

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

**MEETING OF NOVEMBER 28 AND 29, 2007
BARSTOW AND LANCASTER, CALIFORNIA**

ITEM: 4

**SUBJECT: AMENDED WASTE DISCHARGE REQUIREMENTS FOR PACIFIC
GAS AND ELECTRIC COMPANY - DESERT VIEW DAIRY LAND
TREATMENT UNIT EXTRACTION SYSTEM OPTIMIZATION
PROJECT, SAN BERNARDINO COUNTY**

CHRONOLOGY:

December 29, 1987	Cleanup and Abatement Order (CAO) ordering the investigation, cleanup and abatement of the effects of chromium in the soil and groundwater, that were discharged at the Pacific Gas and Electric Company (PG&E) Compressor Station – CAO 6-87-160 (and two amendments).
September 12, 1991	Waste Discharge Requirements (WDRs) adopted for the East Land Treatment Unit (LTU) – Board Order No. 6-91-917.
August 12, 1993	Amendment to Board Order No. 6-91-917 adopted.
July 17, 1997	Revised WDRs adopted for the East and Ranch LTUs – Board Order No. 6-97-81.
June 29, 2001	CAO 6-01-50 issued to cease the use of spray irrigation at the East and Ranch LTU.
October 14, 2004	Mitigated Negative Declaration and WDR adopted for the In-Situ Remediation Pilot Test Project.
June 14, 2006	Mitigated Negative Declaration and WDR adopted for the Central Area In-situ Remediation Pilot Study Project.

ISSUES: Should the Water Board amend Waste Discharge Requirements to enhance hydraulic control of the chromium plume in groundwater in Hinkley? This Board action will increase the number of extraction wells operating at the Desert View Dairy Land Treatment Unit (DVD LTU) from four to ten groundwater extraction wells.

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DISCUSSION:

On July 28, 2004, the Water Board adopted WDRs for the Interim Plume Containment and Hexavalent Chromium Treatment Project under Board Order No. R6V-2004-0034. The WDR authorizes the discharge of groundwater containing low levels of hexavalent chromium to an 80-acre LTU at the Desert View Dairy (DVD) where shallow soil chemistry converts hexavalent chromium to trivalent chromium. This groundwater extraction system currently consists of four wells, EX-01, EX-02, EX-03, and EX-04, which are all located on the DVD LTU. The extraction system is designed to provide containment of the northern portions of the Hinkley groundwater chromium plume.

The Optimization Project ("Project") will supplement on-going extraction with pumping from six additional wells located to the south and west of the Desert View Dairy Land Treatment Unit (DVD LTU) to improve hydraulic control of the northwestern portion of the plume.

The proposed cumulative extraction from the six proposed Project extraction wells and the four existing wells located on the DVD LTU will result in a quality of applied water to the DVD LTU that will remain in compliance with discharge specifications of the existing WDR. The subsurface drip irrigation of the extracted groundwater from the ten wells to the DVD LTU will have a less than significant impact on the groundwater quality beneath the DVD.

The nitrate and total dissolved solids (TDS) concentrations in the DVD wells are generally higher than the concentrations for these constituents in the non-DVD wells. Cr(VI) concentrations in the non-DVD wells are higher than those in the DVD wells but well within the range of anticipated concentrations (1 µg/L to 295 µg/L) specified in the WDR for application of water on the DVD LTU. The additional extraction from the non-DVD wells is expected to decrease the nitrate and TDS in applied water at the DVD. Because there is more Cr(VI) in the non-DVD wells, pumping from these wells will result in a slight increase in the rate at which Cr(VI) is being removed from the aquifer. Extraction from additional wells as proposed in the Optimization Project will result in a quality of applied water to the DVD LTU that will remain in compliance with discharge limitations established under the existing DVD LTU Waste Discharge Requirements.

The total volumetric flow rate of groundwater applied to the DVD LTU will remain at 0.497 million gallons per day, based on an annual average daily volume.

While additional drawdown in groundwater levels to the south, southeast, southwest, and west of the DVD LTU is anticipated, the Optimization Project is not expected to cause an adverse effect on private supply wells as a result of water level changes. Groundwater levels will be compared to the trigger levels, and the discharger will

evaluate the data to determine possible cause(s), and identify appropriate response measures identified in the mitigation monitoring and reporting plan.

RECOMMENDATION: Adoption of the Order as Proposed.

Enclosure: 1. Proposed Board Order

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ENCLOSURE 1

04-0004

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

BOARD ORDER NO. R6V-2004-0034A1(PROPOSED)
WDID NO. 6B360303001

AMENDED WASTE DISCHARGE REQUIREMENTS

FOR

PACIFIC GAS AND ELECTRIC COMPANY
INTERIM PLUME CONTAINMENT AND HEXAVALENT CHROMIUM
TREATMENT PROJECT

San Bernardino County

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

1. Discharger

The Pacific Gas and Electric Company (PG&E) owns and operates the Desert View Dairy Land Treatment Unit (DVD LTU) located east of the community of Hinkley in San Bernardino County. On July 25, 2007, PG&E submitted a Report of Waste Discharge (RWD) to amend the existing Interim Plume Containment and Hexavalent Chromium Treatment Project at the Desert View Dairy (DVD) with an Optimization Project ("Project"). The DVD LTU groundwater extraction system is designed to provide containment of the northwestern portions of the Hinkley groundwater chromium plume using four existing groundwater extraction wells on the DVD. The proposed optimization of the existing extraction system is designed to enhance hydraulic control of the northwestern portion of the plume by extracting from six additional extraction wells that are not located on the DVD. The RWD represents the necessary information to constitute a complete amended RWD. For the purposes of this Water Board Order (Order), PG&E is referred to as the "Discharger."

