

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

**MEETING OF NOVEMBER 28-29, 2007  
Barstow/Lancaster**

**ITEM:** 6

**SUBJECT: PUBLIC HEARING – RESOLUTION CERTIFYING A  
SUBSEQUENT MITIGATED NEGATIVE DECLARATION  
FOR PACIFIC GAS AND ELECTRIC COMPANY'S  
REVISED CENTRAL AREA IN-SITU REMEDIATION PILOT  
STUDY PROJECT, HINKLEY, SAN BERNARDINO  
COUNTY**

**CHRONOLOGY:** This is a revised item before the Regional Board

June 14, 2006 Mitigated Negative Declaration and  
WDR adopted for the Central Area In-  
situ Remediation Pilot Study Project.

September 7, 2007 Staff circulated through the State  
Clearinghouse a proposed Resolution  
for a Subsequent Mitigated Negative  
Declaration for the Project.

**ISSUES:** Should the Board adopt a Subsequent Mitigated Negative  
Declaration and Mitigation Monitoring and Reporting Plan for  
this project in compliance with the California Environmental  
Quality Act?

**DISCUSSION:** The Pacific Gas and Electric Company (PG&E) is proposing  
to revise a pilot study project of in-situ (in-place) remediation  
activities to treat groundwater that is contaminated with  
hexavalent chromium [Cr(VI)]. The project is located  
approximately 3,600 feet north of PG&E's compressor  
station, in the community of Hinkley.

The proposed project changes include (1) adding fluorescent  
tracer dyes to evaluate groundwater flow conditions, (2)  
adding well rehabilitation compounds to effectively clean the  
injection well screens, (3) the use of ethanol as an additional  
food-grade carbon source, (4) expanding the project area by  
600 feet and extending out the location of sentry and  
contingency monitoring wells, and (5) revising concentration  
limits for hexavalent and total chromium. Discharges will  
take place in the groundwater of the Middle Mojave River  
Valley Ground Water Basin.

06-0001

The checklist for the Subsequent Mitigated Negative Declaration (Enclosure 2) identifies potential environmental concerns associated with revisions to the project. Injections of fluorescein and eosin dyes will temporarily cause coloration to groundwater. Injections of well rehabilitation compounds (citric acid, acetic acid, hydrochloric acid, hydrogen peroxide, and sodium peroxide) will temporarily alter pH and cause an increase in total organic carbon concentration in groundwater. And injections of ethanol will temporarily cause an increase in organic carbon and an alcohol taste and odor to water quality at and near the treatment area. All compounds being discharged will either be consumed by microbes or attenuate with distance from the injection points. Therefore, any degradation to water quality from the project will be temporary, should improve over time, and will be localized to the pilot study area. An extensive monitoring well system is in place to verify reduced total and hexavalent chromium concentrations and that discharges and byproducts do not migrate beyond the pilot study boundaries.

The Water Board received a letter dated October 10, 2007 from the State Clearinghouse (Enclosure 3) stating that the comment period produced one response. The comments returned were from the Native American Heritage Commission that suggested provisions be placed in the initial checklist for (1) avoidance of recorded archeological sites and (2) working with the Commission when accidental discoveries of archeological resources occur. A copy of the Commission's letter and Board staff's response are attached to this agenda item as Enclosures 4 and 5.

Water Board staff's finds that there is no substantive evidence that the project will have a significant effect on the environment.

**RECOMMENDATION:**

Certification of the Resolution as proposed.

**Enclosures:**

1. Proposed Resolution
  - a. Mitigation Monitoring and Reporting Plan
2. Subsequent Initial Study/Environmental Checklist
3. Letter dated October 10, 2007 from the State Clearinghouse
4. Letter dated September 13, 2007 from the Native American Heritage Commission
5. Response letter dated October 11, 2007 to the Native American Heritage Commission

# **ENCLOSURE 1**

06-0003

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

**RESOLUTION NO. R6V-2007-(PROPOSED)**

**APPROVING THE INITIAL STUDY/CHECKLIST  
AND ADOPTING A SUBSEQUENT MITIGATED NEGATIVE DECLARATION  
FOR THE REVISED CENTRAL AREA IN-SITU REMEDIATION  
PILOT STUDY PROJECT**

FOR

PACIFIC GAS & ELECTRIC COMPANY  
COMPRESSOR STATION  
35863 Fairview Road  
Hinkley, California

\_\_\_\_\_  
San Bernardino County

WHEREAS, the California Regional Water Quality Control Board, Lahontan Region (Water Board) finds that:

1. Water Code section 13260(a)(1) requires that any person discharging wastes, or proposing to discharge wastes other than into a community wastewater collection system, that could affect the quality of waters of the State shall file a report of waste discharge (ROWD) with the Water Board exercising jurisdiction in the area, and that Water Board shall then prescribe requirements for the discharge or proposed discharge of wastes.
2. The Water Board adopted Waste Discharge Requirements (WDRs) (Board Order No. R6V-2006-0023) at a public hearing on June 14, 2006, to allow the discharge of food-grade reagents (lactate, whey, and emulsified vegetable oil) to groundwater to remediate hexavalent chromium. The Order also allowed the discharge of sodium bromide to groundwater as a tracer.
3. Pacific Gas & Electric Company (hereinafter Discharger) has filed a ROWD and applied for Revised Waste Discharge Requirements to implement a pilot study for developing a strategy for long-term groundwater remediation. The proposed revisions to the pilot study are the following: (1) adding dye tracers, fluorescein and eosin, to evaluate groundwater flow conditions; (2) including well rehabilitation compounds (acetic acid, citric acid, hydrochloric acid, hydrogen peroxide, and sodium peroxide); (3) adding ethanol as a reagent for in-situ remediation; (4) expanding the project area by 600 feet and extending out the location of monitoring and contingency wells; and (5) revising concentration limits for hexavalent and total chromium.

4. The Discharger owns the Compressor Station located at 35863 Fairview Road in Hinkley, California (site). The facility is used to transport natural gas along pipelines to further destinations. The Discharger also owns land north of the compressor station, including where Frontier Road and Fairview Road intersect and overlying the groundwater plume containing chromium. The revised field-scale pilot study will take place at this latter location (Assessor Parcel Numbers 0494-251-15, 0494-251-03, and 0494-261-59).
5. Soil and groundwater beneath the site is contaminated with hexavalent chromium from untreated cooling tower water discharged to unlined ponds from 1952 to 1964. This contamination has created a plume of chromium in groundwater extending about two miles to the north of the compressor station and about 1.2 miles wide. Detectable chromium concentrations in the plume exceed the California Maximum Contaminant Level for drinking water of 50 micrograms per liter.
6. The site is subject to various Lahontan Regional Water Quality Control Board orders, including the Cleanup and Abatement Order (CAO) No. 6-01-50. The Discharger is required to conduct cleanup of chromium in groundwater in a manner that does not threaten to create nuisance conditions.
7. Under the ROWD described in finding number 3 above and in order to partially comply with the orders described in finding number 6 above, the Discharger proposes revisions to remediation activities to reduce contamination in the groundwater plume. At the pilot study area, ethanol injections will create localized reducing conditions in groundwater. The reagent solution will facilitate bioremediation by reducing hexavalent chromium to trivalent chromium. Fluorescent dyes will be used to assess groundwater flow conditions and optimize in-situ activities. Well rehabilitation compounds will be injected to keep well screens free of biofouling and insure sufficient flow of reagent solutions. Groundwater quality monitoring will evaluate the affects of the bioremediation process within the treatment area and verify that off-site beneficial uses are not adversely affected by discharges or byproducts.
8. Groundwater quality within the pilot study area will be monitored through Monitoring and Reporting Program Order No. R6V-2007-PROPOSED. In addition, groundwater quality across the site and at off-site areas will continue to be monitored by a comprehensive groundwater monitoring well network on a bi-monthly and quarterly basis depending on well locations.
9. The direction of groundwater flow is to the north-northwest in the proposed field-scale pilot study area. The Discharger shall monitor the presence and concentration of injected reagent (ethanol), tracers (fluoroscein and eosin), well rehabilitation compounds, potential byproducts, evaluate flow conditions, and any potential for movement of contaminants outside the pilot study area.

As specified in the Revised Waste Discharge Requirements and the Subsequent Mitigated Negative Declaration, the Discharger will initiate a contingency plan, if necessary, if contaminants or the injected solutions or byproducts migrate to the contingency area at trigger concentrations.

10. The injection of tracers (fluorescein and eosin), well rehabilitation compounds (acetic acid, citric acid, hydrochloric acid, hydrogen peroxide, and sodium peroxide), and ethanol in the soil and groundwater is a discharge of waste subject to Water Code section 13260. However, the discharges are intended to enhance remediation of hexavalent chromium-contaminated groundwater. This approach is anticipated to reduce cleanup time and costs compared to traditional cleanup remedies without affecting public health and safety.
11. The Water Quality Control Plan (Basin Plan) for the Lahontan Region designates the beneficial uses of the groundwater of the Middle Mojave River Valley Groundwater Basin as municipal and domestic supply, industrial service supply, agricultural supply, freshwater replenishment, and aquaculture.
12. The permitted discharges are consistent with the anti-degradation provisions of State Water Resources Control Board Resolution No. 68-16 (Anti-degradation Policy). The discharge may result in some localized mobilization of metals that will be monitored to verify natural attenuation. Fluorescein, eosin, well rehabilitation compounds (acetic acid, citric acid, hydrochloric acid, hydrogen peroxide, and sodium peroxide), and ethanol will dilute and degrade to non-regulated products and should have no long-term effect upon beneficial uses. The discharges are intended, and are anticipated, to produce an improvement to groundwater quality by reducing hexavalent chromium and, thereby, total chromium concentrations.
13. The Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Revised Waste Discharge Requirements for these discharges and has provided them with an opportunity to submit their written views and recommendations. The Water Board, in a public meeting on November 28, 2007, heard and considered all comments pertaining to the discharges and to the tentative requirements.
14. The Water Board has assumed lead agency role for this project under the California Environmental Quality Act (Public Resources Code Section 21000 et seq.) and has prepared an Initial Study/Checklist in accordance with California Code of Regulations, title 14, section 15063, titled Guidelines for Implementation of the California Environmental Quality Act. Based on the Initial Study/Checklist, Water Board staff prepared a Subsequent Mitigated Negative Declaration indicating that the project will not have a significant adverse effect on the environment.

15. Copies of the Initial Study/Checklist and proposed Subsequent Mitigated Negative Declaration were transmitted to the State Clearinghouse, all agencies and interested parties. An October 10, 2007 letter from the State Clearinghouse provides comments concerning the project during the comment period.
16. The Water Board has reviewed the Initial Study/Checklist and Subsequent Mitigated Negative Declaration concerning this Resolution prepared by staff, in compliance with the California Environmental Quality Act (Public Resources Code Section 21000 et seq.). The Water Board concurs with the staff findings that a Negative Declaration should be adopted. The Initial Study/Checklist and Negative Declaration were circulated for public review and comment. All comments were adequately addressed by the Water Board.
17. The Water Board considered all testimony and evidence at a public hearing held on November 28, 2007, at Barstow, California, and good cause was found to certify the Initial Study/Checklist and proposed Subsequent Mitigated Negative Declaration. After consideration of the written and oral comments, and staff's professional review and advice, the Water Board finds that there is no evidence in the record to support a fair argument that there may be adverse environmental impacts resulting from the proposed discharge.

