California Regional Water Quality Control Board
Lahontan Region

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AUG 17 2009

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NOTICE OF APPLICABILITY OF GENERAL WASTE DISCHARGE REQUIREMENTS FOR THE GENERAL SITE-WIDE GROUNDWATER REMEDIATION PROJECT AT THE PG&E COMPRESSOR STATION, HINKLEY, SAN BERNARDINO COUNTY (WDID NO. 6B369107001, BOARD ORDER NO. R6V-2008-0014)

We received information that completes the Notice of Intent for the above-referenced project. The submitted documents include PG&E's May 21, 2009 letters requesting to increase the volume of ethanol discharge at the Source Area In-Situ Remediation Project (Enclosure 1) and to modify the groundwater monitoring frequency (Enclosure 2)

Based on the information provided, it is our determination that this project meets the required conditions to be approved under our General Waste Discharge Requirements for the General Site-wide Groundwater Remediation Project (General Permit). All requirements contained in the General Permit will be applicable to your project.

PROJECT DESCRIPTION

The project proposes to increase the volume of ethanol discharges to continue remediation activities of hexavalent chromium in groundwater at the site. By August 2009, about 15,000 gallons of ethanol and 10,428 gallons of lactate will have been discharged at the site.

Board Order No. R6V-2006-0054 allows the total discharge of 15,000 gallons of ethanol. The Board Order also allows up to a combined discharge volume of 420,000 gallons of sodium lactate, liquid whey, and emulsified vegetable oil.

In-situ remediation results over the past year show that ethanol is the better carbon source for promoting in-situ remediation over other carbon sources. Yet, the volume or organic mass of ethanol needed is higher than the permitted amount. PG&E plans to use about 42 percent of the remaining permitted volume of carbon substrate allowed in the Board Order, up to 173,000 gallons or 254,000 kg of organic carbon, as ethanol. The

additional ethanol discharges will be in lieu of other carbon substrate discharges. Ethanol discharges will continue over the remainder of the five year operating period from when Board Order No. R6V-2006-0054 was issued in November 2006.

Ethanol discharges in the project area have the potential to locally increase concentrations of total organic carbon (TOC) and reduction byproducts, such as arsenic, manganese, and iron in receiving waters. Carbon increases are expected to be consumed by microorganisms and eventually reduce in concentration to background levels. Reduction byproduct increases will return to normal concentrations when constituents reach oxygenated groundwater outside of the remediation area. All potential impacts to water quality will be monitored at the site.

Monthly monitoring over eleven months shows that reduction byproducts have been detected only in single sporadic sampling events at various sentry and contingency wells. Downgradient migration of byproducts in groundwater is being controlled by mitigation measures, such as minimizing ethanol dosing and operating extraction wells.

The treatment effectiveness of the project will continue to be evaluated during and after the operational period through the monitoring and reporting program. PG&E will be required to take all necessary actions to restore groundwater quality to pre-project conditions, with the exception of chromium, before monitoring is completed at the site.

PROJECT LOCATION

The PG&E Compressor Station is located at 35863 Fairview Road, Hinkley, in the Harper Valley Subunit of the Mojave Hydrologic Unit. Additional ethanol discharges will occur within the source area of the chromium plume on the Compressor Station property, as shown in Figure 1 (Enclosure 3). The project boundaries consist of the following: the western boundary is defined by Fairview Road, south of Community Boulevard; the southern boundary is defined by Highcrest Road; the eastern boundary is defined by Summerset Road, and; the northern boundary is defined by contingency wells (SA-MW-11 to SA-MW-15) located 300 feet north of Community Boulevard.

DISCHARGE SPECIFICATIONS

The Discharger must comply with the Discharge Specifications of General Permit No. R6V-2008-0014.

MONITORING AND REPORTING

Monitoring and reporting shall be in accordance with Monitoring and Reporting Program No. R6V-2006-0054A1.

GENERAL REQUIREMENTS

1. The project shall be implemented in accordance with the requirements contained in the General Permit and in accordance with the information submitted in PG&E's May 21, 2009 letter requesting to increase the volume of ethanol discharge. Project activities must be completed within the project boundaries, as described in the Project Location, above.