2. Facility

The land treatment unit on the Desert View Dairy is the facility to which the discharge occurs. For the purposes of this Order, the DVD LTU and the additional groundwater extraction wells located off-site of the DVD are referred to as the "Facility." The Facility is an active Class II Land Treatment Unit.

3. Facility Location

The Facility is located east of the community of Hinkley in San Bernardino County in the Harper Valley Subarea of the Mojave Hydrologic Unit within portions of

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Section 26, T10N, R3W and Section 2, T9N, R3W, SBB&M, as shown on Attachment "A," which is made a part of this Order.

4. Reason for Action

The Water Board is amending Waste Discharge Requirements (WDRs) to add extraction from six wells located on PG&E-owned property to the southwest of the DVD (these six wells will be referred herein as "the non-DVD wells"): EX-05, EX-07, EX-15, EX-16, EX-17, EX-20 (formerly WA-RC-02). This proposed optimization of the existing extraction system is designed to enhance hydraulic control of the northwestern portion of the plume. The total extraction rate from all ten wells after optimization will continue to be limited to a maximum annual average of 345 gallons per minute (gpm). The maximum volume of discharge to the LTU will continue to be limited to 0.497 million gallons per day (MGD) on an annual average daily volume basis.

Elevated concentrations of dissolved manganese and/or iron may be present in pumped groundwater as a result of in-situ remedial activities that may be conducted in the future in proximity to the pumping wells for the purposes of chromium remediation. The presence of dissolved manganese or iron in the pumped groundwater applied to the DVD LTU does not pose a threat to groundwater quality beneath the LTU because the dissolved manganese and iron will be quickly oxidized and will become immobile in the upper five feet of soil beneath the LTU. Amended Monitoring and Reporting Program (MRP) R6V-2004-0034A1 requires periodic analysis of pumped water applied to the DVD LTU for these two constituents.

5. Groundwater Level Drawdown

The existing DVD LTU extracting system is estimated to result in up to six feet of drawdown in the project area over the next 50 years. The optimized groundwater extraction system proposed under the Project is predicted to result in an additional two to five feet of drawdown in some portions of the project area, and a water level rise in other areas. The predicted changes in water level are not anticipated to result in adverse impacts to private supply wells. PG&E has proposed mitigation measures consisting of water level monitoring and response actions to mitigate the potential effects of the groundwater level changes. PG&E also has proposed contingency measures in the event that adverse impacts to one or more private supply wells unexpectedly occur.

6. California Environmental Quality Act (CEQA)

The Project is an amended project under CEQA and is subject to the provisions of the CEQA (Public Resources Code, Section 21000 et seq.) in accordance with Title 14, Section 15301, CCR. The Water Board is the lead agency for this project under the CEQA (Public Resources Code section 21000 et seq.).

An Initial Study describing the project was prepared by CH2M Hill on behalf of the Water Board and PG&E. It was circulated under State Clearinghouse No. 2007101050 to satisfy CEQA with the Water Board as Lead Agency. The Initial Study indicates the intent of the Water Board to consider a Mitigated Negative Declaration for the project.

In a public meeting on November 28, 2007, the Water Board adopted a Resolution certifying the Initial Study stating that the effects on the environment from the Project are not significant as mitigated; adopting a Mitigated Negative Declaration and a Mitigation Monitoring and Reporting Plan to satisfy CEQA; authorizing the Executive Officer to sign the Certificate of Fee Exemption and to transmit it to the California Department of Fish and Game (CDFG) in lieu of payment of the CDFG filing fee; and authorizing Water Board staff to send a Notice of Determination to the State Clearinghouse.

The discharge described in these WDRs is consistent with the Mitigated Negative Declaration and no new significant impacts are expected from the discharge allowed by these WDRs.

7. Public Notification

The Water Board has notified the Discharger and interested agencies and persons of its intent to amend WDRs for the Interim Plume Containment and Hexavalent Chromium Treatment Project. The Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that Findings, Requirements and Prohibitions, of Board Order No. R6V-2004-0034 be revised, amended, or inserted as follows:

[Revise as follows]

Findings

[Replace Finding 11, ¶11 with the following:]

11. Project Description

The Desert View Dairy Land Treatment Unit (DVD LTU) groundwater extraction system is designed to provide containment of the northwest portions of the Hinkley groundwater chromium plume. The Pacific Gas and Electric Company (PG&E) plans to optimize the existing groundwater extraction system to enhance hydraulic control of the northwestern portion of the plume. The proposed Optimization Project ("Project") consists of adding six groundwater extraction wells to the existing four-well groundwater extraction system currently employed at the DVD LTU. This combined ten-well extraction system will extract groundwater up to an annual average of 345 gallons per minute (gpm). The maximum volume of the discharge to the LTU will not exceed 0.497 million gallons per day (MGD) on an annual average daily volume basis. The Project will continue operating until hydraulic control of the

chromium plume in the area is no longer necessary or until an equal or better solution is determined.