THEREFORE, BE IT RESOLVED that the Water Board:

1. Certifies the Initial Study/Checklist and proposed Subsequent Mitigated Negative Declaration and directs the Executive Officer to file a Notice of Determination with the State Clearinghouse within 30 days as required by the California Code of Regulations.
2. Directs that a copy of this Resolution be forwarded to the State Water Resources Control Board and all interested parties.
3. Directs that discharges of fluorescein, eosin, well rehabilitation compounds (acetic acid, citric acid, hydrochloric acid, hydrogen peroxide, and sodium peroxide), and ethanol into soil and groundwater shall conform with all requirements, conditions, and provisions set forth in A. Discharge Prohibitions and B. Discharge Specifications of the Order No. R6V-2007-(PROPOSED). Groundwater and air monitoring shall conform to Monitoring and Reporting Program No. R6V-2007-(PROPOSED).

Certification

I, Harold J. Singer, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Lahontan Region, on November 28, 2007.

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HAROLD J. SINGER  
EXECUTIVE OFFICER

Proposed

# **ATTACHMENT A**

06-0009

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## REVISED CENTRAL AREA IN-SITU REMEDIATION PILOT STUDY PROJECT

### MITIGATION MEASURES

Mitigation measures are incorporated into the project as follows:

#### **Aesthetics-- Less Than Significant with Mitigation Incorporated.**

- Project construction must not be conducted closer than 700 feet to the closest residence from the project boundaries.
- Structures shall not exceed 12 feet in height.
- Security lighting will be directed away from nearby residences.

#### **Air Quality--Less Than Significant with Mitigation Incorporated.**

Project construction activities may temporarily contribute to the existing PM10 air quality issue in the region during construction activities.

- During construction activities, the applicant shall comply with all applicable rules and requirements of the Mojave Desert Air Quality Management District (MDAQMD), including Rule 403.2 to mitigate the impact of dust and PM10 emission.
- Vehicle speeds on dirt roads shall not exceed 25 miles per hour.
- Dirt roads will be sprayed with water to minimize dust generation.
- All construction vehicles and equipment will be checked periodically to ensure that they are in proper working condition and that there is no potential for fugitive emissions of oil or other hazardous products.

After construction activities are completed, the normal operation of the project may contribute to existing air quality issues.

- Ethanol storage shall be in accordance to permit conditions set by the MDAQMD and the California Air Resources Board (CARB).
- The project has the potential for producing odors. An air monitoring program will evaluate whether odors levels are detected outside the pilot study boundaries. If high levels of nuisance air constituents are detected, a contingency plan to scale back or shut down injections will be implemented.
- Personnel shall maintain a record of air monitoring results in the field log and note when mitigation measures are implemented.

**Biological Resources – Less Than Significant with Mitigation Incorporation.**

Prior to commencement of construction activities, the following avoidance measures will be implemented to ensure no impacts result.

- Environmental awareness training for all construction personnel in identifying sensitive biological resources will be provided, using PG&E's current training program. 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. Measures identified within the PG&E biological opinion, such as temporary fencing and avoidance of burrows, will be implemented for the desert tortoise.
- To the maximum extent practicable, the selected well locations will be restricted to barren areas, such as access roads, that have been disturbed previously and cleared for use by the biologist.
- All construction activity within 200 feet of active nesting areas will be prohibited until the nesting pair/young have vacated the nests.
- All 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.
- Intentional killing or collection of either plant or wildlife at construction sites and surrounding areas will be prohibited.
- Personnel shall note in the field log when sensitive biological resources are observed and when mitigation measures are implemented.

**Hazards and Hazardous Material--Less Than Significant with Mitigation Incorporation.**

1. Ethanol, being a flammable liquid, is a hazardous material requiring special transportation, storage and handling. Well rehabilitation compounds (acetic acid, citric acid, hydrogen peroxide, sodium peroxide, and hydrochloric acid) to be used on site at United States Pharmacopeia (USP) grade will also require special transportation, storage and handling. The following safety features will be implemented before and during the project to prevent exposure to the public of potential hazards:
  - Necessary permits will be obtained from the San Bernardino County Fire Department and Health Department prior to chemical use at site.
  - Trucks delivering flammable liquids (ethanol), acids, and oxidizers will comply with applicable federal, state, and local statutes and regulations.
  - Spill control and secondary containment will be provided for the ethanol storage tank and the tank vehicle offloading area.
  - The ethanol storage tank will be double walled and have required venting controls.

- All underground piping will be double walled.
  - Signage will be posted next to the storage tank to indicate the potential fire hazards.
  - Personnel involved in the transportation, delivery and handling of the materials will take proper safety precautions, based upon recommendations contained in the Material Safety Data Sheets for the materials. Personnel will also protect themselves with protective equipment according to the site Health and Safety manual.
  - Adequate fire suppressant equipment must be maintained at the site at all times.
  - Well rehabilitation chemicals (acids and oxidizers) will not be stored in bulk at the site.
  - Adequate communication equipment must always be present onsite to report potential fires or other emergencies to authorities.
  - The site manager will be responsible for maintaining a site log involving the transportation, storage, and handling of chemicals on site. All spills or releases will be logged and reported to the appropriate overseeing agency issuing use permits. Corrective action taken will also be recorded.
2. The tracers, fluorescein and eosin, are dyes and do not require special transportation, handling or storage.

#### **Hydrology and Water Quality--Less Than Significant with Mitigation Incorporation.**

- Management methods will be used to mitigate any potential adverse effects from in-situ injection of reagents. Reagents will be added to the aquifer at the proposed balanced-injection rates to minimize the likelihood of creating conditions that could produce gases and odors. Spills exceeding 5 gallons onto ground surface shall be noted in the field log along with implemented mitigation measures.
- Project implementation will include monitoring groundwater and air for biological indicators to demonstrate that Cr(VI) is being effectively reduced and whether potential byproducts, such as gases and mobilized metals/metalloids, are generated. If gases are generated, the applicant will comply with mitigation measures described in the Air Quality section above. The proponent will record water quality results and notify the Water Board within five working days if violations of water quality standards are detected.
- In the event that reduced metals, other than chromium, are detected at trigger concentrations in waste discharge requirements in groundwater at the second row of sentry monitoring locations, located 800 feet from the injection wells, the Discharger will notify the Water Board within 5

days and consult with the Water Board staff concerning the results. If the Discharger cannot make a case to indicate the unlikely potential for constituent migration beyond the pilot test boundaries, the Discharger must implement the Contingency Plan. In the latter case, injections must be scaled back or halted within 5 days of consulting with Water Board staff. Within 14 days of consulting with Water Board staff, the Discharger must begin the process of implementing air sparging or another equally effective remediation method for the constituent exceeding the water quality standard. The chosen remediation method must be in operation within 120 days of consultation with Water Board staff. The chosen remediation method must restore the aquifer to pre-pilot study conditions and restore water quality to levels listed in waste discharge requirements, preventing migration outside the pilot study boundaries.

- In the event that reagents, tracers, well rehabilitation compounds, and/or byproducts are detected at trigger concentrations in contingency monitoring wells, located on the test cell boundaries, the applicant will notify the Water Board within five working days. Within 14 days of notification, the applicant will submit a proposal to the Water Board to prevent such migration outside the pilot study boundaries. The proposal shall contain a monitoring plan to adequately monitor groundwater outside the pilot study boundaries downgradient of the area where violations were observed.
- Contingency Plan implementation shall prevent contaminant migration from the downgradient boundary of the study area and to restore water quality to levels listed in the waste discharge requirements. Implemented mitigation measures and associated activities shall be recorded in the field log.

**Noise--Less Than Significant with Mitigation Incorporation.**

- The project will be conducted in accordance with the County of San Bernardino's General Plan Noise Element standard for residential development. If violations occur, personnel will note in the field log when appropriate mitigation measures are implemented to reduce noise.
- Well installation and construction will be conducted during normal daytime business hours.
- No more than two drill rigs will be present on site during the same time.
- Personnel and workers will adhere to the Health and Safety Manual for wearing ear protection.
- If noise complaints are received, the site manager will measure the noise level using a deciblemeter at the project limits. All measurements will be documented in the site log. If the noise level is found to exceed the County ordinance, the site manager will take appropriate actions to

- reduce noise on site and note such actions in the log.
- The site manager will note in the site log book if complaints of excessive vibrations are reported. He/she will document corrective actions taken to reduce vibrations.
- Vehicle traffic will be scheduled so as to prevent excessive vehicles from being on site at any one time.

**Transportation/Traffic -- Less Than Significant with Mitigation Incorporation.**

- Work will only be conducted during daytime business hours.
- During construction activities, delivery, and drilling activities, project personnel will prevent vehicles from lining up on County roads that could prevent through traffic. If traffic congestion occurs from the project, mitigation actions taken by personnel, such as re-directing project traffic, shall be recorded in the field log.
- Vehicle speeds on unpaved roadways will be limited to 25 miles per hour to minimize vehicle-related dust emissions.
- Dirt roads will be sprayed with water to minimize dust generation.
- Following construction completion, project personnel will ensure that the ethanol delivery truck has immediate access to enter the site so that it does not pose a potential hazard to other vehicles on the road. This mitigation measure will be implemented by project personnel being on site prior to time of expected ethanol deliveries.

## **ENCLOSURE 2**

06-0015

## **SUBSEQUENT STUDY/ENVIRONMENTAL CHECKLIST AND MITIGATED NEGATIVE DECLARATION**

This Subsequent Study/Environmental Checklist and Negative Declaration have been prepared in accordance with the California Public Resources Code, Section 21080(c) and California Code of Regulations (CCR), Title 14, Sections 15070 and 15071. A Mitigated Negative Declaration for this project was adopted on June 14, 2006 by the California Regional Water Quality Control Board, Lahontan Region under Board Order No. R6V-2006-0022.

**Project Title:** Revised Central Area In situ Remediation Pilot Study Project

**Project Location:** 35863 Fairview Road, Hinkley, California 92347

**Lead Agency:** California Regional Water Quality Control Board, Lahontan Region

**Decision Making Body:** California Regional Water Quality Control Board, Lahontan Region

**Project Applicant:** Pacific Gas and Electric Company (PG&E), 77 Beale Street, San Francisco, California 94105. Please send all correspondence to Robert Doss at the above address, and to Eric Johnson at 350 Salem Street, Chico, CA 95928.

**Project Description:** The original project description was detailed in the Revised Application/Report of Waste Discharge and Response to Comments (CH2M Hill, January 2006) for the in situ remediation pilot study in the Central Area of the PG&E Hinkley Compressor Station (the Site) chromium plume. The project, consisting of a 1,000 foot long by 1,800 foot wide pilot study area, was permitted on June 16, 2006 under Waste Discharge Requirements (WDRs) Order No. R6V-2006-0023. The project involves the implementation of a pilot study to evaluate an in situ (below ground surface) remediation technology in a controlled test cell as part of the development of a long-term strategy for remediation of groundwater containing chromium at the Hinkley Compressor Station. The site is located east of the community of Hinkley in San Bernardino County, in the Harper Valley Subarea of the Mohave Hydrologic Unit. The pilot study will evaluate in situ biological reduction of hexavalent chromium [Cr(VI)] to trivalent chromium [Cr(III)] using wells as the delivery system. Reducing conditions will be created through the injection of reductant (food-grade carbon sources) into the aquifer at the Central Area of the Cr(VI) plume.