2. The volume of ethanol discharged in the Source Area In-situ Remediation Project area must not exceed 173,000 gallons.

3. Notify the Water Board **within five (5) working days** of receipt of validated laboratory results indicating exceedance of receiving water limitations.

4. The required annual fee (as specified in the annual billing you will receive from the State Water Resources Control Board) shall be submitted until this Notice of Applicability is officially revoked.

5. Failure to abide by the conditions of the General Permit and this Notice of Applicability may result in an enforcement action as authorized by provisions of the California Water Code.

You may contact Lisa Dernbach at (530) 542-5424 if you have any questions regarding the General Permit or this Notice of Applicability.

Harold J. Singer

HAROLD J. SINGER
INTERIM EXECUTIVE OFFICER

Enclosure: May 21, 2009 letter from PG&E to increase ethanol discharge volume
May 21, 2009 letter from PG&E to modify groundwater monitoring
Figure 1, Site Layout

cc: Mailing List

LSD/clhT: PG&E Hinkley General WDR NOA 8-09
[File Under: VVL- WDID NO. 6B369107001]

PG&E HINKLEY COMPRESSOR STATION
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epj1@pge.com

May 21, 2009

Mr. Chuck Curtis, PE
California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, California 96150

Subject: Request to Increase the Discharge Volume for Ethanol Source Area In-Situ Remediation Project PG&E Hinkley Compressor Station, Hinkley, California

Dear Mr. Curtis:

PG&E hereby requests to utilize ethanol as the sole carbon source in the Source Area In- Situ Reactive Zone (IRZ) system, in place of the other carbon sources allowed in the Waste Discharge Requirements (WDRs). In the IRZ system, an organic carbon source (e.g., ethanol, lactate, liquid whey) is mixed with extracted groundwater, and the carbon-amended water is then injected back into the aquifer. The organic carbon in the injected water supports microbial growth and activity, which mediates the reduction of hexavalent chromium present in vicinity groundwater. Several sources of organic carbon were permitted for use in the Source Area IRZ. Based on performance results to date, ethanol is presently the preferred source of organic carbon for use in the IRZ system, and is currently being used.

The WDRs allow for the discharge of 435,000 gallons of an organic carbon source (equivalent to 264,000 kilograms [kg] of organic carbon) over the course of five years. The WDRs specify volumes that can be discharged for each of the permitted organic carbon sources as follows:

- 50,000 gallons of 60 percent lactate solution (equivalent to 48,000 kg of organic carbon)
- 15,000 gallons of 95 percent ethanol (equivalent to 22,000 kg organic carbon)
- 300,000 gallons of liquid whey (equivalent to 62,000 kg organic carbon)
- 70,000 gallons of emulsified vegetable oil (equivalent to 132,000 kg organic carbon)

The effectiveness of a carbon source at reducing hexavalent chromium, and the potential impacts on water quality (such as the generation of secondary byproducts), are related to the mass of organic carbon in the substrate that is injected rather than to the volume injected.

Based on the carbon dosages that have been required for operation of the Central Area and Source Area remediation systems to date, the projected volume of ethanol and corresponding mass of organic carbon to be utilized in the Source Area IRZ is higher than the permitted volume and corresponding mass of organic carbon currently allowed for ethanol.

PG&E requests that the LRWQCB approve the use of ethanol in place of the other organic carbon sources allowed by the WDR. PG&E is no longer expecting to use lactate, liquid whey and emulsified vegetable oil in the Source Area IRZ.

Ethanol and sodium lactate have been the only organic carbon sources utilized in the Source Area IRZ. To date, 10,428 gallons of 60 percent sodium lactate, equivalent to 10,000 kg of organic carbon, have been discharged under the permit. If the LRWQCB approves PG&E's request to utilize ethanol in place of the other carbon sources allowed by the permit, this corresponds to 254,000 kg of organic carbon that can be discharged as ethanol (264,000 kg of organic carbon permitted minus the 10,000 kg of organic carbon that has already been discharged as lactate). This corresponds to a total volume of 173,000 gallons of 95 percent ethanol to be discharged in the Source Area IRZ over the remainder of the 5 year operating period. By continuing to utilize ethanol in the Source Area IRZ, the overall volume of an organic carbon source discharged over the entire 5 year operating period (10,428 gallons of lactate and 173,000 gallons of ethanol) would still be well below the total permitted volume of 435,000 gallons.

