

Lahontan Regional Water Quality Control Board

July 25, 2012

TO ALL INTERESTED PARTIES:

NOTICE OF OPPORTUNITY TO COMMENT DRAFT CLEANUP AND ABATEMENT ORDER TO PACIFIC GAS AND ELECTRIC COMPANY HINKLEY COMPRESSOR STATION, SAN BERNARDINO COUNTY

NOTICE IS HEREBY GIVEN THAT the California Regional Water Quality Control Board, Lahontan Region (Lahontan Water Board) will accept comments on a draft Cleanup and Abatement Order (Order). Written comments must be received by 5:00 PM, August 10, 2012, and addressed to:

Lauri Kemper, Assistant Executive Officer
California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150
or to lkemper@waterboards.ca.gov
or by facsimile at (530) 544-2271.

Draft Cleanup and Abatement Order

A copy of the draft Order is enclosed with this notice. The draft Order is also available on the Lahontan Water Board website at: www.waterboards.ca.gov/lahontan, in the "Orders" section on the PG&E Hinkley Chromium Cleanup page.

The Lahontan Water Board is interested in receiving comments regarding all aspects of the draft Order, and specifically on the Orders section directing PG&E to:

1. Submit a revised workplan to define the chromium plume in groundwater and implement an investigation.
2. Submit a report discussing the investigation results to define the plume; and

Allowing PG&E to increase the lateral spreading of the chromium plume on the eastern boundary by an additional 1,000 feet to allow for increased discharges from extraction wells to prevent plume migration in the northwestern area.

Questions

Questions on the draft Order should be directed to Lisa Dernbach at (530) 542-5424 or ldernbach@waterboards.ca.gov or myself at (530) 542-5436 or lkemper@waterboards.ca.gov.

Lisa Dernbach
for

Lauri Kemper
Assistant Executive Officer

Enclosure: Draft Cleanup and Abatement Order No. R6V-2008-0002A4

CC: PG&E Hinkley Lyris list

LSD/adw/T: PG&E Draft CAO A4 7-12 cover letter
Send to file: (VVL) WDID 6B369107001

DRAFT
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

AMENDED CLEANUP AND ABATEMENT ORDER
NO. R6V-2008-0002A4

WDID NO. 6B369107001

**REQUIRING PACIFIC GAS AND ELECTRIC COMPANY
TO CLEAN UP AND ABATE WASTE DISCHARGES
OF TOTAL AND HEXAVALENT CHROMIUM TO THE
GROUNDWATERS OF THE MOJAVE HYDROLOGIC UNIT**

San Bernardino County

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

Discharger

1. The Pacific Gas and Electric Company owns and operates the Hinkley Compressor Station (hereafter the "Facility"), located at 35863 Fairview Road, Hinkley in San Bernardino County. For the purposes of this Order, the Pacific Gas and Electric Company is referred to as the "Discharger."

Regulatory History

2. On August 6, 2008, the Water Board issued Cleanup and Abatement Order (CAO) No. R6V-2008-0002 to the Discharger to clean up and abate the effects of waste discharges and threatened discharges containing hexavalent chromium and total chromium to waters of the State. The CAO required the Discharger to take additional corrective actions to contain chromium migrating with groundwater, to continue to implement groundwater remediation in the source area and central plume area, and to develop and implement a final cleanup strategy. The CAO also modified the monitoring and reporting program for permitted projects.
3. Paragraph 3 of the Order provisions of the CAO required the Discharger to contain the hexavalent and total chromium plumes to locations where hexavalent chromium was below the interim background level of 4 parts per billion (ppb) and the total chromium was below 50 ppb.
 - a. The Discharger was required to achieve containment of the hexavalent chromium plume in the ground water by December 31, 2008, using the Discharger's *Boundary Control Monitoring Program and Updated Site-Wide Groundwater Monitoring Program* (submitted July 2, 2008 and prepared by Secor International) as described in Finding 16 in the CAO.