This Subsequent Study/Environmental Checklist that follows has been prepared to consider proposed changes to the pilot study that require action by the Lahontan Water Board through adoption of revised WDRs. The proposed changes include (1) the use of tracer dyes to evaluate the efficacy of the recirculation wells, (2) the use of well rehabilitation compounds to effectively clean the injection well screens, (3) the use of ethanol as an additional food-grade carbon source, (4) a change in well spacing for

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entry and contingency monitoring wells, and (5) revising concentration limits for hexavalent and total chromium. In addition, the Subsequent Study/Checklist addresses changes in construction, operation and maintenance activities for implementing the proposed changes.

The mitigated negative declaration, adopted June 14, 2006, for the original project makes reference to a manual carbon source delivery system for facilitating bioremediation. The system included a trailer-mounted tank that would be transported from well to well for the direct injection of fluids to the well heads, using above ground piping. The original mitigated negative declaration also refers to generators that would be used to operate pumps at individual well heads and the trailer mounted injection system. After installation and operation of the first phase of the Central Area in situ pilot study, PG&E determined that an automated carbon source delivery system would be more effective, would be less subject to security breaches, and would lessen the impact from frequent traffic resulting from driving a truck and trailer to each well.

PG&E, thus, proposes an automated system that includes underground piping and vaults for carbon source delivery at each well head, underground conduit for electrical connections at each well head for pump operations, and temporary above-ground features including a carbon source holding tank and conex boxes containing system controls. The automated system eliminates the impacts of a truck and trailer routinely delivering carbon source to the well heads, and minimizes noise by using direct electrical connections instead of generators to operate well pumps. The system automation allows for more efficient operations, which could shorten the overall timeframe of the remediation project.

The above-described changes in system construction from manual to automated carbon source delivery was conducted with San Bernardino County as the permitting agency. Therefore, the changes do not require a discretionary action by the Water Board (i.e., revisions to the WDRs) or a revised checklist and project description under the California Environmental Quality Act (CEQA). Construction of the primary elements of the updated (automated) system, including installation of underground piping and temporary above-ground features, is underway, and portions of the system have been completed. Other construction and operation/maintenance activities, such as above ground storage tank installation, security features, and a gravel road, that will occur at a later date are addressed in this CEQA Subsequent Study/Checklist.

Mitigation measures to address potential impacts associated with these changes are described herein, along with the revised changes listed earlier in this section.

**Mitigation Measures:** The mitigation measures for these additional components are included in the attached Subsequent Study/Environmental Checklist. The project applicant has agreed to implement all of the mitigation measures.

**Environmental Finding:** The staff of the California Regional Water Quality Control Board, Lahontan Region has determined, on the basis of the attached Subsequent

Study/Environmental Checklist and the documents and sources referenced herein, that the project described above will not have a substantial adverse impact on the environment, provided that the mitigation measures identified in the project applicant's Report of Waste Discharge and the related Subsequent Study/Environmental Checklist are included in the project.

**Subsequent Study/Environmental Checklist:** A draft Supplemental Initial Checklist was prepared by ARCADIS and submitted to the Water Board by PG&E. The attached version of the Subsequent Study/Environmental Checklist was completed by Lisa Dernbach, Senior Engineering Geologist, of the Water Board. For more information, please contact Lisa Dernbach at (530) 542-5424 and [ldernbach@waterboards.ca.gov](mailto:ldernbach@waterboards.ca.gov).

**Subsequent Study/Environmental Checklist  
Central Area In Situ Remediation Pilot Study  
Pacific Gas and Electric Company Compressor Station, Hinkley, California**

1. Project title:  
***Subsequent Changes to the Revised Central Area In situ Remediation Pilot Study Project, Pacific Gas and Electric Company Compressor Station, Hinkley, San Bernardino County, California***
2. Lead agency name and address:  
***California Regional Water Quality Control Board, Lahontan Region  
2501 Lake Tahoe Blvd., South Lake Tahoe, California 96150***
3. Contact person and phone number:  
***Lisa Dernbach, Senior Engineering Geologist  
Telephone: (530) 542-5424 and ldernbach@waterbaords.ca.gov***
4. Project location:  
***Intersection of Fairview Road and Frontier Road  
Hinkley, San Bernardino County, California 92347***
5. Project sponsor's name and address:  
***Pacific Gas and Electric Company, 77 Beale St, San Francisco, CA 94105  
Attention: Robert Doss  
Pacific Gas and Electric Company, 350 Salem Street Chico, CA 95928 Attention:  
Eric Johnson***
6. General plan designation:  
***RL-5 (Rural Living 5-acre minimum)***
7. Zoning:  
***RL-5 (Rural Living 5-acre minimum)***
8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

*The project activities associated with the Central Area pilot study were previously defined in the approved Initial Study/Checklist (CH2M Hill, 2006). The basis for the original project description remains valid. Field-scale pilot testing at the facility started in fall 2006, under the waste discharge requirements set forth in Lahontan Water Board Order No. R6V-2006-0023. Pilot testing results are documented in the February 19, 2007 Central Area In Situ Phase I Pilot Study Recirculation Test Report (Test Report) and the April 30, 2007 First Quarter 2007 Monitoring Report. Based on the results of the initial activities, the following items are included in this Subsequent Study/Checklist for incorporation into revised waste discharge requirements.*

*The basis for the original project description remains valid, with the exception of the items identified below. The proposed project changes include (1) the use of tracer dyes to evaluate the efficacy of the recirculation wells, (2) the use of well rehabilitation compounds to effectively clean the injection well screens, (3) the use of ethanol as an additional food-grade carbon source, (4) a change in well spacing for sentry and contingency monitoring wells, and (5) revising concentration limits for hexavalent and*

total chromium. In addition, the Subsequent Study/Checklist addresses changes in construction, operation and maintenance activities for implementing the proposed changes.

### **Fluorescent Tracers**

The use of fluorescein and eosin fluorescent dye tracer compounds are being added to the WDRs, to allow for better understanding of aquifer conditions affecting recirculation cells. A total of up to three pounds of each tracer will be used in recirculation wells. The maximum concentration of the injected tracer will be 1 milligram per liter (mg/L). Tracer testing will be performed by injecting the dye to groundwater and evaluating nearby treatment zone monitoring wells for concentrations of the dye.

### **Well Rehabilitation Compounds**

Operation of the permitted Central Area pilot study has demonstrated that well screen fouling within the injection wells could limit the long-term permeability of the well screens and overall project effectiveness. Therefore, corrective actions are necessary to prevent excess build up of biofouling and mineral deposits on well screens. The revised project proposes to include the injection of acid and oxidizing compounds for this purpose. A maximum volume of 360,000 gallons of food grade or United States Pharmacopeia (USP) grade citric acid, acetic acid, hydrochloric acid, sodium hydroxide, and/or hydrogen peroxide will be used on an as-needed basis. Delivery of acids and oxidizers to the screened interval of the well will create localized acidic, basic, or oxidized conditions within the well screen and filter pack, resulting in dissolution of mineral precipitates and bacterial growth on the well screen. Due to the natural bicarbonate conditions in groundwater, the affects of acid and oxidizer injections will be localized to just the area of the injection wells. Thus, injection of these compounds will not have a negative impact on water quality beyond the treatment zone or on the overall pilot test.

### **Use of Ethanol as a Reductant**

The current WDRs allow lactate, whey, and emulsified vegetable oil to be used as carbon sources to promote microbial Cr(VI) reduction. Ethanol (95 percent ethanol denatured with 5 percent isopropyl alcohol) will be added to the list of approved carbon sources for this pilot study. Ethanol, an alcohol, will behave similarly to lactate (which has been proven to effectively reduce chromium in the Central Area) when used for in situ treatment, and will therefore be an effective carbon source for the Central Area in situ remediation project. A total of up to 400,000 gallons of 95 percent ethanol may be used over a five-year period. Ethanol impacts to water quality, including an alcohol taste and odor and an increase in organic carbon, are expected to be confined to just the project area and for only a limited time until consumed by microbes.

### **Increased Sentry and Contingency Monitoring Well Spacing**

The current WDRs identify the spacing of three lines of monitoring wells downgradient of the treatment zone: a sentry line of wells located 180 feet downgradient of the injection wells, a sentry line of wells located 400 feet downgradient of the injection wells, and a contingency line of wells located 1,000 feet downgradient of the injection wells.

*This well spacing was designed to monitor carbon-source impacts to water quality and degradation byproducts assuming an average groundwater velocity of 1-2 feet per day through the Central Area. However, based on the results of aquifer tests conducted during initial pilot study activities, a more rapid groundwater velocity between injection and extraction wells during recirculation (up to 4 feet per day) was observed. As such, the treatment zone, defined as the area in which the treatment reagent is still present in concentrations sufficient to accomplish the desired reaction, includes an area located further down-gradient of the injection wells than was previously predicted. To account for the faster than predicted groundwater velocities and extended downgradient treatment zone, the two sentry well line locations will be adjusted from 180 feet and 400 feet to 400 feet and 800 feet downgradient of the injection wells, respectively. In addition, the row of contingency wells will be moved from 1,000 feet to 1,600 feet downgradient of the injection wells. All wells will remain on land owned or leased by PG&E. No change in the total number of wells is proposed. As a result of this change, the footprint of the pilot study will now be 1,800 feet wide by 1,600 feet long.*

### **Revising Concentration Limits for Hexavalent and Total Chromium**

*The February 19, 2007 Central Area In-Situ Phase I Pilot Study Recirculation Test Report (Test Report) and the April 30, 2007 First Quarter 2007 Monitoring Report state that background water sampling prior to reagent injection showed hexavalent and total chromium concentrations at levels above limits established in the WDRs. During baseline sampling, total chromium [Cr(T)] concentrations ranged from 71.9 to 303 micrograms per liter ( $\mu\text{g/L}$ ) and hexavalent chromium concentrations ranged from 83.6 to 334  $\mu\text{g/L}$ . The applicant requests that waste discharge requirements be revised to reflect background concentrations for total and hexavalent chromium before reagent injections begin for implementing full-scale remediation at the site. There will be no adverse effects upon the environment with this change.*

### **Construction, Operations, and Maintenance**

*The current project as modified includes an automated system that consists of underground piping and vaults for carbon source delivery at each well head, underground conduit for electrical connections at each well head for pump operations, and temporary above-ground features including a carbon source holding tank and conex boxes for system controls. The vaults and piping have generally been constructed. The conex boxes, storage tank, and security measures (fencing and lighting) will be constructed at a later date and are discussed in detail below.*

*Carbon substrate will be delivered on an infrequent basis (from 30 to 90 days), and stored in the above-ground features consisting of the bulk storage tank and conex box. A roadway to the bulk storage tank and tanker turnaround (approximately 17,500 square feet total) may be re-enforced with crushed rock, and maintained throughout the project. The bulk storage tank and conex box will be secured through the use of privacy fencing and security lighting.*

*For routine injections, the carbon source will be mixed with extracted groundwater from the Site, and re-injected through recirculation well pairs using buried conveyance piping. The conveyance piping consists of double-contained high-density polyethylene (HDPE) pipe equipped with a leak detection system that shuts down the remediation system if a breach of the inner pipe is detected. A direct electrical connection for the remediation*

system and individual wellheads will eliminate the need for portable generators during injection activities.