[Revise as follows]

I. DISCHARGE SPECIFICATIONS

A. Discharge Limitations

[Replace Discharge Limitations, A.1., A.2., and A.3. with the following:]

1. The discharge to the DVD LTU will be limited to the extracted groundwater from the extraction wells located on the DVD (EX-01, EX-02, EX-03, and EX-04), and the non-DVD extraction wells (EX-05, EX-07, EX-15, EX-16, EX-17, and EX-20).
2. The maximum volume of discharge to the LTU must not exceed 0.497 million gallons per day (MGD) on an annual average daily volume basis.

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 November 28, 2007.

HAROLD J. SINGER
EXECUTIVE OFFICER

Attachment: A. Facility Map

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04-0008

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

MONITORING AND REPORTING PROGRAM
NO. R6V-2004-0034 A1(PROPOSED)
WDID NO. 6B360303001

FOR
PACIFIC GAS AND ELECTRIC COMPANY
INTERIM PLUME CONTAINMENT AND HEXAVALENT CHROMIUM
TREATMENT PROJECT

San Bernardino County

I. MONITORING

A. Flow and Extracted Groundwater

The following shall be conducted and reported in graphic and tabular form accordingly as specified:

1. Volumes of Extracted Groundwater

The volumes of extracted groundwater discharged to the land treatment unit from each well shall be recorded in a permanent log book. (i.e., maximum, total and average daily pumping rate in gallon per minute (gpm), total monthly and cumulative total volumes for each extraction well). Flows will be recorded weekly. The information shall be reported quarterly.

2. Water Applied to the Land Treatment Unit (LTU)

Samples of combined extracted groundwater shall be collected quarterly and analyzed for total chromium Cr(T), hexavalent chromium Cr(VI), nitrate (as nitrogen), total dissolved solids (TDS), dissolved manganese (Mn), and dissolved iron (Fe). The results of sampling shall be reported quarterly.

B. Detection Monitoring

The Discharger is required, pursuant to Section 20385, Title 27, to establish a detection monitoring program (DMP) for a land treatment unit. A DMP has been proposed by the Discharger pursuant to Article 1, Subchapter 3, Chapter 3, Division 2, Title 27. The detection monitoring program includes:

- a. Site monitoring for the LTU condition;
- b. Unsaturated zone monitoring for soil pore liquid quality;
- c. Soil monitoring for soil loading for chromium;

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- d. Groundwater monitoring for groundwater quality;
- e. Plant tissue monitoring for plant tissue uptake of chromium; and
- f. Aquifer characteristics from upgradient and downgradient wells.

The detection monitoring program shall be completed and reported quarterly as follows:

1. Site Monitoring

Daily, the land treatment unit shall be visually inspected and the following recorded in a permanent log book:

- a. condition of runoff control facilities;
- b. condition of perimeter site fencing;
- c. condition of drainage control facilities;
- d. any sign of surface runoff leaving the land treatment unit; and
- e. any sign of the presence of ponded water.

2. Unsaturated (Vadose) Zone Monitoring System

Sixteen lysimeter stations shall be installed in the irrigated fields. Each station consists of a lysimeter at five and twenty feet below ground surface (bgs). Lysimeters are to be capable of extracting soil pore liquid under unsaturated soil conditions.

Quarterly, soil pore liquid samples, if a sufficient quantity is encountered, shall be collected from the lysimeters at five feet bgs for Cr(T) and Cr(VI) analyses and at twenty feet bgs for nitrate and TDS.

3. Soil Monitoring

Quarterly, soil samples shall be collected at 5 feet below surface at locations within the land treatment area and analyzed for Cr(VI) and Cr(T) (in units of mg/kg). The random sampling approach and the numbers of samples shall be in accordance with the Sampling and Analysis Plan (SAP) previously approved by the Regional Board Executive Officer on August 16, 2004. (PG&E, Desert View Dairy Land Treatment Unit, Revised Detection Monitoring Program, August 16, 2004.)

If results of sample analysis indicate Cr(VI) and Cr(T) concentrations greater than the concentration limits established in Section I.C.5 of Board Order R6V-2004-0034 A1, the Discharger shall establish a concentration gradient below the LTU. Soil samples shall be collected at one foot intervals until laboratory analytical results show that

concentrations are less than the concentration limit identified in Section I.C.5. If Cr(VI) and Cr(T) concentrations above the concentration limits are found below the five-foot treatment zone, the Discharger shall report evidence of a release.

4. Groundwater Monitoring

Quarterly, groundwater samples will be collected at ten proposed monitoring wells for Cr(T), Cr(VI), nitrate (as N) and TDS analyses. The groundwater monitoring shall be conducted in accordance with the SAP.

5. Plant Tissue Monitoring

Semi-annually, representative samples of crop tissue irrigated by the extracted groundwater shall be sampled and analyzed for Cr(VI) and Cr(T). Plant tissue sample collection methodology shall be in accordance with the SAP. The units for monitoring parameters reported shall be in mg/kg (dry weight) of plant tissue.

6. Aquifer Characteristics

Quarterly, the parameters listed below shall be determined from proposed monitoring wells.