- b. The Discharger was required to achieve containment of the total chromium plume in the ground water by December 31, 2008, also based on the *Boundary Control Monitoring Program and Updated Site-Wide Groundwater Monitoring Program* as described in Finding 16 in the CAO.
4. Paragraph 4 of the Order provisions of the CAO required the Discharger to continue implementing full-scale in-situ corrective actions in the source area and central area of the chromium plume, or an alternate but equally effective method, to remediate the elevated chromium concentrations in groundwater.
5. The CAO required the Discharger to clean up and abate the chromium plume to background levels and set an interim amount of 4 ppb. Amended Order No. R6V-2008-0002A1 (Amended Order No. 1), effective November 12, 2008, adopted average and maximum background levels for hexavalent chromium of 1.2 ppb and 3.1 ppb, respectively. The adopted average and maximum background levels in Amendment Order No. 1 for total chromium are 1.5 ppb and 3.2 ppb, respectively. These background levels were adopted for the purposes of establishing background water quality conditions to be used later to consider cleanup strategies and to support future decisions regarding cleanup levels. For plume containment, the level remained at 4 ppb for both hexavalent chromium and total chromium.
6. Amended Order No. R6V-2008-0002A2 (Amended Order No. 2), effective April 7, 2009, allowed lateral migration of the 4 ppb hexavalent chromium plume boundary east of the South Central Reinjection Area (SCRIA) from discharges to groundwater piped from extraction wells in the northwest plume area. Lateral plume expansion of 1,000 feet was allowed as long as it could be shown that the chromium would be captured by the existing groundwater extraction system in the downgradient flow direction.
7. On April 9, 2008, the Water Board adopted General Waste Discharge Requirements (Board Order No. R6V-2008-0014) for the Hinkley chromium contamination to facilitate groundwater remediation. Board Order No. R6V-2008-0014 allows the discharge of various products to facilitate cleanup of groundwater contamination in the area from the Compressor Station in the south to almost Thompson Road in the north. To be authorized to initiate discharge, the Discharger must submit a Notice of Intent describing the proposed remedial project and discharges to land and/or groundwater. Following a public comment period, the Executive Officer was authorized to issue a Notice of Applicability (NOA) that allow the discharge or discharges and prescribed an appropriate monitoring and reporting program.

8. On April 7, 2009, the Water Board Executive Officer issued an NOA allowing the Discharger to implement the South Central ReInjection Area (SCRIA) and Northwest Freshwater Injection project (NWFI). The SCRIA project involves the pumping of up to 110 gallons per minute (gpm) of chromium-contaminated groundwater from up to six extraction wells in the northwestern plume area. Groundwater is piped southward, amended with ethanol, and discharged into injection wells in the SCRIA. The project intent was to hydraulically contain plume migration in the northwestern plume area and to reduce chromium injected to the SCRIA from the dissolved hexavalent form Cr(VI) to the solid form Cr(III). The SCRIA project began discharges to groundwater in October 2009. But beginning in early 2011, discharges were scaled back to 55 gpm when monitoring data indicated that plume spreading described in Finding No. 6 threatened to exceed the 1,000 feet distance allowed on the southeastern boundary.

Undefined Chromium Plume in Upper Aquifer

9. Pursuant to orders from the Water Board, the Discharger has undertaken multiple investigations for defining the chromium plume in the upper aquifer to background levels. The document *First Quarter 2012 Groundwater Monitoring Report* describes the results of groundwater and domestic well sampling during January to March 2012. A map in the report shows the extent of chromium in groundwater at concentrations exceeding background levels as being greater than 5 miles in length and about 2 miles in width. In a majority of cases where new monitoring wells have been installed, detected chromium concentrations exceed those in nearby domestic wells by up to four times. In a few cases, detected chromium concentrations in monitoring wells are significantly less than concentrations detected in domestic wells suggesting differences in well construction and sampling depth.

The quarterly report shows that the chromium plume continues to be undefined to the south, east, and north of the plume core area. Further investigations are needed to assess the chromium plume, compare concentrations to nearby domestic wells, and assess groundwater flow in the upper aquifer in order to evaluate threats to beneficial uses. It is anticipated that the Discharger will use monitoring well pairs and triplets and associated infrastructure to sample and monitor for the existence of chromium in groundwater.

10. On July 9, 2012, the Discharger submitted a workplan to install additional wells for chromium plume definition. The workplan, prepared by Stantec, proposed installing wells at eight locations in the northern plume area. The proposed well locations however are not adequate to fully define the chromium plume boundaries at monitoring points within one-quarter mile of other monitoring locations or the prior plume boundary. In addition, the workplan does not account for domestic wells containing chromium concentrations at 2.0 ppb or greater, which may be indicative of diluted plume concentrations at greater levels. While the workplan does not state reasoning for large gaps in sampling locations, PG&E has stated in the past its inability to gain access to certain private property and to endangered desert tortoise habitat. A revised workplan is being requested by Water Board staff.

11. This Order amends CAO No. R6V-2008-0002 to require the Discharger to define the entire chromium plume in the upper aquifer where it is still unknown.

