



Linda S. Adams
Acting Agency
Secretary

California Regional Water Quality Control Board

Los Angeles Region

Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful



Arnold Schwarzenegger
Governor

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June 30, 2008

Mr. Scott Martin
Kinder Morgan Energy Partners
1100 Town & Country Road, Suite 700
Orange, CA 92868

GENERAL WASTE DISCHARGE REQUIREMENTS (ORDER NO. R4-2007-0019, SERIES NO. 066, CI NO. 9428) HYDROGEN PEROXIDE INJECTION PILOT TEST FOR REMEDIATION OF HYDROCARBONS IN GROUNDWATER - LA HABRA BOOSTER STATION, LOS ANGELES COUNTY (SITE CLEANUP PROGRAM NO. 0018, SITE ID NO. 204H00)

Dear Mr. Martin:

California Regional Water Quality Control Board, Los Angeles Region (Regional Board) staff have completed the review of your application for coverage under General Waste Discharge Requirements (WDR) to inject a 3% to 6% hydrogen peroxide (H_2O_2) into site groundwater using five borings as a pilot test to remediate fuel hydrocarbons. We have determined that the proposed discharge meets the conditions specified in Regional Board Order No R4-2007-0019, "*Revised General Waste Discharge Requirements for Groundwater Remediation at Petroleum Hydrocarbon Fuel, Volatile Organic Compound and/or Hexavalent Chromium Impacted Sites*," adopted by this Regional Board on March 1, 2007.

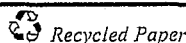
The site, which does not have a formal address, is located in Los Angeles County at Latitude 33°57'15"N, Longitude 117°54'60"W. (Figure 1) Southern Pacific Pipelines, Inc. constructed a 16 inch diameter mixed refined product pipeline across the Puente Hills and through the Puente Field of the Brea-Olinda Oilfield in 1955. The pipeline has been used to carry various refined petroleum products from the Watson Pump Station in Carson, California to the Colton Pump Station in Colton, California. In 1982, a pipe flange failure led to the release of fuel hydrocarbons at the booster station. Three years later, fuel hydrocarbons were noted at a perennial spring or seep located approximately 1,000 feet west of the booster station. Release characterization and remedial efforts were initiated in 1985 and have continued to the present day.

The December 14, 2007 work plan for this project (received on December 18), was approved by this Regional Board in a letter dated June 9, 2008. The Regional Board documented the "Form 200" complete in a June 11, 2008 letter.

You may begin to inject a maximum of 5,000 gallons of a 3% to 6% hydrogen peroxide solution into a boring field consisting of five borings, to a depth of 100 feet below ground surface, up-gradient of the transecting groundwater monitoring wells MW-05, MW-29, and PMW-2. The injection will occur into the hydrocarbon plume, approximately 650 feet west of the La Habra Booster Station, at Latitude 33°57'17"N, Longitude 117°55'07"W. (Figure 2)

Enclosed are your Waste Discharge Requirements, consisting of Regional Board Order No. R4-2007-0019 (Series No. 066) and Monitoring and Reporting Program No. CI-9428.

California Environmental Protection Agency



Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.

Mr. Scott Martin
Kinder Morgan Energy Partners

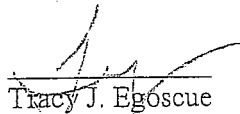
- 2 -

June 30, 2008

The "Monitoring and Reporting Program" requires you to implement the monitoring program on the effective date of this enrollment under Regional Board Order No. R4-2007-0019. All monitoring reports shall be sent to the Regional Board, ATTN: Information Technology Unit. When submitting monitoring or technical reports to the Regional Board per these requirements, please include a reference to "Compliance File No. CI-9428", which will assure that the reports are directed to the appropriate file and staff. Also, please do not combine other reports with your monitoring reports. Submit each type of report as a separate document.

If you have any questions, please contact Dr. Kwang-il Lee at (213) 576-6734 or Mr. Henry Jones at (213) 576-6697.