<u>Field Parameter</u>	<u>Units</u>
Depth to groundwater	feet bgs
Static water level	feet above mean sea level
Electrical conductivity	micromhos/cm
pH	pH units
temperature	deg. F or C
Slope of groundwater gradient	ft/ft

7. Summary

Sampling Frequency for Detection Monitoring

<u>Monitoring</u>	<u>Frequency</u>
Site Monitoring	Daily
Unsaturated Zone Monitoring - Soil Pore Liquid	Quarterly
Soil Monitoring	Quarterly
Groundwater Monitoring	Quarterly
Plant Tissue Monitoring	Semi-Annually
Aquifer Characteristics	Quarterly

Note: Results shall be reported quarterly

II. DATA ANALYSIS

A. Statistical Analysis Methods

The Discharger shall conduct a statistical analysis of the data in accordance with the following methods:

1. Monitoring Points for the Land Treatment Unit – The statistical analysis method for evaluation of compliance with the concentration limits for the monitoring parameters of the soil pore liquids of the lysimeters located five feet below ground surface should be the 95% upper confidence limit (UCL) of the median value for all lysimeters per quarterly sampling event. (R6V-2004-0034, Sec. I.C.5.)
2. Groundwater Monitoring – The statistical analysis method for evaluation of compliance with the concentration limits for the monitoring parameters of groundwater should be in accordance with the approved SAP for the Facility.

B. Nonstatistical Method

In accordance with the WDRs, evaluation monitoring will be initiated without statistical verification if there is significant physical evidence of a release. Physical evidence can include time series plots, vegetation loss, or unusual soil discoloration. Each annual report shall comment on these physical elements.

III. REPORTING REQUIREMENTS

A. Scheduled Reports To Be Filed With The Regional Board

The following periodic reports shall be submitted to the Regional Board pursuant to Section 13267 of the California Water Code (CWC) as specified below.

Detection Monitoring Reports

1. Results of sampling and laboratory analysis of samples collected from the Facility. The semi-annual report must include a map showing the locations where pore liquid and soil samples were collected during the previous semester.

The results of sample analysis of monitoring parameters for the extraction wells and extracted groundwater samples shall be reported in tabular and graphic form. Each graph prepared for groundwater

data shall be plotted with raw data at a scale appropriate to show trends or variations in water quality. For graphs showing the trends of similar constituents, the scale shall be the same.

2. A transmittal letter summarizing the essential points in each report shall accompany each semi-annual report. The letter shall include a discussion of any requirement violations found since the last report was submitted, and shall describe actions taken or planned for correcting those violations.

The transmittal letter shall also include a discussion of any violations of the WDRs and a description of action(s) taken to correct those violations. If no violations have occurred since the last report, this shall be stated in the transmittal letter. Monitoring reports and the transmittal letters shall be signed by a principal executive officer at the level of vice-president, or higher, or their designated representative who is responsible for the overall operation of the facility. The letter shall contain a statement that, under penalty of perjury, to the best of their knowledge the report is true, complete and correct.

3. If the Discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting this schedule will be satisfactory. If no violations have occurred since the last submittal, this shall be stated in the letter of transmittal.
4. The results of sampling conducted in accordance with the approved SAP for the Facility.

B. Unscheduled Reports To Be Filed With The Regional Board

The following reports shall be submitted to the Regional Board pursuant to Section 13267 of the CWC as specified below.

1. Notice of Evidence of a Release

Should the appropriate statistical or non-statistical data analysis indicate, for a given monitoring parameter and/or constituent of concern, that there is evidence of a release, the Discharger shall:

- a. Immediately notify the Regional Board verbally as to the monitoring point(s) and constituent(s) or parameter(s) involved;

- b. Provide written notification by certified mail within seven days of such determination (Section 2550.8(j)(1), Article 5, Chapter 15, Title 23, California Code of Regulations). The notification should indicate the Discharger's intent to conduct verification sampling, initiate evaluation monitoring procedures, or demonstrate that a source other than the Facility is responsible for the release.
- c. If the Discharger chooses to attempt to demonstrate that a source other than the Facility is responsible for the release, the Discharger shall submit a supporting technical report within 90 days of detection of the release.

2. Evaluation Monitoring

The Discharger shall, within 90 days of verifying a release, submit a technical report pursuant to Section 13267(b) of the California Water Code proposing an Evaluation Monitoring Program. If the Discharger decides not to conduct verification procedures, or decides not to make a demonstration that a source other than the Facility is responsible for the release, the release will be considered verified.

3. Engineering Feasibility Study Report

The Discharger shall, within 180 days of verifying the release, submit an Engineering Feasibility Study (Section 2550.8(k)(6) of Article 5) to preliminarily propose methods for corrective action.

C. General Provisions

The Discharger shall comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made a part of this Monitoring and Reporting Program.

D. Submittal Periods

Beginning **January 30, 2008**, the Discharger shall submit quarterly monitoring reports to the Regional Board on the 30th day of the month following the monitoring period. All daily and monthly reporting requirements shall be summarized and reported with the quarterly report. Any reporting required for mitigation monitoring during construction shall be reported in the next quarterly report.

E. Annual Report

On or before **July 30, 2008**, and every year thereafter the Discharger shall submit an annual report to the Regional Board. This report shall include the items described in the General Provisions for Monitoring and Reporting.

F. Mitigation Measures Monitoring and Reporting

Mitigation Measures Monitoring and Reporting are required as described in Attachment "A" and Attachment "B". Each quarterly monitoring report shall demonstrate compliance with the mitigation measures, including construction activities that may have been conducted during the reporting period and triggers for groundwater levels in monitoring wells near the extraction areas. The trigger levels are shown in Attachment C.