The proposed additional features will result in increased traffic, noise, and air quality issues during the construction period. After which, the use of an automated system will reduce the traffic, noise, and dust generation at the Site compared to the manual system that consisted of frequent traffic between wells during injections. Only the aesthetics impacts of the site will continue from the revised project.

9. Surrounding land uses and setting: Briefly describe the project's surroundings:

*There are no changes to the surrounding land uses and setting from the Initial Study/Checklist. The local setting and land use remain rural/agricultural.*

*The Central Area pilot test area is located in the vicinity of the intersection of Fairview Road (paved) and Frontier Road (unpaved), and is bound by rural/agricultural land to the south, north, east and west. The project area is on land owned or leased by PG&E.*

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement).

*Individual well drilling permits will be required by San Bernardino County to install monitoring wells. The only change in conditions associated with the installation of these wells is the spacing downgradient from the injection wells; therefore, the need for well permits was previously defined in the Initial Study/Checklist.*

*A non-discretionary industrial alcohol user permit from the U. S. Department of the Treasury, Alcohol and Tobacco Tax and Trade Bureau is required for the bulk storage of ethanol. The storage tank to be used in the Central Area is sized to contain up to 12,000 gallons of 95 percent ethanol. As such, an industrial alcohol user permit will be required prior to delivering bulk quantities of ethanol to the Site.*

*The Site is located within the jurisdiction of the Mojave Desert Air Quality Management District (MDAQMD). Point source and fugitive air emissions, such as those from ethanol tanker truck unloading, storage, and handling are subject to the Rules and Regulations of the MDAQMD. Under Regulation II (Permits), the MDAQMD requires that all equipment with the potential to emit air pollutants have a valid MDAQMD permit prior to commencing construction and/or operation. As such, a non-discretionary MDAQMD permit will be required prior to storing bulk ethanol at the Site.*

*A non-discretionary permit from the San Bernardino Fire Department (SBFD) is required to store more than 5,000 gallons of flammable liquids, and to operate a flammable-liquid bulk loading and unloading operation. As such, a SBFD permit will be required prior to storing bulk ethanol at the Site. In addition, a California Air Resources Board (CARB) permit is required for ethanol storage on site.*

**ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:**

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

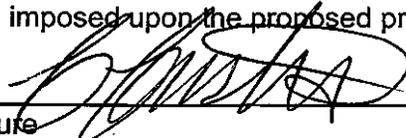
- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> Aesthetics                    | <input type="checkbox"/> Agriculture Resources                         | <input checked="" type="checkbox"/> Air Quality            |
| <input checked="" type="checkbox"/> Biological Resources          | <input type="checkbox"/> Cultural Resources                            | <input type="checkbox"/> Geology /Soils                    |
| <input checked="" type="checkbox"/> Hazards & Hazardous Materials | <input checked="" type="checkbox"/> Hydrology / Water Quality          | <input type="checkbox"/> Land Use / Planning               |
| <input type="checkbox"/> Mineral Resources                        | <input checked="" type="checkbox"/> Noise                              | <input type="checkbox"/> Population / Housing              |
| <input type="checkbox"/> Public Services                          | <input type="checkbox"/> Recreation                                    | <input checked="" type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities / Service Systems              | <input checked="" type="checkbox"/> Mandatory Findings of Significance |  |

**DETERMINATION: (To be completed by the Lead Agency)**

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature



Date

11/7/07

## EVALUATION OF ENVIRONMENTAL IMPACTS:

- 1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- 4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).
- 5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. CCR, Title 14, Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
  - a) Earlier Analysis Used. Identify and state where they are available for review.
  - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
  - c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7) Supporting Information Sources: A source list should be attached, and other sources

used or individuals contacted should be cited in the discussion.

- 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- 9) The explanation of each issue should identify:
  - a) the significance criteria or threshold, if any, used to evaluate each question; and
  - b) the mitigation measure identified, if any, to reduce the impact to less than significance

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<b>I. AESTHETICS</b> Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><b>Significance:</b> <i>Less than Significant.</i></p> <p><i>(c) The following structures are being added to the site for the estimated project duration of at least five years:</i></p> <ul style="list-style-type: none"> <li>• <i>Above ground storage tank measuring 10-feet 9-inch in diameter and 24-feet in length with a vent pipe standing 12-feet above ground.</i></li> <li>• <i>Above ground conex boxes.</i></li> <li>• <i>A 6-foot high chain link fence surrounding on-site structures.</i></li> <li>• <i>Grading and crushed rock for access driveway and tanker turn around area, equaling about 17,500 square feet.</i></li> </ul> <p><i>The use of ethanol and well rehabilitation compounds will be implemented in situ, and the biological and chemical processes will be unchanged from what was previously described and considered in the existing Initial Study/Checklist. The increased well spacing will not provide a change in aesthetics, as the same number of wells will be installed over a broader area.</i></p> <p><b>Mitigation Measures:</b></p> <p><i>None required since the site is not located within, or in the vicinity of, a scenic vista or any designated scenic resources. The visibility of the in-situ system facilities (storage tank, fencing, conex boxes, etc.) would be limited, because the equipment is relatively small and the location of the project site is remote. The nearest residence is about 700 feet from project boundaries and the distance provides enough mitigation so that residents would not be affected by on-site structures from the project.</i></p>				
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
area?				
<b>Significance:</b> <i>Less than significant impact with mitigation incorporation.</i>				
<i>(d) As stated in the Initial Study/Checklist, the site is not located within, or in the vicinity of, a scenic vista or any designated scenic resources.</i>				
<i>The in situ system facilities will have security lighting designed to limit misdirected light. Each portable storage container will have a single light mounted at the main door that will be illuminated continuously from dusk to dawn. Additional lights containing motion sensors will be placed within the fenced enclosure surrounding the conex boxes and the storage tank, and will only illuminate when triggered by movement.</i>				
<b>Mitigation Measures:</b>				
<i>The lighting and fencing are required for site security, and have been designed to minimize impacts to aesthetics. Security lighting will be directed away from nearby residences. The distance to residences (700 feet and greater) provides adequate mitigation from potential glare by the lights.</i>				

**II. AGRICULTURE RESOURCES:**

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland.

Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<b>Significance:</b> <i>No Impact.</i>				
<i>(a)-(c) A review of potential impacts to agricultural resources was conducted and presented in the Initial Study/Checklist. There are no changes as a result of the project revisions.</i>				
<b>Mitigation Measures:</b>				
<i>None Required.</i>				

<b>III. AIR QUALITY</b>				
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:				
<b>a) Conflict with or obstruct implementation of the applicable air quality plan?</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Significance:</b> <i>Less than Significant with Mitigation Incorporation.</i>				
<i>(b) Revising the location of the monitoring wells will not change or increase dust generation from drilling as approved under the existing Initial Study/Checklist, as the number of wells to be installed remains the same as originally planned. The generation of dust for well construction activities was addressed in the Initial Study/Checklist. No change or increase in dust generation will result from the well construction activities.</i>				
<i>Construction of the remaining elements of the automated system (conex boxes, storage tank, lighting, fencing, access road and tanker turnaround) may result in short-term dust generation. Mitigation measures, such as water spray for dust control, were previously included in the original project description, and are also applicable for the planned construction. Furthermore, the new automated injection system will decrease the potential for dust generation associated with system operation, as routine traffic from well to well will not be necessary.</i>				
<i>Point source and fugitive air emissions, such as those from tanker truck unloading, storage, and handling of ethanol, are subject to the Rules and Regulations of the Mojave Desert Air Quality Management District. Under Regulation II (Permits), the MDAQMD requires that all equipment with the potential to emit air pollutants have a valid permit prior to commencing construction and/or operation. In addition, a California Air Resources Board (CARB) permit is</i>				

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<i>required for storage of ethanol on site.</i>				
<b>Mitigation Measure:</b>				
<i>The air quality mitigation measures identified in the Initial Study/Checklist will be applied to drilling and construction activities in the revised project. Vehicle speeds on unpaved roadways will be limited to 10 miles per hour, to minimize vehicle-related dust emissions. Water spray will be used for dust control. In accordance with MDAQMD rules, construction activities creating dust will have to cease when winds reach speeds of 25 miles per hour or more.</i>				
<i>For the storage of ethanol at the site, the MDAQMD will assign a set of conditions to each issued permit. These conditions will define acceptable operation of the device within the air quality requirements. These requirements are derived from Federal, State and MDAQMD laws, rules and regulations, MDAQMD permitting policy and precedent, and regulatory engineering practice as interpreted by MDAQMD engineering staff. In addition, the permit will define what is being permitted through the description and equipment details and/or equipment detail list, in most cases including a maximum rating. Fugitive emissions will be monitored in compliance with the MDAQMD permit. Monitoring results will be kept in a log by the site manager and submitted according to the schedule in the permit. Potential violations will be described in monitoring reports and corrective actions taken will be listed.</i>				
<i>Ethanol storage will be maintained in compliance with the CARB permit. The site manager will be responsible for ensuring that all permit conditions are complied with and reports are submitted according to schedule.</i>				
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Significance:</b> <i>Less than Significant with Mitigation Incorporation.</i>				
<i>(e) There may be some minor and temporary odors associated with the handling, storage, and operation of ethanol use. The project is located approximately 700 feet to the east of the nearest residence. The rural location of the remediation site and the distance to the nearest residences will prevent these potential conditions from affecting a substantial number of</i>				

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<p>people. As ethanol is a similar reductant to those identified in the Initial Study/Checklist, mitigation measures with regard to sensitive receptors or odors will be the same as previously described.</p>				
<p><b>Mitigation Measures:</b></p>				
<p>The air monitoring program in place will evaluate any odors, methane, and hydrogen sulfide gas levels during project operations. If high levels of nuisance air constituents are detected, a contingency plan to scale back or shut down injections will be implemented. The site manager will be responsible for recording high levels of nuisance air constituents in a site log book and reporting corrective actions according to agencies permits.</p>				

<p><b>IV. BIOLOGICAL RESOURCES</b></p>				
<p>Would the project:</p>				
<p>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?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
wildlife corridors, or impede the use of native wildlife nursery sites?				
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><b>Significance:</b> <i>Less than Significant with Mitigation Incorporation.</i></p> <p><i>(a) The details associated with biological resource management and the construction and drilling activities to be conducted at the Site were presented in the Initial Study/Checklist.</i></p> <p><i>A review of the California Natural Diversity Database (CNDDDB) indicated the potential presence of the desert tortoise (Gopherus agassizii). However, the project site does not fall within the United States Fish and Wildlife Service critical habitat designation for the desert tortoise. The Superior-Cronese Desert Tortoise Critical Habitat Unit is located approximately 2 miles northeast of the project site, encompassing areas northeast of Hinkley to Cronese Valley (55 FR 12178-12191).</i></p> <p><i>There are no CNDDDB records related to the Mohave ground squirrel (Spermophilus mohavensis) within the project vicinity. However, there have been past sightings of the Mohave ground squirrel by PG&amp;E personnel. No other sensitive terrestrial species are documented at, or in the vicinity of, the project site.</i></p> <p><i>No additional significant habitat would be affected by the project revisions. The revised monitoring well locations will be in areas already disturbed by agricultural operations, access roads, or other improvements/disturbances. No natural water features or fish species are located within the vicinity of the wells. In addition, no significant habitat would be affected by the project revisions at the treatment zone where the storage tank, conex boxes, and security measures will be constructed. The project revisions will not provide a change in biological conditions or additional impact.</i></p> <p><b>Mitigation Measures:</b></p> <p><i>Environmental awareness training for all drilling and construction personnel will be provided to identify sensitive biological resources, using the current PG&amp;E training program. Workers will be required to report to the project biologist the occurrence of any special-status species observed during the drilling and construction operations, who would then implement species protection measures.</i></p>				

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
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*When the precautions and measures mentioned above are implemented during the project, potential impacts will be effectively mitigated. Therefore, no adverse cumulative impact to the environment is anticipated.*

**V. CULTURAL RESOURCES**

Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

d) Disturb any human remains, including those interred outside of formal cemeteries?