Expansion of Chromium Plume Boundary

12. Chromium in groundwater downgradient of the Facility continues to adversely affect groundwater quality.
13. This Order amends CAO No. R6V-2008-0002A2 to allow additional lateral migration of the 3.1 ppb (previously 4 ppb) hexavalent chromium eastern plume boundary during implementation of cleanup projects in other areas of the chromium plume. This action will enable the Discharger to resume groundwater extraction in the northwestern plume area to the 110 gpm volume described in Finding No. 8. The additional plume expansion is not expected to adversely affect groundwater receptors, such as domestic wells. Corrective actions proposed by the Discharger are the only feasible methods available at this time until the Environmental Impact Report is certified and general waste discharge requirements are issued allowing additional options to the Discharger for disposal of chromium-contaminated groundwater.

CEQA

14. This enforcement action is being taken by this regulatory agency to enforce the provisions of 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 California Code of Regulations, title 14, section 15321. The implementation of this CAO Amendment is an action to assure the restoration of the environment and is exempt from the provisions of the California Environmental Quality Act, and in accordance with the California Code of Regulations, title 14, sections 15301 and 15303. The existing monitor well pairs and triplets and infrastructure are subject to section 15301 because there is negligible or no expansion of their existing uses.

EFFECT OF PRIOR ORDERS

15. This Order amends CAO No. R6V-2008-0002. All findings in prior Orders of the Water Board not directly superseded by findings in this Order remain in effect. This Order shall not be construed to preclude enforcement against the Discharger for failure to comply with any requirement in any other Order issued by the Water Board.

IT IS HEREBY ORDERED that, pursuant to the Water Code sections 13267 and 13304, the Discharger shall clean up and abate the effects of the discharge and threatened discharge of chromium to waters of the State, and shall comply with the provisions of this Order:

I. Chromium Plume Definition in the Upper Aquifer

The Discharger must define the extent of chromium in the upper aquifer within the targeted areas shown on the chromium plume maps in the First Quarter 2012 Groundwater Monitoring Program and the figure showing proposed well locations in the July 9, 2012 Monitoring Well Installation Workplan. The Discharger must achieve this task by ensuring that all monitoring wells can replicate chromium concentrations in nearby domestic wells to greater than detected values or no more than 0.5 ppb less than detected values.

A. Within 21 days of the date of this Order, the Discharger must submit a workplan proposing sampling locations in the upper aquifer in the following areas that will allow for the definition of the chromium plume to at least maximum background concentrations of 3.1 ppb Cr(VI) and 3.2 ppb Cr(T), be able to replicate chromium concentrations in nearby domestic wells so that water samples are not more than 0.5 ppb less than concentrations in nearby domestic wells, and verify groundwater flow.

- Southern boundary: southeast of wells BW-01s and BW-01D at the Facility.
- Eastern boundary: east of wells MW-115 and MW-145 on Dixie Road.
- Northern boundary: north of wells MW-154; west of Mountain View Road (north of Salinas Road); and east of Fairview Road extension (north of Sonoma Road).
- At all locations where domestic wells contain concentrations of 2.0 ppb or greater for hexavalent or total chromium.

The proposed sampling locations must be previously scoped out to assure a reasonable probability of success in gaining access and likelihood of well installation or temporary groundwater sampling. The workplan shall discuss and mark on the map areas where previous attempts to gain access to private properties and desert tortoise habitat have been unsuccessful.

B. By September 30, 2012, the Discharger must submit a report that is able to define the extent of chromium in groundwater for hexavalent chromium and total chromium to at least the maximum background levels of 3.1 ppb and 3.2 ppb, respectively, and be able to determine the direction of groundwater flow. The report must contain the following additional information:

1. Maps:

- a. Extent of chromium in groundwater in the upper aquifer:
 - i. A map showing the plume boundary throughout the uppermost saturated zone.

- ii. A separate map showing the plume boundary in the lowermost saturated zone.
- b. Potentiometric map showing the groundwater flow direction in all areas discussed in Item A.