Ordered by: _____

HAROLD J. SINGER
EXECUTIVE OFFICER

Dated: **November 28, 2007**

- Attachments: A. Mitigation Monitoring and Reporting Plan for LTU Operations
B. Mitigation Monitoring and Reporting Plan for DVD Optimization Project
C. Table - Triggers for Groundwater Levels at Monitoring Wells
D. General Provisions for Monitoring and Reporting

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ATTACHMENT A

Mitigation Monitoring and Reporting Plan For LTU Operations

Air Quality	Mitigation Measure	Monitoring	Reporting
<p>1. Comply with the requirements of the MDAQMD including Rule 403.2 to mitigate the impact of dust and PM10 emission. The requirements of Rule 403.2 for the proposed project are: a) use periodic watering for short-term stabilization of disturbed surface area to minimize visible fugitive dust emission; b) take actions sufficient to prevent project-related trackout onto paved surfaces; c) cover loaded haul vehicles while operating on publicly maintained paved surfaces; d) stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than thirty days; e) cleanup project-related trackout or spills on Publicly Maintained paved surfaces within twenty-four hours; and f) reduce non-essential earth-moving activity under high wind conditions.</p>	<ul style="list-style-type: none"> • The onsite construction superintendent is responsible to ensure daily logs reflect monitoring compliance with MDAQMD requirements. • Information regarding construction activity shall be recorded in a permanent log book. Such information will include but is not limited to the time construction started and ended for the day and any unusual condition that may have occurred during the construction period. 	<p>A summary of the Daily Logs will be submitted to the Regional Board in the Monthly Reports as required in MRP until construction is complete.</p>	
<p>2. During construction, all dust generating activities shall be restricted to periods of low wind (less than 25 miles per hour) to reduce dust emission.</p>	<ul style="list-style-type: none"> • Wind conditions shall be monitored onsite or from local information representative of the site. • The onsite construction superintendent is responsible to cease construction activities during a high wind condition. • The onsite construction superintendent is responsible to ensure daily logs reflect wind speed conditions, construction activity violations, and any corrective actions. 	<p>See above.</p>	
<p>3. All dust generating activities shall be halted whenever local windspeeds exceed 25 miles per hour.</p>	<ul style="list-style-type: none"> • See Monitoring for No. 2, above. 	<p>See above.</p>	
<p>4. Construction speed on unpaved roads is limited to 25 miles per hour to minimize vehicle-related dust emission.</p>	<ul style="list-style-type: none"> • The onsite construction superintendent is responsible to ensure daily logs reflect construction equipment driving speeds, any violations, and any corrective actions. 	<p>See above.</p>	
<p>5. Speed-limit signs will be posted.</p>	<ul style="list-style-type: none"> • See Monitoring for No. 4, above. 	<p>See above.</p>	

Mitigation Measure Hazards and Hazardous Materials	Monitoring	Reporting
6. No chemicals will be stored onsite.	<ul style="list-style-type: none"> The PGE site representative will ensure compliance and record results of a site inspection at least monthly in a permanent log book. 	A Summary of the PGE Permanent Log will be submitted to the Regional Board in the Quarterly Reports as required in MRP. This summary will include a Certification that no chemicals such as hydrogen peroxide and citric acid were stored on site.
7. Chemical ingredients for irrigation drip line cleaning will be completely consumed during each periodic maintenance.	<ul style="list-style-type: none"> See Monitoring for No. 6, above. The volume of the chemicals applied and duration of application for citric acid and hydrogen peroxide will be recorded. The soil field moisture content will be recorded during each chemical application. 	A Summary of the PGE Permanent Log will be submitted to the Regional Board in the Quarterly Reports as required in MRP. This summary will include a Certification that all chemical ingredients were completely consumed. This summary will also include information on the volume and duration of chemical treatments and field soil moisture.
8. The offsite 750-gallon tank used for mixing the citric acid solution will be double-walled. Curbing must be placed along the perimeter of the concrete pad for containment of the full-volume	<ul style="list-style-type: none"> See Monitoring for No. 6, above. An Emergency Response Plan will be prepared, implemented and retained onsite and available to PGE staff and shown to regulatory staff if requested. 	A Summary of the PGE Permanent Log will be submitted to the Regional Board in the Quarterly Reports as required in MRP. This summary will include a Certification that all tanks are double-walled in the first monthly report after installation.
9. Hydrogen peroxide totes will be placed on a containment pallet to provide containment in the event of a leak.	<ul style="list-style-type: none"> See Monitoring for No. 6, above. 	A Summary of the PGE Permanent Log will be submitted to the Regional Board in the Quarterly Reports as required in MRP. This summary will include a Certification that containment pallets were used.
10. Herbicides may be used only if mowing does not provide sufficient weed control through a grass cover. If any herbicides are used, the application will be in accordance with the product label recommendations.	<ul style="list-style-type: none"> See Monitoring for No. 6, above. PGE will maintain photograph documentation of the soil grass cover. PGE will record the type and amount of any herbicides used. 	A Summary of the PGE Permanent Log will be submitted to the Regional Board in the Quarterly Reports as required in MRP. This summary will include a Certification that no herbicides were used or a summary of the type and amount