**Significance:** *No Impact.*

*(a)-(d) A review of cultural resources was conducted and presented in the Initial Study/Checklist. There are no changes as a result of the project revisions. Cultural resources in the pilot study area are not identified on maps and databases maintained by the State of California and San Bernardino County.*

**Mitigation Measures:**

*In the event that cultural resources are accidentally discovered during project activities, PG&E will contact and work closely with the Native American Heritage Commission to ensure resources are not destroyed or adversely disturbed.*

**VI. GEOLOGY AND SOILS**

Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><b>Significance:</b> <i>No Impact.</i></p> <p><i>(a)-(e) A review of potential impacts to geology and soils was conducted and presented in the Initial Study/Checklist. There are no changes as a result of the project revisions. The above-ground remediation system and underground piping system will be properly constructed for earthquake safety.</i></p> <p><b>Mitigation Measures:</b></p> <p><i>None Required.</i></p>				

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
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**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?

**Significance:** *Less than Significant with Mitigation Incorporation.*

*(a) The revised project includes the transportation, storage and handling of flammable liquids (ethanol), acids, and oxidizers. Each of these items has the potential to pose a hazard to the public and the environment if not managed properly.*

**Mitigation Measures:**

*The following safety features will be implemented during the project to prevent exposure to the public of potential hazards from hazardous materials:*

- *Adequate communication equipment must always be present on site to report potential fires or other emergencies.*
- *Necessary permits will be obtained from the San Bernardino County Fire Department and Health Department prior to chemical use at site.*
- *Trucks delivering flammable liquids (ethanol), acids, and oxidizers will comply with applicable federal, state, and local statutes and regulations.*
- *Spill control and secondary containment will be provided for the ethanol storage tank and the tank vehicle offloading area.*
- *The ethanol storage tank will be double walled and have required venting controls.*
- *All underground piping will be double walled.*
- *Well rehabilitation chemicals (acids and oxidizers) will not be stored in bulk at the site.*
- *Signage will be posted next to the storage tank to indicate the potential fire hazards.*
- *Personnel involved in the transportation, delivery and handling of the materials will take proper safety precautions, based upon recommendations contained in the Material Safety Data Sheets for the materials. Personnel will also protect themselves with protective equipment according to the site Health and Safety manual.*
- *The site manager will be responsible for maintaining a site log involving the transportation, storage, and handling of chemicals on site. All spills or releases will be logged and reported to the appropriate overseeing agency issuing use permits. Corrective action taken will also be recorded.*
- *Adequate fire suppression equipment shall be maintained at the site at all times.*

b) Create a significant hazard to the public or the environment through

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<p>reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?</p>				
<p><b>Significance:</b> <i>Less Than Significant Impact with Mitigation Incorporated.</i></p> <p><i>(b) The California Fire Code (2001) was reviewed for the on-site use and storage of flammable liquids such as ethanol. The ethanol conveyance system will employ an eductor with potable water as the motive fluid, to ensure that only a dilute ethanol solution will be conveyed into the existing remediation system. The concentration of ethanol in the water will be limited, to maintain a non-combustible solution based on the flashpoint. Since the ambient temperature can reach 120 degrees Fahrenheit at the Site, the solution strength was designed to yield a flashpoint of 130 degrees Fahrenheit or greater. The system will be outfitted with mechanical and process control systems, to ensure that the ethanol dilution system is operating properly. The frequency of deliveries for 95 percent ethanol is estimated at approximately one tanker truck every 30 to 91 days.</i></p> <p><i>Acetic, citric, and hydrochloric acids, sodium hydroxide, and/or hydrogen peroxide solutions will be used as well rehabilitation compounds. The well rehabilitation compounds will be purchased and used as needed, and will not be stored in bulk at the Site.</i></p> <p><b>Mitigation Measures:</b></p> <p><i>A permit from the San Bernardino Fire Department is required to store more than 5,000 gallons of flammable liquids (ethanol), and to operate a flammable-liquid bulk loading and unloading operation. Permit applications and associated review materials will be submitted to the San Bernardino County Fire Chief.</i></p> <p><i>Spill control and secondary containment must be provided for the flammable-liquid storage tank and tank vehicle offloading area. A double-walled protective tank that complies with the Underwriters Laboratories 2085 standard will be used for substrate storage. The tank is 10'-9" in diameter and 24'-0" in length. The volume of the outer shell of the tank is 110 percent of the internal tank. The tank vehicle offloading area design includes a concrete containment area with a capacity that is 110 percent of the volume of a 5,000 gallon capacity tanker truck.</i></p> <p><i>Tanks storing flammable liquids must be outfitted with backflow and external control valves. These valves have been included in the system design.</i></p> <p><i>The San Bernardino County Fire Code (Fire Code) contains specific venting requirements for flammable-liquid storage tanks. The substrate storage tank will be outfitted with a minimum 1.25-inch (internal diameter) atmospheric vent. A normally-closed venting device will be installed on the atmospheric vent. An emergency vent with a venting capacity of 239,000 cubic feet per hour will be installed, per emergency-vent calculations outlined in the Fire Code.</i></p> <p><i>Signage must be posted near flammable-liquid storage tanks, to indicate the potential fire</i></p>				

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<p><i>hazards. A 'no open flame' and 'no smoking' sign will be posted near the substrate-storage tank, and a placard will be placed on the tank identifying the contents.</i></p> <p><i>Separation distances are specified in the code for design elements such as the storage tank, storage tank vents, and tank vehicle offloading. The following separation distances will be maintained:</i></p> <ul style="list-style-type: none"> <li>• <i>Storage Tank Location – 30 feet from property line and 5 feet from the temporary storage facility</i></li> <li>• <i>Storage Tank Vent - 12 feet above ground surface and 5 feet from the temporary storage facility</i></li> <li>• <i>Tank Vehicle Unloading Facility - 25 feet from public roadway and the temporary storage facility</i></li> </ul> <p><i>Well rehabilitation compounds will not be stored in bulk at the site; rather they will be brought in as needed and injected into wells through the engineered system used for substrate injection. The well rehabilitation reagents will be transported to the site via tanker truck or totes. The material will be offloaded from within the containment berm of the tanker offloading area. The reagent material will be transferred to the mixing tank via double-contained HDPE piping. Following mixing, the dilute reagent will be conveyed to the injection vaults via double-walled HDPE piping. Personnel involved in the transportation, delivery and handling of the materials will take proper safety precautions, based upon recommendations contained in the Material Safety Data Sheets for the materials.</i></p>				
<p>c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>f) For a project within the vicinity of a</p>				

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><b>Significance:</b> <i>No Impact.</i></p> <p><i>(c) – (h) No changes result from the proposed project revisions.</i></p> <p><b>Mitigation Measures:</b></p> <p><i>None Required.</i></p>				

<b>VIII. HYDROLOGY AND WATER QUALITY</b>				
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p><b>Significance:</b> <i>Less than Significant Impact with Mitigation Incorporated.</i></p> <p><b><u>Ethanol</u></b>  <i>In addition to the carbon reagents identified in the Initial Study/Checklist, ethanol may be injected during the pilot study to stimulate naturally-occurring microbes to consume oxygen in groundwater, creating an anaerobic environment for reducing Cr(VI). Injected ethanol concentration to groundwater will range from 200 to 600 mg/L, which is below the taste and odor threshold of 760 mg/L. Bioremediation end-products will include carbon dioxide, water, and carbon as microbial biomass. Ethanol could be detected as ethanol and total organic carbon in the treatment zone, at concentrations above water quality standards. But since ethanol will be injected at concentrations less than the taste and odor threshold, only total organic matter will be constituent of concern until consumed or dispersed in groundwater.</i></p> <p><i>Total Substrate Volume –The maximum volume of 95 percent ethanol that will be injected in the Central Area over the course of the 5-year pilot study is 400,000 gallons. This volume is based on local groundwater flow conditions and aquifer geochemistry, current concentrations of Cr(VI) in this area, and initial results of the Central Area pilot study using a similar substrate</i></p>				

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
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(lactate). The actual volume of ethanol to be injected will be determined based on site conditions and ongoing pilot study monitoring data.

**Tracer Compounds**

Fluorescein and eosine dyes will be mixed with the recirculated groundwater, to provide additional groundwater flow characterization data within the Central Area. A maximum of three pounds each of fluorescein and eosine dyes will be injected during the pilot study. The tracers will be injected in the groundwater at concentrations no greater than 1 mg/L, which is approximately the concentration at which the dyes are visible to the naked eye. These safe, non-toxic compounds have been used in groundwater tracer studies at the Site. The tracers are expected to dilute and biodegrade in the groundwater to concentrations of 0.1 mg/L or less prior to reaching the pilot study boundaries, reducing dye visibility.

**Well Rehabilitation Compounds**

As a result of injection well screen fouling observed during the initial pilot study activities, well rehabilitation compounds will be used to remove microbial or geochemical fouling and encrustation that may negatively impact well performance. For well rehabilitation, PG&E will use food grade or United States Pharmacopeia (USP) grade compounds, including citric acid, acetic acid, hydrochloric acid, sodium hydroxide, and/or hydrogen peroxide. Delivery of acids and other compounds to the screened interval of the wells, at concentrations ranging from 1 to 5 mg/L, will create acidic, basic, and/or oxidized conditions within the well screen and filter pack. Such conditions will result in dissolution of mineral precipitates and biological growth on the well screen. A maximum volume of 360,000 gallons of well rehabilitation compounds will be used for well rehabilitation at the Central Area pilot test.