Sincerely,


Tracy J. Egoscue
Executive Officer

Attachments:

- Figure 1, Site and Receptor Map
- Figure 2, Anticipated Layout of Pilot Study Injection Wells

Enclosures:

- 1) General Waste Discharge Requirements, Order No. R4-2007-0019 and Standard Provisions
- 2) Monitoring and Reporting Program, CI No. 9428
- 3) Fact Sheet

cc:

Ms. Kristine Schroeder, LFR Inc. (kristine.schroeder@lfr.com)
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California Environmental Protection Agency



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STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
320 West 4th Street, Suite 200, Los Angeles, California 90013

FACT SHEET
WASTE DISCHARGE REQUIREMENTS
FOR
LA HABRA BOOSTER STATION

HYDROGEN PEROXIDE INJECTION PILOT TEST

ORDER NO. R4-2007-0019 (SERIES NO. 066)
CI-9428, FILE NO. 08-073

FACILITY ADDRESS

La Habra Booster Station
Los Angeles County, CA

FACILITY MAILING ADDRESS

Mr. Scot Martin
Kinder Morgan Energy Partners
1100 Town & Country Road, Suite 700
Orange, CA 92868

PROJECT DESCRIPTION

The site, which does not have a formal address, is located in Los Angeles County at Latitude 33°57.300'N, Longitude 117°55.100'W. Southern Pacific Pipelines, Inc. constructed a 16 inch diameter mixed refined product pipeline across the Puente Hills and through the Puente Field of the Brea-Olinda Oilfield in 1955. The pipeline has been used to carry various refined petroleum products from the Watson Pump Station in Carson, California to the Colton Pump Station in Colton, California. The La Habra Booster Station was built in 1964 on 0.67 acres at the highest point of crossing within the Puente area of the 4,400 acre Brea-Olinda Oil Field. The site investigations extend beyond the 0.67 acres of the booster station to include an area that is approximately 42 acres. Hydrocarbons and fuel oxygenates are the primary contaminants.

In 1982, a pipe flange failure led to the release of fuel hydrocarbons at the booster station. Three years later, fuel hydrocarbons were noted at a perennial spring or seep located approximately 1,000 feet west of the booster station. Release characterization and remedial efforts were initiated in 1985 and have continued to the present day.

Hydrocarbons released from the booster station migrate preferentially along the syncline axis, forming a narrow westward trending plume, and changing direction to the south/southeast (towards the upper sump) in response to permeabilities associated with two faults. The westward trending plume is approximately 980 feet in length and 210 feet in width. One fault trace is orientated to the northeast and roughly corresponds to the deeply incised drainage that includes the upper, middle, and lower sumps. The other fault, east of the upper sump, is orientated to the north/northeast.

Depth to groundwater measurements on October 4, 2007, ranged from 17.89 feet bgs in well MW-28 to 135.95 feet bgs in well MW-27. The depth to groundwater at the remediation site is approximately 75 feet bgs. The hydraulic gradient is approximately 0.15 foot per foot towards the west-southwest.

Constituents of petroleum, including benzene, toluene, ethylbenzene, xylenes, and fuel oxygenates, are the primary contaminants detected in groundwater. A maximum concentration of benzene (8,000 micrograms per liter or µg/L) was detected in groundwater monitoring well MW-08 on July 17, 2002. A maximum concentration of toluene (360 µg/L), ethylbenzene (2,300 µg/L), and total xylenes (2,500 µg/L) was detected in groundwater at MW-5-W-A on July 22, 2002, January 22, 2002, and October 25, 2001, respectively. A maximum concentration of MTBE (8.0 µg/L) was detected at MW-18 on October 31, 2002.

In December 2007, The Regional Board received a work plan for the injection of a 3% to 6% hydrogen peroxide solution pilot test. A Form 200 "Report of Waste Discharge" and the appropriate fee have been received by the Regional Board. The work plan was approved by the Regional Board in a letter dated June 9, 2008.

VOLUME AND DESCRIPTION OF INJECTION

As part of an in situ chemical oxidation pilot test for remediation of hydrocarbons, LFR, Inc. proposes to inject a 3% to 6% hydrogen peroxide solution through gravity feed to lower the concentration of hydrocarbons in groundwater at the site. To further characterize the subsurface, a boring field consisting of approximately five borings (designated INJ-01 through INJ-05) to the depth of 100 feet below ground surface, up-gradient of the transecting groundwater monitoring wells PMW-2, MW-05, and MW-29 will be installed. The borings will then be completed as injection wells with four inch casing and used for the hydrogen peroxide solution injection.