Mitigation Measure	Monitoring	Reporting
<p>11. The operation of the LTU will be evaluated and the distribution of crops as fodder will cease if monitoring data of plant tissue exceed 100 mg/kg of Cr(T) or indicate a threat to human health or the environment. The reasonable Cr(T) threshold concentration in crop (alfalfa) harvested for use as cattle feed presented no human health risk at concentrations below 1000 mg/kg. It is conservative to apply a plant tissue concentration (100 mg/kg) for grasses other than alfalfa using 10 percent of the maximum threshold concentration of Cr(T).</p>	<ul style="list-style-type: none"> An LTU monitoring program is established in the MRP and will include soil and plant tissue testing to assess the concentrations of chromium. The monitoring program includes data evaluation to assess whether there is a threat to human health or the environment. The criteria to stop LTU use is based on information published in the Public Health Assessment. 	<p>Separately, as required by the MRP.</p>
Hydrology and Water Quality		
<p>12. Subsurface drip irrigation systems will be used to distribute extracted ground water so that natural processes can reduce the Cr(VI) to Cr(III).</p>	<ul style="list-style-type: none"> PGE will photograph and document the installation of the irrigation systems. 	<p>Separately, as required by the MRP. Certification will be provided in the first report after installation that drip lines were used.</p>
<p>13. Grasses will be planted to provide nitrogen uptake.</p>	<ul style="list-style-type: none"> The LTU monitoring program established in the MRP includes soil moisture sampling and analysis for nitrogen migrating past the root zone. 	<p>Separately, as required by the MRP</p>
<p>14. During summer and most of the fall, the irrigation system will be operated at agronomic rates to prevent percolation below the LTU.</p>	<ul style="list-style-type: none"> PGE will ensure that the plan is implemented and effective. Each month the amount of water applied versus agronomic requirements of the crop will be established and recorded in acre feet/acre/month 	<p>Separately, as required by the MRP</p>
<p>15. The LTU operations will be operated to have not ponded water or ground water on the surface of the ground.</p>	<ul style="list-style-type: none"> The LTU will be inspected daily during the start-up and optimization period. The inspection will look for ponded water or visible signs of ponding on ground surface. When optimization is complete and routine operation are established, the LTU will be inspected weekly. The PGE site representative will ensure compliance and record results of a site inspection in a permanent log book 	<p>Separately, as required by the MRP</p>
<p>16. The pumping of ground water will remain within the 656 acre feet/year allowed under the Mojave River Ground Water Adjudication.</p>	<ul style="list-style-type: none"> The total volume of water extracted per year for the project as compared to the total adjudication of 656 acre ft/year 	<p>Information to be reported for the prior year in the first submitted monitoring report of the year.</p>

<p>17. Determine the actual cone of depression created by pumping. Monitoring wells will be located between the extraction wells and the domestic wells. Water level monitoring will provide early warning of potential unforeseen impacts on local wells.</p>	<ul style="list-style-type: none"> • Aquifer water level monitoring. • Water levels will be compared to trigger levels which were developed based on the model estimations. • Adjustment of the pumping rates (increase or decrease), to maintain a cone of depression that optimizes plume boundary control while minimizing the aquifer drawdown impact on nearby wells. • If needed and to the extent practicable, adjustment of pumping schedules to reduce impacts when residents are pumping to re-supply their domestic water tanks. 	<p>Water level monitoring will be conducted on a routine basis of selected wells identified in the CEQA Environmental Checklist. After each monitoring event, water levels will be compared to the trigger levels listed in the CEQA Environmental Checklist. If a trigger level is exceeded (i.e., there is more drawdown than was estimated by the model), PG&E will evaluate the data to determine possible cause(s), and identify appropriate response.</p>
<p>Biological Resources</p> <p>18. Avoidance measures will be implemented during construction activities and operation of the optimized extraction system.</p>	<ul style="list-style-type: none"> • Construction activities (e.g., trenching and well equipment installation) will be located to the extent possible in presently disturbed areas, such as along access roads. • Environmental awareness training for all construction personnel in identifying sensitive biological resources will be provided using PG&E's current training program. • Nesting birds (occurring generally from February to August for most birds) that are protected under the Migratory Bird Treaty Act will be avoided. • Temporary or permanent fencing of selected areas will be installed as requested by the biologist observer; typically, such measures would be implemented when burrows are observed in the immediate area or as an avoidance measure for the Desert Tortoise. 	<p>To prevent construction activities from potentially affecting any sensitive plant or wildlife species, a biologist will help select the exact conveyance pipe locations. All construction activity within 300 feet of active nesting areas will be prohibited until the nesting pair/young have vacated the nests.</p>

ATTACHMENT B

Mitigation Monitoring and Reporting Plan for DVD Optimization Project

Desert View Dairy Land Treatment Unit Extraction System Optimization Project (the "Optimization Project"), Hinkley, San Bernardino County, California

In accordance with the California Environmental Quality Act (CEQA) Environmental Checklist for the Optimization Project, the following categories were identified as requiring mitigation to relegate potential environmental impact(s) to a level of non-significance. Proposed mitigation measures and mitigation monitoring immediately follow each CEQA category.

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Would the project:

- a) Conflict with or obstruct implementation of the applicable air quality plan?
- b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
- c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Mitigation Measures

All non-critical dust-generating activities will be restricted to periods of low wind (wind speed less than 25 miles per hour, as monitored onsite or from local information representative of the site). Vehicle speeds on unpaved roads will be limited to a maximum speed of 25 miles per hour to minimize vehicle-related dust emissions.