The existing Monitoring and Reporting Program for the Central Area requires monitoring for pH and alkalinity (as a background measurement) in the Central Area treatment zone monitoring wells. The bicarbonate alkalinity averaged 300 mg/L in the Central Area wells, and pH was neutral to slightly alkaline during the baseline event. These data show that the aquifer materials contain a high concentration of carbonate minerals that are in equilibrium with the dissolved bicarbonate, which will provide a strong buffering effect on any acids and bases injected within the treatment zone as part of the well rehabilitation program. The strong buffering capability of the aquifer, and the very limited use of these compounds for well rehabilitation, will prevent pH effects from being observed in downgradient monitoring wells. Thus, injection of these compounds will not have a negative impact on water quality beyond the treatment zone or on the overall pilot test

**Monitoring Well Spacing**

The approved WDRs provide for spacing of three lines of monitoring wells downgradient of the treatment zone: a sentry line of wells 180 feet downgradient of the injection wells, a sentry line of wells 400 feet downgradient of the injection wells, and a contingency line of wells 1,000 feet downgradient of the injection wells. Initial aquifer testing conducted during the pilot studies showed a more rapid groundwater velocity than originally estimated through the areas tested in the Central Area. This more rapid groundwater velocity will have the effect of extending the

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<p>downgradient treatment zone, defined as the area in which the treatment reagent is still present in concentrations sufficient to accomplish the desired reaction. The revised well spacing of 400 feet, 800 feet, and 1,600 feet downgradient from the injection wells accounts for the increased groundwater velocity through the Central Area. All sentry and contingency wells remain on land owned or leased by PG&amp;E. No change in the number of wells is proposed.</p> <p><b>Mitigation Measures:</b></p> <p><b><u>Ethanol</u></b>  Ethanol is expected to behave similarly to the other permitted carbon sources for the Central Area. Reduced groundwater conditions resulting from ethanol injections have the potential to create remediation byproducts, such as mobilized metals. Monitoring for these constituents is already required in the original WDRs. The only added laboratory constituent will be ethanol as an alcohol, to monitor for potential taste and odor impacts upon water quality. Detection of ethanol at or above the taste and odor threshold at either sentry or contingency wells will trigger implementation of the contingency plan. Mitigation actions can include reducing or ceasing ethanol use, and implementing active remediation to prevent migration beyond the project boundaries.</p> <p><b><u>Tracer Compounds</u></b>  Inert fluorescent dyes will be injected in one-well injection tests or two-well dipole configurations in the proposed dipole wells. A limited volume of tracer will be added at a concentration no greater than 1 mg/L, and groundwater will be monitored in nearby treatment zone monitoring wells to determine specific aquifer properties. The monitoring program will be revised to include analysis for fluorescein and eosine tracers. Monitoring will continue until tracer concentrations are below 100 ug/L in the surrounding monitoring wells, and the desired aquifer properties are defined. Tracer detection above 100 ug/L at sentry or contingency wells will trigger implementation of the contingency plan. Mitigation actions can include reducing or ceasing use of one or more tracers, and implementing active remediation to prevent migration beyond the project boundaries.</p> <p><b><u>Well Rehabilitation Compounds</u></b>  The monthly monitoring of pH in each well, as currently performed, will document that the pH effects are localized to the immediate vicinity of the well screen, and not observed in downgradient monitoring locations. Additionally, the organic acids (acetic and citric acid) used for well rehabilitation will also have positive effects on the microbiological community, as they will degrade in the groundwater in a manner similar to the other carbon sources used to create and sustain the reduction of hexavalent to trivalent chromium. Total organic carbon will be measured in each treatment zone monitoring well, to document that these well rehabilitation compounds fully degrade within the treatment zone.</p> <p>To monitor the well rehabilitation compounds, PG&amp;E will monitor the appropriate Central Area wells for the following elements:</p>				

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<p>1. Volatile fatty acids (VFAs) (EPA method 300.M) and/or total organic carbon (EPA method 415.2), as measured currently on a monthly basis in the treatment zone and sentry wells.</p> <p>2. Groundwater pH, as measured currently in the treatment zone and sentry wells (field measurement).</p> <p>3. Chloride is being added to the monitoring program to evaluate the potential impacts to water quality from hydrochloric acid use.</p> <p><i>The detection of one or more of these constituents at concentrations adversely impacting water quality in the sentry or contingency wells will trigger implementation of the contingency plan. Mitigation actions can include reducing or ceasing use of one or more well rehabilitation compounds, and implementing active remediation to prevent migration beyond the project boundaries.</i></p> <p><b><u>Monitoring Well Spacing</u></b>  <i>The contingency plan identified in the WDRs includes a monitoring plan and mitigation measures to be performed if threshold concentrations of remediation byproducts (unutilized reductant, groundwater tracer, and mobilized reduced metals) are exceeded at designated sentry monitoring wells. The increased spacing associated with the monitoring wells will not require a change in the plan requirements. All sentry and contingency monitoring wells will remain on property owned or leased by PG&amp;E. As discussed in the Initial Study/Checklist, mitigation measures will be initiated to prevent remediation byproducts above the threshold concentrations from migrating beyond the pilot study sentry wells, and to protect the water quality of private wells located near the Central Area. The nearest private wells within the potential influence of the Central Area are located approximately 700 feet to the west of injection/extraction wells. Mitigation actions can include implementing active remediation to prevent constituent migration beyond the project boundaries. Such action can be air sparging to return the aquifer to oxidized conditions and/or groundwater extraction.</i></p> <p><b><u>Spill Control</u></b>  <i>Spill control and secondary containment must be provided for the flammable-liquid storage tank and tank vehicle offloading area. A double-walled protective tank that complies with the Underwriters Laboratories 2085 standard will be used for carbon reagent storage. The volume of the outer shell of the tank is 110 percent of the internal tank volume. The tank vehicle offloading area design includes a concrete containment area with a capacity that is 110 percent of the volume of a 5,000 gallon tanker truck. Additionally, a spill control plan will be prepared for use in the event that a release occurs from the tanker truck while it is not over the secondary containment system. All spills will be recorded by the site manager in the field log and list corrective actions taken. Spills reports shall be made to the Water Board and other overseeing agencies in compliance with all permitting conditions.</i></p> <p><b><u>Contingency Plan</u></b>  <i>The contingency plan includes a monitoring plan and mitigation measures to be performed if threshold concentrations of remediation byproducts (unutilized injected reagents, tracers, and mobilized reduced metals) are exceeded at designated monitoring wells, located 400 and 800 feet from injection wells. Mitigation measures will be initiated to prevent remediation byproducts above the threshold concentrations from migrating beyond the recovery zone, and</i></p>				

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<p><i>to protect the water quality at nearby private wells. The nearest private wells within the potential influence of Cell 3 are located approximately 700 feet cross-gradient to the west of the Cell 3 injection/extraction wells. These private wells are located along Mountain View Road, as shown on Attachment A.</i></p> <p><i>A proposed contingency plan describes measures to monitor remediation byproducts within the project area. The planned overall mechanism for mitigating remediation byproducts will be natural attenuation because it is known that such constituents are transient in nature. If natural attenuation processes are not effective enough, reagent injection will be scaled back or shut off. If groundwater monitoring indicates that remediation byproducts are not attenuating within the project boundaries, active remediation measures, such as air sparging or groundwater extraction, will be initiated to prevent migration to the contingency wells, located 1,600 feet from injection wells. Byproducts, reagents, or tracers detected above threshold concentrations in the contingency wells will be in violation of the waste discharge requirements and will trigger aggressive implementation of active remedial measures within a strict timeframe.</i></p> <p><i>The specifics of the Contingency Plan are described as follows. In the event that un-utilized reagents, the tracer, and/or reduced metals, other than chromium, are detected at waste discharge requirements trigger concentrations in groundwater in the second row of sentry monitoring locations, located 800 feet from the injection wells (Attachment B), reagent injection will be scaled back by at least half the original amount or volume, or completely halted <u>within 5 working days</u> of receipt of laboratory results. In addition, if any of the parameters are detected above trigger concentrations in the second row of sentry wells, located 800 ft from the recirculation system, the Discharger will notify the Water Board <u>within 5 days</u>. The Discharger will then consult with the Water Board staff concerning the results. If the Discharger cannot make a case to indicate the unlikely potential for constituent migration beyond the pilot test boundaries, the Discharger must implement the Contingency Plan (refer to Table 5). In the latter case, injections must be scaled back or halted <u>within 5 days</u> of consulting with Water Board staff. <u>Within 14 days</u> of consulting with Water Board staff, the Discharger must begin the process of implementing air sparging or another equally effective remediation method for the constituent exceeding the water quality standard. Such action should restore water quality to levels listed in waste discharge requirements and prevent migration away from the pilot study boundaries. The chosen remediation method must be in operation <u>within 120 days of consultation with Water Board staff</u>. The chosen remediation method must restore the aquifer to pre-pilot study conditions and restore water quality to levels listed in waste discharge requirements, preventing migration outside the pilot study boundaries.</i></p> <p><i>In the event that remediation byproducts or other constituents are detected at threshold concentrations in contingency monitoring wells on the project area boundaries, the applicant will notify the Water Board <u>within two working days</u> of receipt of laboratory results of violations being detected. <u>Within 14 days</u> of notification, the Discharger will submit a proposal to the Water Board to contain such migration outside the pilot study boundaries. The proposal shall include a monitoring plan to adequately monitor groundwater outside the pilot study boundaries downgradient of the area where violations were observed.</i></p> <p><i>The proponent shall maintain a field log noting when and how the Contingency Plan is</i></p>				

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<i>implemented.</i>				
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><b>Significance:</b> <i>No Impact.</i></p> <p><i>(b)-(e) The temporary equipment pads change the surface topography during the operation period but will be removed after remediation is complete. There will not be any substantial changes to the existing drainage pathways, vegetation, or other features that direct or manage surface water as a result of these changed conditions.</i></p> <p><b>Mitigation Measures:</b></p> <p><i>None Required.</i></p>				

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p><b>Significance:</b> <i>Less than Significant Impact with Mitigation Incorporated.</i></p> <p><i>(f) Significance associated with the injection of ethanol, tracers, and well cleaning reagents are identified in item a) above.</i></p> <p><b>Mitigation Measures:</b></p> <p><i>Mitigation Measures associated with the injection of ethanol, tracers, and well cleaning compounds are identified in item a) above. Byproducts associated with in situ remediation in the Central Area were previously evaluated in the Initial Study/Checklist.</i></p>				
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><b>Significance:</b> <i>No Impact.</i></p> <p><i>(g)-(j) A review of potential impacts to flooding potential was conducted and presented in the Initial Study/Checklist. There are no changes as a result of the project revisions.</i></p> <p><b>Mitigation Measures:</b></p> <p><i>None Required.</i></p>				

**IX. LAND USE AND PLANNING**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><b>Significance:</b> <i>No Impact.</i></p> <p><i>(a)-(c) A review of potential impacts to land use planning was conducted and presented in the Initial Study/Checklist. There are no changes as a result of the project revisions.</i></p> <p><b>Mitigation Measures:</b></p> <p><i>None Required.</i></p>				

**X. MINERAL RESOURCES**

Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Significance:** *No Impact.*

*(a)-(b) A review of potential impacts to mineral resources was conducted and presented in the Initial Study/Checklist. There are no changes as a result of the project revisions.*

**Mitigation Measures:**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<i>None Required.</i>				

**XI. NOISE**

Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Significance:** *Less than Significant Impact with Mitigation Incorporated.*

*The revised project may expose persons to excessive groundborne vibrations for a limited time during the installation of wells. The vibrations are associated to drill rig operations and support equipment.*

**Mitigation Measures:**

*The following mitigation measures will be implemented to prevent excessive vibrations produced by the project from becoming a significant impact:*