If you have any questions regarding this report, please call me at (530) 520-2959.

Sincerely,

Eric Johnson
Hinkley Remediation Project Manager

Enclosures:
cc: Lisa Dembach, RWQCB Lahontan Region, South Lake Tahoe

Pacific Gas and Electric Company

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May 21, 2009

Mr. Chuck Curtis, PE
California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, California 96150

Subject: Request to Modify Groundwater Monitoring Frequency, PG&E Hinkley Compressor Station, Hinkley, California In Situ Source Area Remediation Project

Dear Mr. Curtis:

PG&E hereby submits a request to the Lahontan Regional Water Quality Control Board (LRWQCB), to modify the frequency of monitoring specified in the Monitoring and Reporting Program (MRP) adopted for the In Situ Source Area Remediation Project pursuant to Waste Discharge Requirements (WDR) (LRWQCB Order No. R6V-2006-0054). Specifically, PG&E requests that the required monitoring frequency be reduced from monthly to quarterly for the Source Area monitoring well network, similar to what is currently implemented for the Central Area Remediation Pilot Study under the MRP for that system (LWRQCB Order No. R6V-2007-0032).

Performance Monitoring Wells

As set forth in the MRP, performance monitoring wells (SA-SM series) are located within the recirculation area, and are primarily used to evaluate the effectiveness of reagent injections and remediation. The results of sampling conducted over the first 11 months of IRZ system operation, through March 2009, have demonstrated positive treatment effectiveness (as discussed in the quarterly monitoring reports). Based on the information obtained to date, PG&E believes that quarterly monitoring will provide sufficient data to evaluate the continued effectiveness of remediation. Therefore, we request that monitoring frequency in these performance monitoring wells be reduced to quarterly. If needed, quarterly sampling may be supplemented by more frequent monitoring for total organic carbon, to assess reagent distribution.

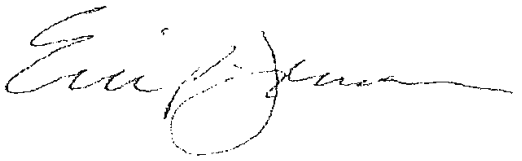
Sentry and Contingency Monitoring Wells

As set forth in the MRP, the sentry/contingency well network (SA-MW series) in the Source Area is primarily used to assess the migration of by-products (i.e. iron, manganese, and arsenic) outside the zone of influence of the recirculation system. To date, byproducts have been detected

only in single sporadic sampling events at various sentry and contingency wells. This indicates that the downgradient migration of dissolved by-products has been controlled by Source Area system operations (i.e., reagent dosing to minimize the generation of by-products, and operation of the downgradient extraction wells). Should byproducts migrate beyond the extraction wells, quarterly sampling is expected to be sufficient to detect byproducts at the first row of sentry wells before they migrate to the second row of sentry wells or the contingency wells, given the observed travel times of greater than three months between the first and second row of sentry wells. PG&E therefore requests that the monitoring frequency for the Source Area sentry and contingency wells be modified from monthly to quarterly. Quarterly sampling will provide sufficient data to ensure that by-products are controlled, similar to the monitoring program currently being implemented in the Central Area. Should by-products be detected at concentrations above the threshold concentrations, the contingency plan set forth in the MRP for the Source Area will still be implemented, including immediate re-sampling of well(s) showing exceedances.