Mitigation Monitoring

Wind speed monitoring will be conducted by PG&E on a daily basis, and measurements will be collected during dust-generating activities. Daily records will be maintained by PG&E, and included as part of construction monitoring field notes.

Vehicle speeds will be the responsibility of the Site health and safety officer, who will also be responsible for enforcing speed limits in the traffic area(s). Vehicle speed limits will be discussed with field personnel during routine health and safety meetings.

Mitigation Monitoring and Reporting Plan for DVD Optimization Project

IV. BIOLOGICAL RESOURCES

Would the project:

- a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Mitigation Measures

Project implementation is not anticipated to affect any sensitive plant or wildlife species. However, as a precaution, the following avoidance measures will be implemented during construction activities and operation of the optimized extraction system:

- Construction activities (e.g., trenching and well equipment installation) will be located to the extent possible in presently-disturbed areas, such as along access roads. To prevent construction activities from potentially affecting any sensitive plant or wildlife species, a biologist will help select the exact conveyance pipe locations.
- Environmental awareness training for all construction personnel in identifying sensitive biological resources will be provided using PG&E's current training program. All staff will be trained to recognize and respond appropriately in the unlikely event that a sensitive species, such as a desert tortoise, is sighted. Avoidance measures designed to minimize project impacts during the construction and operation phase will be identified. Workers will be required to report the occurrence of any special-status species observed on the project site to the project biologist, who would then implement species protection measures.
- Nesting birds (occurring generally from February to August for most birds) that are protected under the Migratory Bird Treaty Act will be avoided. All construction activity within 300 feet of active nesting areas will be prohibited until the nesting pair/young have vacated the nests.
- Temporary or permanent fencing of selected areas will be installed as requested by the biologist observer; typically, such measures would be implemented when burrows are observed in the immediate area or as an avoidance measure for the Desert Tortoise.
- Intentional killing or collection of either plant or wildlife at construction sites and surrounding areas will be prohibited.
- All on-site vehicle traffic will adhere to a speed limit of 25 miles per hour during construction and maintenance to ensure avoidance of impacts to sensitive biological resources on access roads.
- All construction vehicles and equipment will be periodically checked to ensure that they are in proper working condition and that there is no potential for fugitive emissions of oil or other hazardous products.

Mitigation Monitoring and Reporting Plan for DVD Optimization Project

Mitigation Monitoring

A qualified biologist will be responsible for following the proposed mitigation measures for biological resources. The biologist will review the construction drawings relative to biological resources, conduct environmental awareness training, and identify area(s) for fencing to prevent impacts to resources (if necessary). The biologist will also work with the Site health and safety officer to ensure speed limits are enforced.

The biologist will maintain a log noting critical decisions made in the field relative to biological resources, including construction decisions made to avoid resources and installation of fencing. Sensitive species identified in the project area(s) during project construction and operation will be clearly noted in the field log, including those measures taken to avoid impact to the resource.

PG&E will maintain a log of awareness training classes, and include a listing and contact information for the personnel attending the training. The topic(s) discussed during the training will also be identified in the log, and any handout materials will be included either in the log or a binder of materials maintained at the Site. The field log of critical decisions and the log/binder of awareness training will be included in the construction notes for the project, and will be made available to Regional Board staff upon request.

VII. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Mitigation Measures

The groundwater extraction and conveyance system will be fitted with appropriate sensors and alarms to promptly identify system upset and minimize spills or leaks of irrigation water that may contain chromium.

Mitigation Monitoring

PG&E will conduct routine Site operations and maintenance activities, and keep a log. The log will identify any alarms that indicate spills or leaks of irrigation water containing chromium. The log will also identify maintenance activities completed on a routine basis, to minimize the potential for a condition that would result in an alarm. The log will be kept at the Site.

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Mitigation Monitoring and Reporting Plan for DVD Optimization Project

VIII. HYDROLOGY AND WATER QUALITY

Would the project:

- b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Mitigation Measures

PG&E will implement the following actions during operation of the extraction well system:

- (1) Aquifer water level monitoring, to determine the actual cone of depression created by pumping. Water levels will be compared to trigger levels provided in Table 2, which were developed based on the model estimations. Monitoring wells will be located between the extraction wells and the domestic wells. Water level monitoring will provide early warning of potential unforeseen impacts on local wells.
- (2) Water quality monitoring in the monitoring well network, to evaluate plume conditions.
- (3) Adjustment of the pumping rates (increase or decrease), to maintain a cone of depression that optimizes plume boundary control while minimizing the aquifer drawdown impact on nearby wells.
- (4) If needed and to the extent practicable, adjustment of pumping schedules to reduce impacts when residents are pumping to re-supply their domestic water tanks.

Mitigation Monitoring

Water level monitoring will be conducted on a routine basis at the monitoring wells listed in Table 2 of the CEQA Environmental Checklist, as required by the Monitoring and Reporting Program (MRP) issued by the Regional Board. After each monitoring event, water levels will be compared to the trigger levels listed in Table 2. The trigger levels were developed based on modeling, and provide a best estimate of water levels that will occur at monitoring wells located between the proposed pumping areas on PG&E property and nearby private supply wells. If a trigger level is exceeded (i.e., there is more drawdown than was estimated by the model), PG&E will evaluate the data to determine possible cause(s), and identify appropriate response measures.