- *Well installation and construction will be conducted during normal daytime business hours.*
- *No more than two drill rigs will be present on site during the same time.*
- *The project is located approximately 700 feet to the east of the nearest residence. The rural location of the remediation site and the distance to the nearest residences will prevent these potential conditions from affecting a substantial number of people.*
- *Personnel and workers will adhere to the Health and Safety Manual for wearing ear protection.*
- *The site manager will note in the site log book if complaints of excessive vibrations are reported. He/she will document corrective actions taken to reduce vibrations.*

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><b>Significance:</b> <i>Less than Significant Impact with Mitigation Incorporated.</i></p> <p><i>(d) Revised project construction activities will temporarily increase noise levels at the project site in addition to that presented in the Initial Study/Checklist. The noise increase will result from the construction of additional facilities, such as the storage tank, fencing, access road and tank turn around area, and the additional traffic related to these activities. Construction noise, however, will be short term and conducted only during standard daytime business hours. The noise generated by construction will be attenuated by the distance to the nearest receptor and the nearest sensitive noise receptor. The nearest residence is located approximately 700 feet west of the project location. The nearest sensitive noise receptor is the Hinkley Senior Center located at 35997 Mountain View Road, approximately 5,000 feet west of the project site. The noise associated with drill rigs and support equipment was previously identified in the Initial Study/Checklist.</i></p> <p><i>Following project construction, there will be a decrease in noise at the site from that described in the Initial Study/Checklist. The implementation of an automated carbon reagent delivery system will reduce noise levels, as a direct electrical connection and underground electrical conduit will be used to power the remediation system and wellhead pumps, rather than the generators that were identified in the Initial Study/Checklist. In addition, noise related to injection activities will be minimized as routine traffic between wells for injections will not be needed. Infrequent bulk reagent deliveries will be conducted during normal daytime business hours, and will not significantly increase the ambient noise levels.</i></p> <p><b>Mitigation Measures:</b></p> <p><i>The project will be conducted in accordance with the County of San Bernardino's General Plan Noise Element standard for residential development. In addition, the following mitigation measures will be implemented by project personnel to ensure that noise from the revised project will be as minimal as possible:</i></p> <ul style="list-style-type: none"> <li><i>• Work will only be conducted during daytime business hours.</i></li> <li><i>• Vehicle traffic will be scheduled so as to prevent excessive vehicles from being on site at any one time.</i></li> <li><i>• If noise complaints are received, the site manager will measure the noise level using a decibelmeter at the project limits. All measurements will be documented in the site log. If the noise level is found to exceed the County ordinance, the site manager will take appropriate action to reduce noise on site and note such actions in the log.</i></li> </ul>				
e) For a project located within an				

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><b>Significance:</b> <i>No Impact.</i></p> <p><i>(e)-(f) A review of potential impacts to airport land use was conducted and presented in the Initial Study/Checklist. There are no changes as a result of the project revisions.</i></p> <p><b>Mitigation Measures:</b> <i>None Required.</i></p>				

<b>XII. POPULATION AND HOUSING</b>				
Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><b>Significance:</b> <i>No Impact.</i></p> <p><i>(a)-(c) A review of potential impacts to population and housing was conducted and presented in the Initial Study/Checklist. There are no changes as a result of the project revisions.</i></p>				

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<b>Mitigation Measures:</b> <i>None Required.</i>				

### XIII. PUBLIC SERVICES

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Significance:** *No Impact.*

*(a) The use of ethanol will require permits issued by the SBFD and U.S. Department of the Treasury; however, there will be no impact on new or physically altered government facilities.*

**Mitigation Measures:**

*None Required.*

### XIV. RECREATION

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
such that substantial physical deterioration of the facility would occur or be accelerated?				
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><b>Significance:</b> <i>No Impact.</i></p> <p><i>(a)-(b) A review of potential impacts to recreational facilities was conducted and presented in the Initial Study/Checklist. There are no changes as a result of the project revisions.</i></p> <p><b>Mitigation Measures:</b></p> <p><i>None Required.</i></p>				

<b>XV. TRANSPORTATION/TRAFFIC</b>				
Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><b>Significance:</b> <i>Less than Significant Impact with Mitigation Incorporated.</i></p> <p><i>(a) &amp; (d) A review of potential impacts to traffic and transportation was conducted and presented in the Initial Study/Checklist.</i></p> <p><i>The additional construction associated with the revised project will result in a minimal increase in traffic or transportation for a limited time. There will be additional vehicle deliveries of gravel, the mixing tank, and other material. There will also be a minimal increase in worker traffic to and from the site.</i></p> <p><i>Following project construction, the effects of traffic and transportation associated with routine project operations and maintenance will be decreased from the original project, with one exception. The decrease from the original project is related to the reduction of transporting the mobile equipment to and from the site for routine operation and maintenance. In addition, routine traffic between remediation wells associated with manual injections will no longer be required.</i></p> <p><i>The exception to the decrease in traffic being the infrequent bulk deliveries (once every 30 to 90 days) of ethanol, a flammable liquid. Such deliveries will increase traffic hazard during ingress and egress at the site. Other than that, there will be no impact to existing traffic patterns as the tanker trucks will not stop on existing roadways or block traffic (and delivery frequency and volumes will be similar to those previously approved). A designated tanker offloading station is located off the existing roadways.</i></p> <p><b>Mitigation Measures:</b></p> <p><i>During project construction, measures will be taken to minimize traffic and transportation issues at the site, including:</i></p> <ul style="list-style-type: none"> <li><i>• Work will only be conducted during daytime business hours.</i></li> <li><i>• Vehicle speeds on unpaved roadways will be limited to 25 miles per hour to minimize vehicle-related dust emissions.</i></li> <li><i>• Dirt roads will be sprayed with water to minimize dust generation.</i></li> <li><i>• Project personnel will direct traffic to prevent vehicles from lining up on County roads that could impede through traffic during construction, delivery, and drilling activities.</i></li> </ul>				

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<i>Following project construction, project personnel will ensure that the ethanol delivery truck has immediate access to enter the site so that it does not pose a potential hazard to other vehicles on the road. This mitigation measure will be implemented by project personnel being on site prior to time of expected ethanol deliveries.</i>				

**XVI. UTILITIES AND SERVICE SYSTEMS**

Would the project

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
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**Significance:** *No Impact.*

*(a)-(g) A review of potential impacts to utilities and service systems was conducted and presented in the Initial Study/Checklist. There are no changes as a result of the project revisions.*

**Mitigation Measures:**

*None Required.*

**XVII. MANDATORY FINDINGS OF SIGNIFICANCE**

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

**Significance:** *Less than Significant Impact with Mitigation Incorporated.*

*(a) No significant habitat would be affected by the project revisions. The revised monitoring well locations will be in areas already disturbed by agricultural operations, access roads, or other improvements/disturbances. No natural water features or fish species are located within the vicinity of the wells. As discussed in Section V, the drilling operations will not eliminate important examples of major periods of California history or pre-history. In addition, no significant habitat would be affected by the project revisions at the treatment zone where the storage tank, conex boxes, and security measures will be constructed.*

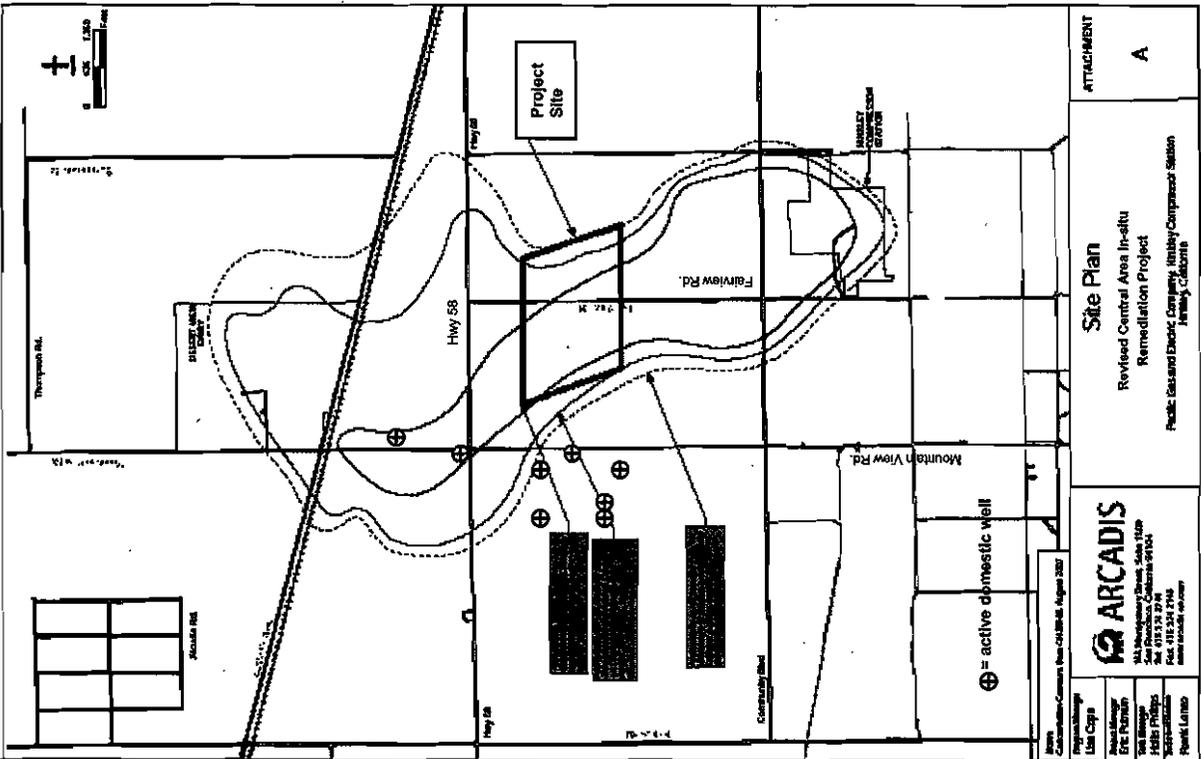
**Mitigation Measures:**

*Environmental awareness training for all drilling and construction personnel will be provided to identify sensitive biological resources, using the current PG&E training program. Workers will be required to report to the project biologist the occurrence of any special-status species observed during the drilling and construction operations, who would then implement species protection measures.*

*When the precautions and measures mentioned above are implemented during the project, potential impacts will be effectively mitigated. Therefore, no adverse cumulative impact to the*

