional.
5. Any person signing a document submitted under this Order shall make the following certification:

“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my knowledge and on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”

If the Discharger fails to comply with the provisions of this Order, the Assistant Executive Officer may refer this matter to the Attorney General for judicial enforcement or may issue a complaint for administrative civil liability. Failure to comply with this Order may result in the assessment of administrative civil liability up to \$10,000 per violation per day, pursuant to the Water Code sections 13268, 13350, and/or 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, 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 or will be provided upon request.

This Order is effective upon the date of signature.

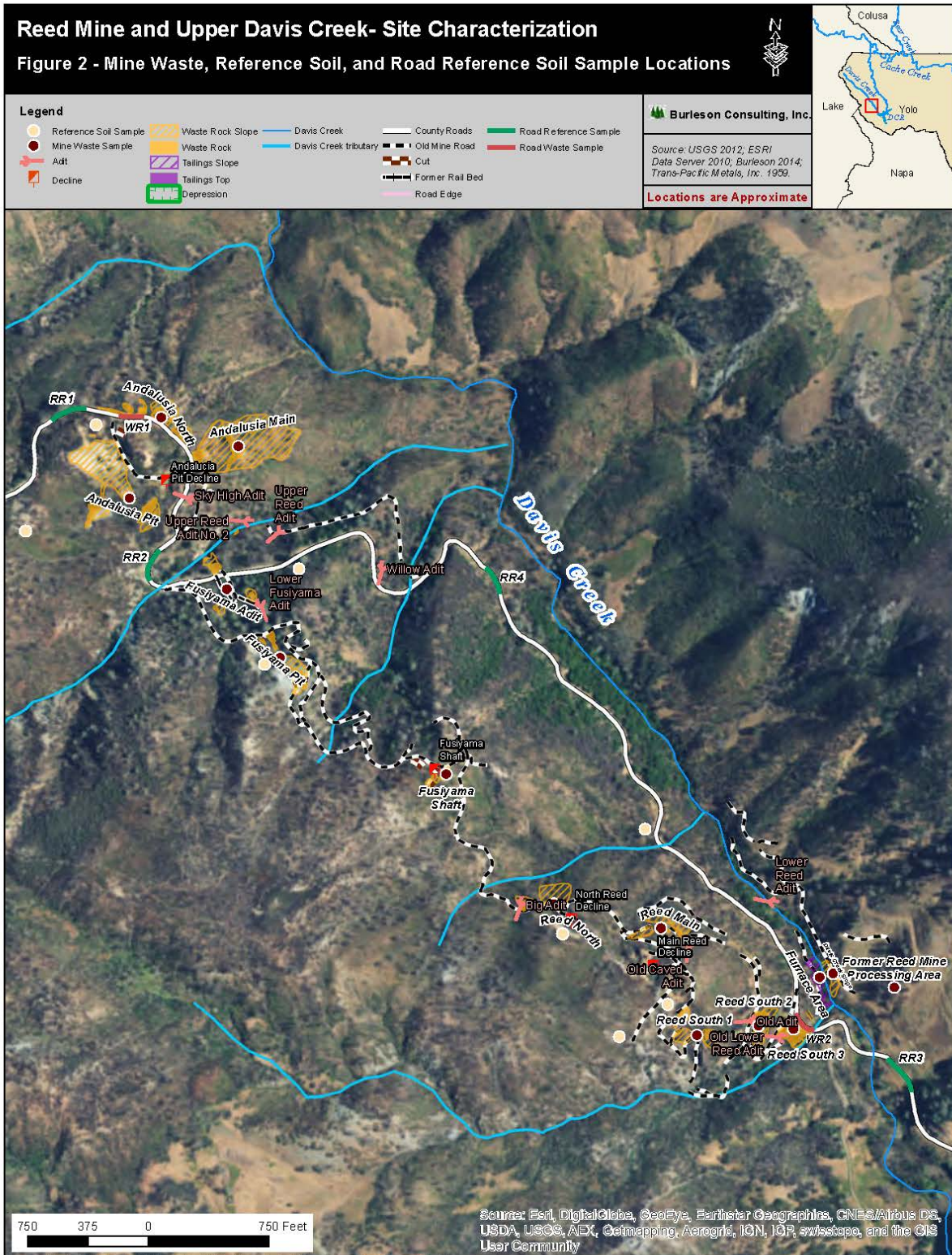
Original signed by

ANDREW ALTEVOGT
Assistant Executive Officer

23 October 2017

NV/WMH

Attachments: A - Site Map



DRAWING REFERENCE:
 Burleson
 2017 Site Characterization Report

SITE MAP
 Homestake
 Reed Mine and Upper Davis Creek
 Yolo County