Table
Proposed Triggers for Groundwater Levels at Monitoring Wells
Optimization of the Desert View Dairy Groundwater Extraction System
Pacific Gas and Electric Company's Chromium Remediation Project
Hinkley, California

Well ID#	Predicted Groundwater Level Under Current DVD Pumping Plan (ft above MSL) ⁽¹⁾	Predicted Additional Drawdown Under Proposed DVD Optimization Pumping Plan (ft)	Proposed Trigger Level (ft above MSL) ⁽²⁾
MW-28A	2088	5	2081
MW-28B	2088	5	2081
MW-29	2083	1	2080
MW-44A	2089	5	2082
MW-44B	2089	5	2082
MW-47	2085	4	2079
MW-54	2089	5	2082
MW-58 ⁽³⁾	2086	5	2079
MW-59 ⁽³⁾	2082	4	2076
MW-61 ⁽³⁾	2092	3	2087
MW-66A ⁽³⁾	2086	5	2079
EX-09	2081	4	2075

Notes:

ft

feet

MSL

Mean Sea Level

bgs

below ground surface

⁽¹⁾

DVD pumping was initiated in March 2005. The predicted water level under the current pumping scenario (345 gpm at the DVD using well EX-01 to EX-04) is based on pre-pumping water level data for the individual monitoring wells (pre-March 2005) minus the draw down predicted by the numerical model.

⁽²⁾

The proposed trigger level equals the water level predicted under the current pumping scenario minus the additional draw down predicted under the proposed DVD optimization pumping plan. An additional two feet has been subtracted to account for uncertainty in the modeling effort, and potential future water level changes as a result of drought or other uncontrollable factors such as pumping by others. If a trigger level is exceeded, PG&E will evaluate the cause (i.e., PG&E pumping, drought, pumping by others) and determine if mitigation is required.

⁽³⁾

Pre-March 2005 data is unavailable. The pre-pumping water level is estimated based on available data.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

GENERAL PROVISIONS
FOR MONITORING AND REPORTING

ATTACHMENT D

1. SAMPLING AND ANALYSIS

- a. All analyses shall be performed in accordance with the current edition(s) of the following documents:
 - i. Standard Methods for the Examination of Water and Wastewater
 - ii. Methods for Chemical Analysis of Water and Wastes, EPA
- b. All analyses shall be performed in a laboratory certified to perform such analyses by the California State Department of Health Services or a laboratory approved by the Regional Board Executive Officer. Specific methods of analysis must be identified on each laboratory report.
- c. Any modifications to the above methods to eliminate known interferences shall be reported with the sample results. The methods used shall also be reported. If methods other than EPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and must be approved by the Regional Board prior to use.
- d. The Discharger shall establish chain-of-custody procedures to insure that specific individuals are responsible for sample integrity from commencement of sample collection through delivery to an approved laboratory. Sample collection, storage, and analysis shall be conducted in accordance with an approved Sampling and Analysis Plan (SAP). The most recent version of the approved SAP shall be kept at the facility.
- e. The Discharger shall calibrate and perform maintenance procedures on all monitoring instruments and equipment to ensure accuracy of measurements, or shall insure that both activities will be conducted. The calibration of any wastewater flow measuring device shall be recorded and maintained in the permanent log book described in 2.b, below.
- f. A grab sample is defined as an individual sample collected in fewer than 15 minutes.
- g. A composite sample is defined as a combination of no fewer than eight individual samples obtained over the specified sampling period at equal intervals. The volume of each individual sample shall be proportional to the discharge flow rate at the time of sampling. The sampling period shall equal the discharge period, or 24 hours, whichever period is shorter.

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2. OPERATIONAL REQUIREMENTS

a. Sample Results

Pursuant to California Water Code Section 13267(b), the Discharger shall maintain all sampling and analytical results including: strip charts; date, exact place, and time of sampling; date analyses were performed; sample collector's name; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.

b. Operational Log

Pursuant to California Water Code Section 13267(b), an operation and maintenance log shall be maintained at the facility. All monitoring and reporting data shall be recorded in a permanent log book.

3. REPORTING

a. For every item where the requirements are not met, the Discharger shall submit a statement of the actions undertaken or proposed which will bring the discharge into full compliance with requirements at the earliest time, and shall submit a timetable for correction.

b. Pursuant to California Water Code Section 13267(b), all sampling and analytical results shall be made available to the Regional Board upon request. Results shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.

c. The Discharger shall provide a brief summary of any operational problems and maintenance activities to the Board with each monitoring report. Any modifications or additions to, or any major maintenance conducted on, or any major problems occurring to the wastewater conveyance system, treatment facilities, or disposal facilities shall be included in this summary.

d. Monitoring reports shall be signed by:

i. In the case of a corporation, by a principal executive officer at least of the level of vice-president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates;

ii. In the case of a partnership, by a general partner;

iii. In the case of a sole proprietorship, by the proprietor; or

- iv. In the case of a municipal, state or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.
- e. Monitoring reports are to include the following:
 - i. Name and telephone number of individual who can answer questions about the report.
 - ii. The Monitoring and Reporting Program Number.
 - iii. WDID Number.
- f. Modifications

This Monitoring and Reporting Program may be modified at the discretion of the Regional Board Executive Officer.

4. NONCOMPLIANCE

Under Section 13268 of the Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars (\$1,000) for each day of violation under Section 13268 of the Water Code.

x:PROVISIONS WDRS

file: general pro mmp