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<i>environment is anticipated.</i>				
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><b>Significance:</b> <i>Less than Significant Impact with Mitigation Incorporated.</i></p> <p><i>Point source and fugitive air emissions, such as those from tanker truck unloading, storage, and handling of ethanol, are subject to the Rules and Regulations of the MDAQMD. Compliance with the MDAQMD permit will prevent cumulative impacts of air emissions from the revised project.</i></p> <p><i>In addition, the proposed injections of ethanol, fluorescent tracers, and well rehabilitation compounds should not create long-term cumulative impacts affecting water quality. The previous pilot work completed at the Central Area, and in the vicinity of the East LTU and the former unlined pond areas, indicate that naturally-occurring microbes will readily consume carbon sources, such as lactate and EVO, without creating adverse environmental effects. Ethanol is expected to behave in a similar manner at reducing Cr(VI) to Cr(III) in the aquifer. Based upon these field-scale tests, it is expected that remediation byproducts, such as mobilized reduced metals, pH changes, and tracers, are expected to attenuate to water quality standards within the boundaries of the pilot test area. Monitoring activities described in Section VIII will verify that no adverse conditions are created by project implementation. If threshold concentrations of certain constituents are detected in sentry or contingency wells, the contingency plan is designed to prevent their migration beyond the project boundaries. Thus, no adverse cumulative impact to groundwater levels is anticipated.</i></p> <p><b>Mitigation Measures:</b></p> <p><i>As previously noted, the groundwater and air monitoring plans will effectively determine whether water degradation or nuisance air emissions are occurring. Contingency plans will ensure that potential impacts are identified and effectively mitigated. Therefore, no adverse cumulative impact to groundwater levels is anticipated.</i></p>				
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<p><b>Significance:</b> <i>Less Than Significant Impact with Mitigation Incorporated.</i></p> <p><i>The project revisions associated with this Subsequent Study/Checklist will have no additional significance on the overall environmental effects previously identified in the Initial Study/Checklist. Some minor impacts to air quality, noise, and traffic will occur for a limited time during the construction period for the above ground storage tank, security features, and a gravel road and truck turnaround area. These impacts will essentially cease with the completion of an automated in situ remediation system that will reduce the potential for (1) noise and dust generation, due to the use of a direct electrical connection as opposed to portable generators, and (2) traffic at the site during long-term operations and maintenance activities.</i></p> <p><i>The pilot test project will result in significant environmental benefits that are consistent with the Basin Plan and beneficial uses of waters of the State of California, and the project will provide field data that will be used to select a long-term remediation alternative for the PG&amp;E Hinkley Compressor Station site.</i></p> <p><b>Mitigation Measures:</b></p> <p><i>The proposed contingency plans previously described will ensure that potential impacts are identified and effectively mitigated. Therefore, no adverse cumulative impact to water quality or the environment is anticipated.</i></p>				





# **ENCLOSURE 3**

06-0057

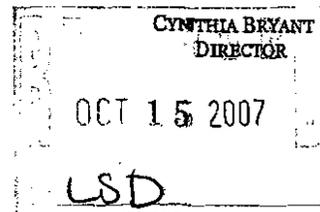


ARNOLD SCHWARZENEGGER  
GOVERNOR

STATE OF CALIFORNIA  
GOVERNOR'S OFFICE of PLANNING AND RESEARCH  
STATE CLEARINGHOUSE AND PLANNING UNIT



October 10, 2007



Lisa Dernbach  
Regional Water Quality Control Board, Region 6 (Lahontan)  
2501 Lake Tahoe Boulevard  
South Lake Tahoe, CA 96150

Subject: Revised Central Area In-Situ Remediation Pilot Study Project  
SCH#: 2006041005

Dear Lisa Dernbach:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on October 9, 2007, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

"A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Terry Roberts  
Director, State Clearinghouse

Enclosures  
cc: Resources Agency

**Document Details Report  
State Clearinghouse Data Base**

**SCH#** 2006041005  
**Project Title** Revised Central Area In-Situ Remediation Pilot Study Project  
**Lead Agency** Regional Water Quality Control Board, Region 6 (Lahontan), South Lake Tahoe

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**Type** MN Mitigated Negative Declaration

**Description** D

Pacific Gas and Electric Company proposes to revise the original project adopted in 2006. The changes include: (1) injecting ethanol, fluorescein, eosine, and well rehabilitation acids to groundwater; (2) increasing the project area to 1,800 feet by 1,600 feet; and (3) increasing well spacing.

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**Lead Agency Contact**

**Name** Lisa Dernbach  
**Agency** Regional Water Quality Control Board, Region 6 (Lahontan)  
**Phone** (530) 542-5424 **Fax**  
**email**  
**Address** 2501 Lake Tahoe Boulevard  
**City** South Lake Tahoe **State** CA **Zip** 96150

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**Project Location**

**County** San Bernardino  
**City**  
**Region**  
**Cross Streets** Frontier Road / Fairview Road  
**Parcel No.** 0494-261-59  
**Township** **Range** **Section** **Base**

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**Proximity to:**

**Highways** 58  
**Airports**  
**Railways** Sante Fe  
**Waterways** Mojave River  
**Schools** Hinkley Elementary  
**Land Use** RL-5 (Rural Living- 5 acre minimum)

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**Project Issues** Aesthetic/Visual; Air Quality; Biological Resources; Cumulative Effects; Noise; Toxic/Hazardous; Traffic/Circulation; Water Quality

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**Reviewing Agencies** Caltrans, District 8; California Highway Patrol; Colorado River Board; Department of Water Resources; Department of Fish and Game, Region 6; Department of Health Services; Native American Heritage Commission; Department of Parks and Recreation; Public Utilities Commission; Reclamation Board; Resources Agency; State Lands Commission; State Water Resources Control Board, Clean Water Program; State Water Resources Control Board, Division of Water Rights; Department of Toxic Substances Control

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**Date Received** 09/10/2007 **Start of Review** 09/10/2007 **End of Review** 10/09/2007

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06-0059

# ENCLOSURE 4

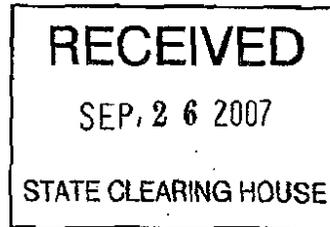
06-0060

## NATIVE AMERICAN HERITAGE COMMISSION

915 CAPITOL MALL, ROOM 364  
 SACRAMENTO, CA 95814  
 (916) 653-6251  
 Fax (916) 657-5390  
 Web Site [www.nahc.ca.gov](http://www.nahc.ca.gov)  
 e-mail: [ds\\_nahc@pacbell.net](mailto:ds_nahc@pacbell.net)



September 13, 2007



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 10/9/07  
 e

Ms. Lisa Dernbach

**LAHONTON REGIONAL WATER QUALITY CONTROL BOARD**

2501 Lake Tahoe Boulevard  
 South Lake Tahoe, CA 96150

Re: SCH#2006041005: CEQA Notice of Completion: Initial Study/Supplemental Mitigated Negative Declaration for Revised Central Area IN-SSITU REMEDIATION Pilot Study Project, located at Hinckley, San Bernardino County, California

Dear Ms. Dernbach:

The Native American Heritage Commission is the state's Trustee Agency for Native American Cultural Resources. The California Environmental Quality Act (CEQA) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per CEQA guidelines § 15064.5(b)(c). In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE)', and if so, to mitigate that effect. To adequately assess the project-related impacts on historical resources, the Commission recommends the following action:

✓ Contact the appropriate California Historic Resources Information Center (CHRIS). Contact information for the Information Center nearest you is available from the State Office of Historic Preservation (916/653-7278)/

<http://www.ohp.parks.ca.gov/1068/files/IC%20Roster.pdf> The record search will determine:

- If a part or the entire APE has been previously surveyed for cultural resources.
- If any known cultural resources have already been recorded in or adjacent to the APE.
- If the probability is low, moderate, or high that cultural resources are located in the APE.
- If a survey is required to determine whether previously unrecorded cultural resources are present.
- ✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological information center.
- ✓ Contact the Native American Heritage Commission (NAHC) for:
  - \* A Sacred Lands File (SLF) search of the project area and information on tribal contacts in the project vicinity that may have additional cultural resource information. Please provide this office with the following citation format to assist with the Sacred Lands File search request: USGS 7.5-minute quadrangle citation with name, township, range and section.
  - The NAHC advises the use of Native American Monitors to ensure proper identification and care given cultural resources that may be discovered. The NAHC recommends that contact be made with Native American Contacts on the attached list to get their input on potential project impact (APE). In some cases, the existence of a Native American cultural resources may be known only to a local tribe(s).
- ✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
- ✓ Lead agencies should include provisions for discovery of Native American human remains or unmarked cemeteries in their mitigation plans.
  - \* CEQA Guidelines, Section 15064.5(d) requires the lead agency to work with the Native Americans identified by this Commission if the initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American, identified by the

06-0061

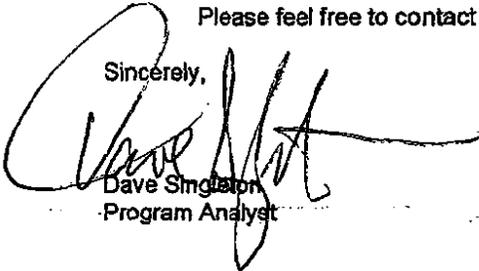
NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens.

√ Health and Safety Code §7050.5, Public Resources Code §5097.98 and Sec. §15064.5 (d) of the CEQA Guidelines mandate procedures to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

√ Lead agencies should consider avoidance, as defined in § 15370 of the CEQA Guidelines, when significant cultural resources are discovered during the course of project planning and implementation

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,



Dave Singleton  
Program Analyst

Attachment: List of Native American Contacts

# **ENCLOSURE 5**

06-0063



**California Regional Water Quality Control Board**  
**Lahontan Region**



**Linda S. Adams**  
 Secretary for  
 Environmental Protection

2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150  
 (530) 542-5400 • Fax (530) 544-2271  
 www.waterboards.ca.gov/lahontan

**Arnold Schwarzenegger**  
 Governor

**OCT 11 2007**

Dave Singleton  
 Native American Heritage Commission  
 915 Capitol Mall, Room 364  
 Sacramento, CA 95814

**RESPONSE TO COMMENTS ON THE PROPOSED SUBSEQUENT MITIGATED  
 NEGATIVE DECLARATION, REVISED CENTRAL AREA IN-SITU REMEDIATION  
 PROJECT, PG&E COMPRESSOR STATION, HINKLEY, SAN BERNADINO  
 COUNTY**

Thank you for your September 13, 2007 comments on the proposed Subsequent Mitigated Negative Declaration for the Revised Central Area In-Situ Remediation Project at the PG&E Compressor Station, Hinkley. Your comments requested that Water Board staff review other relevant cultural resources to adequately assess potential project impacts on cultural resources.

In response to your comments, Board staff contacted the California Historic Resources Information Center and performed a record search. The search results found that there are no cultural resources located within the project site. In addition, the project site does not fall within the resource area based upon review of San Bernardino County's cultural and paleontologic resource overlay map. Finally, a Sacred Land Files search conducted by your office in 2006 for the original project found no recorded Native American sites within the project area (USGS Map 7.5-minute Hinkley Quadrangle).

While the various searches indicate that the project site is not located in an area of historic, archaeological, or paleontological resources, that does not preclude their subsurface existence. Therefore, at your suggestion, Water Board staff plans to include language in the Subsequent Mitigated Negative Declaration that states if the project proponent accidentally discovers archeological resources or human remains during project implementation, it shall comply with CEQA section 15064.5, Health and Safety Code section 7050.5, and Public Resources Code section 5097.98. Furthermore, the CEQA document will list avoidance, as defined in section 15370 of the CEQA Guidelines, when significant cultural resources are discovered during project planning and implementation.

Thank you for your interest in this issue. Please contact Lisa Dembach at (530) 542-5424 or me at (530) 542-5460, if you should have any questions.

Chuck Curtis, P.E.  
 Cleanup and Enforcement Division Manager

cc: PG&E, Eric Johnson  
 Eric Putnam, Arcadis  
 Drew Page, Latham and Watkins

LSD/didT:/PGE Central, NatAmHeritage 1007.let  
 [Send to file: WDID No. 6B369107001 (VVL)]