Pacific Gas and Electric Company

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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 Dernbach, RWQCB Lahontan Region, South Lake Tahoe