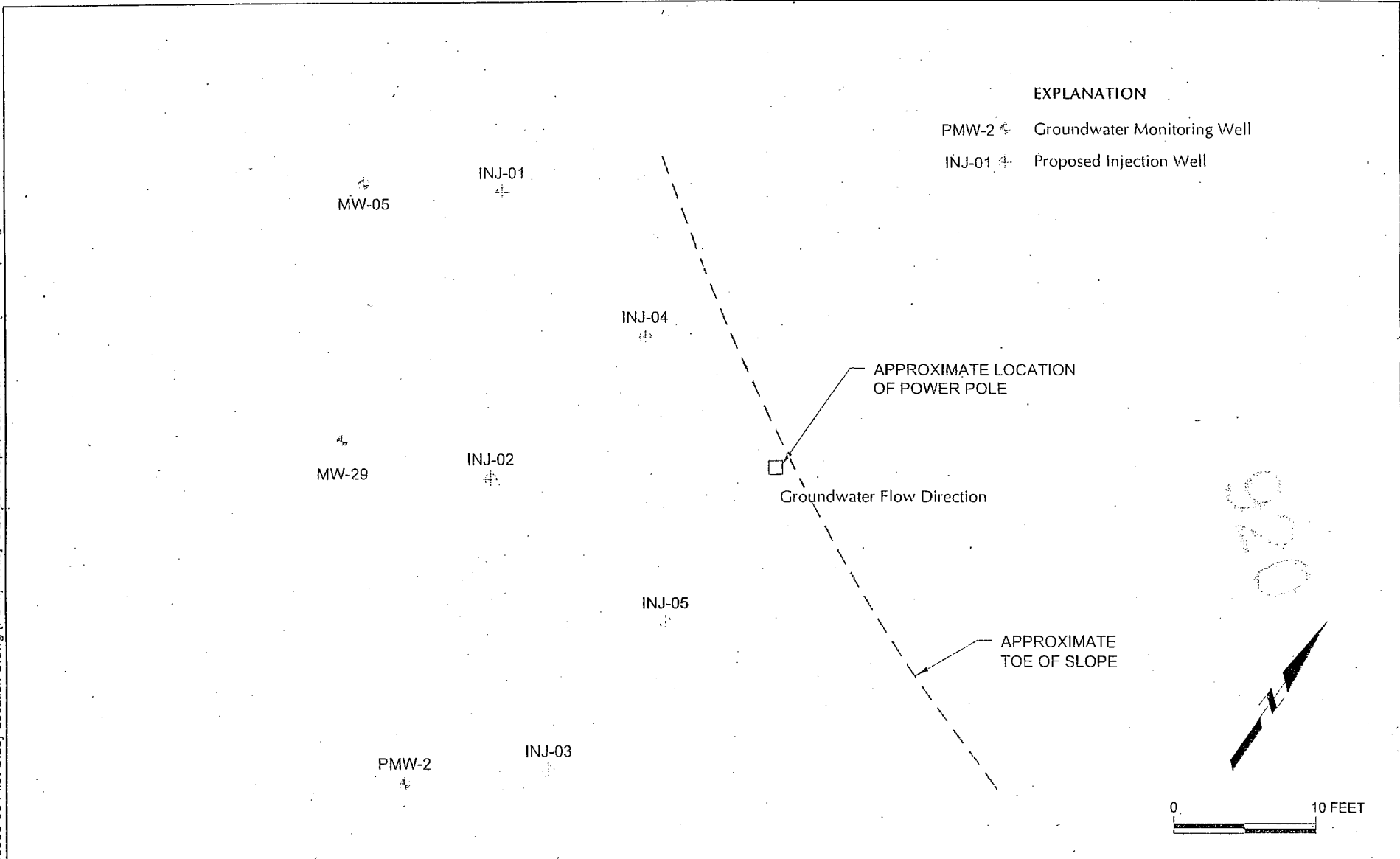
A potential total of 5000 gallons of solution will be manually injected into the wells to assess the solutions effect on the hydrocarbon plume. Up to five injections are planned (1000 gallons each event, 200 gallons per well per event), each injection event will be spaced at least one month apart to allow for a month of post injection performance monitoring. Groundwater monitoring wells immediately down-gradient of the pilot test area (PMW-2, MW-05, MW-29), up-gradient (MW-08), and down-gradient (MW-22, upper sump) will be used for performance monitoring and baseline characterization.