2. Map Content:

- a. Text font size on maps shall be 9 points or greater.
- b. Street names must be shown in black color to be easily legible.
- c. Chromium boundary lines on plume maps must reflect the reported data.
- d. Plume boundary lines must show monitoring well concentration contours representing the maximum extent of the following: 50 ppb Cr(T), 10 ppb Cr(VI) or Cr(T), 3.1 ppb Cr(VI) or 3.2 ppb Cr(T). The dashed line representing the boundary of 3.1 ppb Cr(VI) or 3.2 ppb Cr(T) shall be a dark color so as to stand out and be drawn to connect any monitoring well located within 2,000 ft of any other monitoring well having chromium concentrations of 3.1 ppb Cr(VI) or 3.2 ppb Cr(T) or greater.
 - i. Where access to private property or endangered species habitat has not been granted for six months or more, the chromium plume boundary shall be drawn around any domestic well containing chromium concentrations exceeding 3.1 ppb Cr(VI) or 3.2 ppb Cr(T) for at least two consecutive quarters and within one-half mile distance of the prior quarter's plume boundary.
 - ii. Where monitoring wells are unable to replicate chromium concentrations in nearby domestic wells within 0.5 ppb, the chromium plume boundary shall be drawn around any domestic well having concentrations exceeding 3.1 ppb Cr(VI) or 3.2 ppb Cr(T) for at least two consecutive quarters and within one-quarter mile distance of the monitoring well.

3. Report Content:

- a. Description of methods and actions for installing wells
- b. Laboratory results:
 - i. Sample results showing a difference of 25% or greater between Cr(VI) and Cr(T) concentrations shall be re-tested and the ensuing results described.
- c. Interpretation of chromium plume boundary.
- d. If the chromium plume boundary is undefined in certain areas (sampling locations are 2,000 feet distance or more), propose additional sampling locations and implementation schedule.
- e. Include boring logs and well designs.
- f. Geologic cross sections across the northern plume extent (from Salinas Road and north).
- g. Report must be uploaded to the State Water Resources Control Board's Geotracker database, within two working days of the due date.

II. Expansion of Chromium Plume Boundary

- A.** This Order amends CAO R6V-2008-0002 to allow lateral spreading of the 3.1 ppb Cr (VI) (previously 4 ppb) eastern plume boundary from 1,000 feet now to no more than 2,000 feet and south of Acacia Street, as shown on the attached map, and shall not extend to areas of existing groundwater use. Lateral spreading of the plume must be monitored and described in monitoring reports required pursuant to Board Orders No. R6V-2008-0002 and R6V-2008-0014. Lateral plume expansion out to 2,000 feet is allowed as long as the Discharger shows that the chromium is being captured by the existing groundwater extraction system in the downgradient flow direction. If the Discharger is unable to prove that chromium in the expanded plume is not being captured in the downgradient flow direction, it will constitute a violation of this Order.

III. Laboratory Analysis

All future analysis of water samples must utilize the most recent testing methods. Testing for Total Chromium analysis must be done using US EPA Methods 6010B or 6020A to a reporting limit of 1 ppb. Testing for Hexavalent Chromium must be conducted in accordance with US EPA Method SW 218.6 with a reporting limit of 0.1 ppb. The laboratory used must be certified by the California Environmental Laboratory Accreditation Program (ELAP).

IV. Liability for Oversight Costs Incurred by the Water Board

The Discharger shall be liable, pursuant to Water Code 13304, to the Water Board for all reasonable costs incurred by the Water Board to investigate unauthorized discharges of waste, or to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, pursuant to this Order. The Discharger shall reimburse the Water Board for all reasonable costs associated with site investigation, oversight, and cleanup. Failure to pay any invoice for the Water Board's investigation and oversight costs within the time stated in the invoice (or within thirty days after the date of invoice, if the invoice does not set forth a due date) shall be considered a violation of this Order. If the Property is enrolled in a State Water Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program.

V. Certifications for all Plans and Reports

All technical and monitoring plans and reports required in conjunction with this Order are required pursuant to Water Code section 13267 and shall include a statement by the Discharger, or an authorized representative of the Discharger, certifying (under penalty of perjury in conformance with the laws of the State of California) that the workplan and/or report is true, complete, and accurate. Hydrogeologic reports and plans shall be prepared or directly supervised by, and signed and stamped by a Professional Geologist or Civil Engineer registered in California. It is expected that all

interpretations and conclusions of data in these documents to be truthful, supported with evidence, with no attempts to mislead by false statements, exaggerations, deceptive presentation, or failure to include essential information.

VI. 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 by the Executive Officer or Water Board representative as additional information becomes available.

VII. Enforcement Options

Failure to comply with the terms or conditions of this Order will result in additional enforcement action that may include the imposition of administrative civil liability pursuant to California Water Code sections 13268 and 13350 or referral to the Attorney General of the State of California for such legal action as she may deem appropriate.

VIII. Right to Petition: Any person aggrieved by this action of the Lahontan Water Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 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.

Patty Kouyoumdjian
Executive Officer

Date