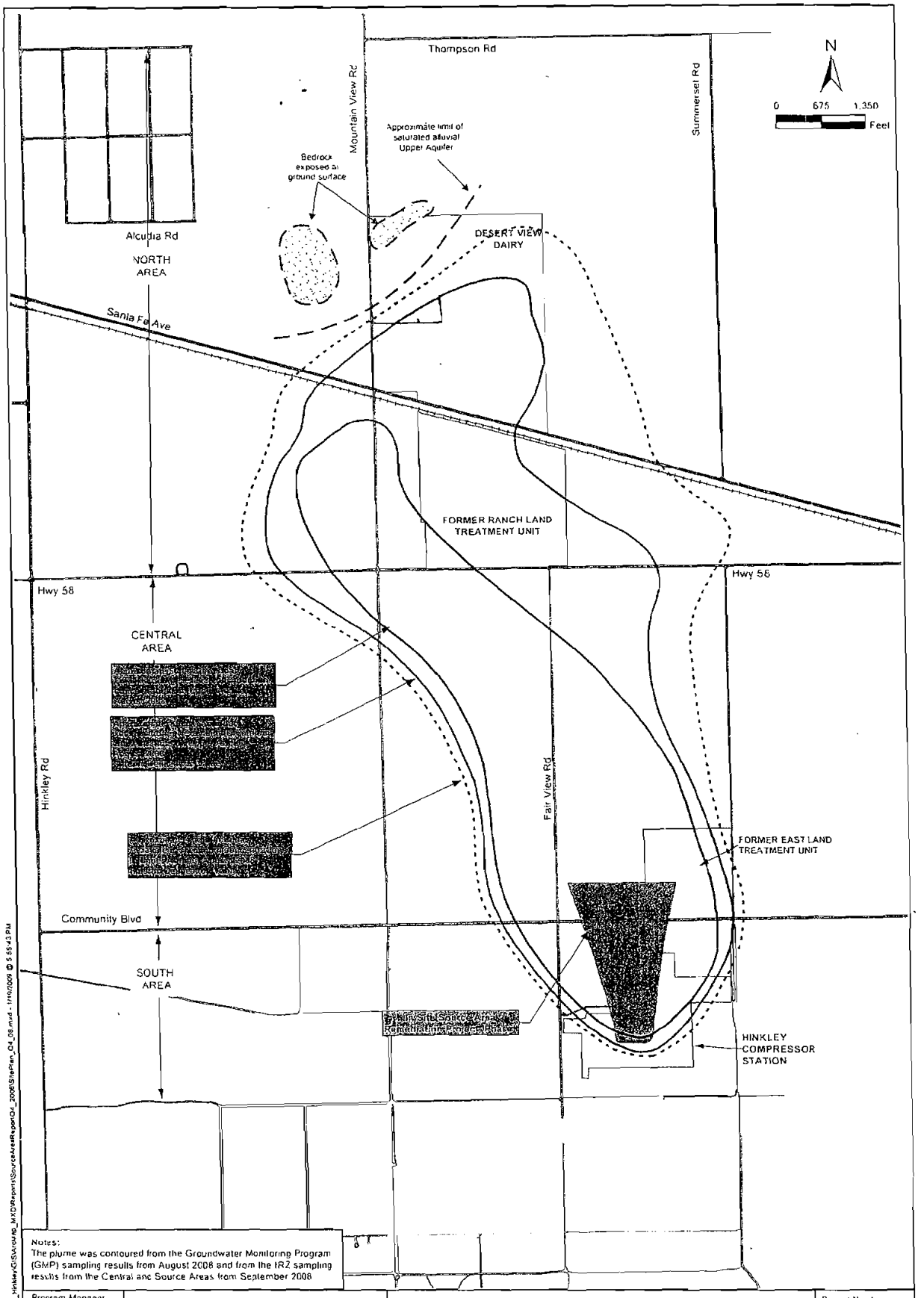
If you have any questions regarding this request, please call me at (530) 520-2959.

Sincerely,



Eric Johnson
Hinkley Remediation Project Manager

cc: Lisa Dernbach, RWQCB Lahontan Region, South Lake Tahoe



Notes:
The plume was contoured from the Groundwater Monitoring Program (GMP) sampling results from August 2008 and from the IRZ sampling results from the Central and Source Areas from September 2008

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Site Location Map

Fourth Quarter 2008 Monitoring Report
for the In Situ Source Area Remediation Project

Pacific Gas and Electric Company
Hinkley, California

Project Number	RC000699.0001
Date	01/19/2009
Figure	1

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