The discharge may result in some localized exceedences of background concentrations of total dissolved solids. Since this will be an aerobic biodegradation process, there are only two major reactions that will occur. Petroleum hydrocarbons will breakdown into carbon dioxide and water. Hydrogen peroxide will breakdown to water and oxygen.

K:\Data\Graphics\10000\10300\06\10300-06 Pilot Study Location C.dwg [PS Inj] Wells] 6/26/08 1:58pm barobita_XREFS: [BaseMap.dwg

FIGURE 2

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EXPLANATION

PMW-2	Groundwater Monitoring Well
INJ-01	Proposed Injection Well

Anticipated Layout of Pilot Study Injection Wells

Former La Habra Booster Station
 Kinder Morgan Energy Partners - 002-10300-06

DRAFT



Figure

SLIC No. 18 Email: Kristine Schroeder (LFR)
 6-14-10

Site and Receptor Map



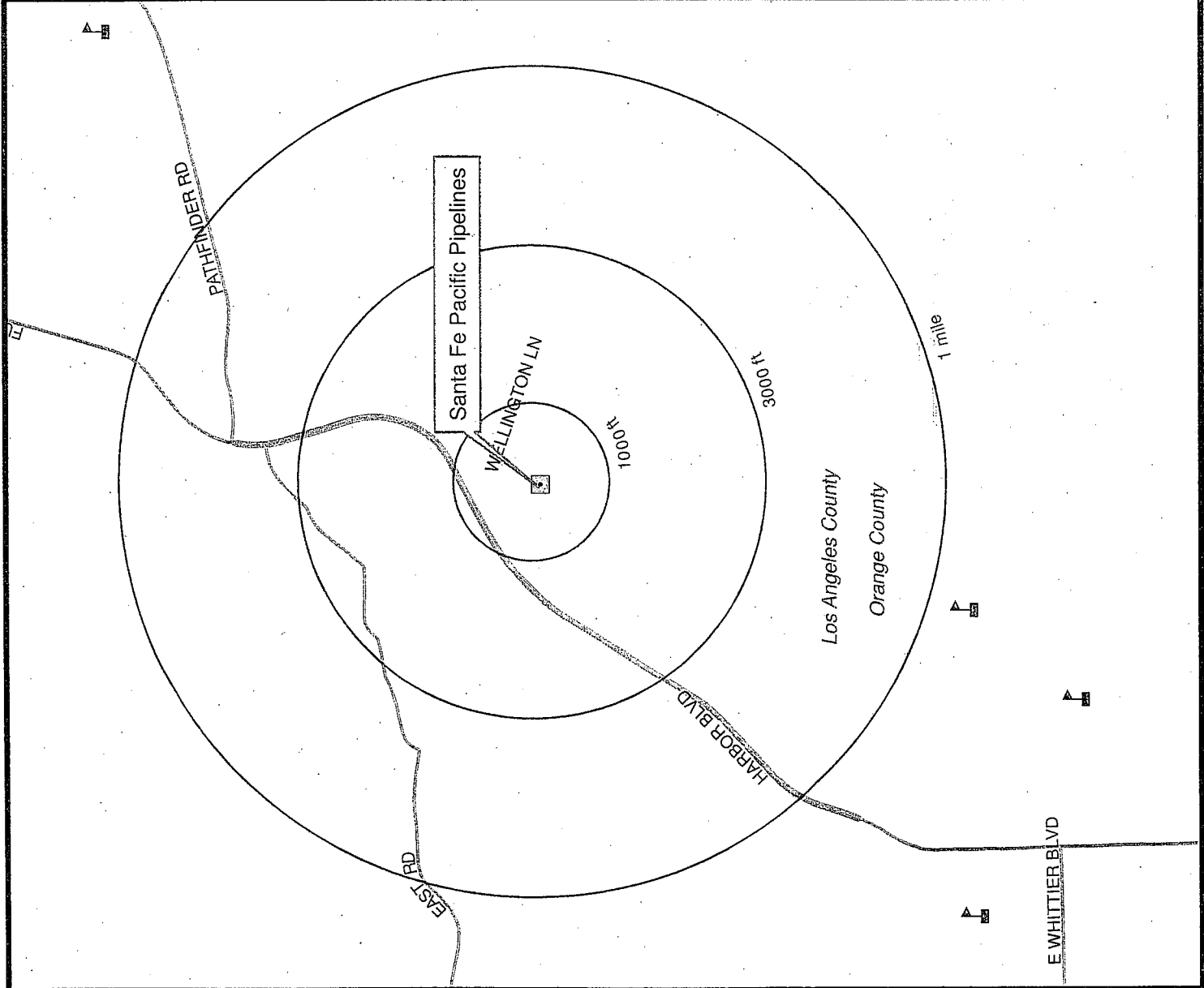
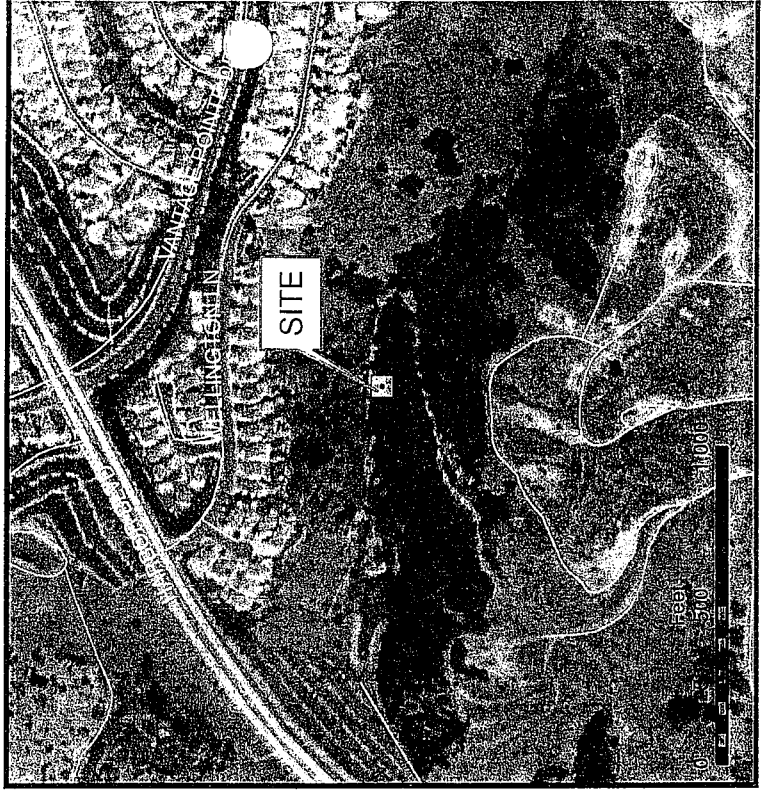
Santa Fe Pacific Pipelines (SLIC ID 0018)

- SLIC Site
- ⊕ Production Wells
- Schools



Scale 1:24,000

Feet



STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. R4-2007-0019
REVISED GENERAL WASTE DISCHARGE REQUIREMENTS
FOR
GROUNDWATER REMEDIATION AT PETROLEUM HYDROCARBON FUEL, VOLATILE
ORGANIC COMPOUND AND/OR HEXAVALENT CHROMIUM IMPACTED SITES
(FILE NO. 01-116)

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

1. Pursuant to Division 7 of the California Water Code, this Regional Board at a public hearing held on January 24, 2002, adopted the General Waste Discharge Requirements (WDRs) (Order No. R4-2002-0030) relative to the groundwater remediation at petroleum hydrocarbon fuel and/or volatile organic compound impacted sites. Subsequent to adoption of the initial general waste discharge requirements (WDRs), these WDRs have been revised to include the use of ozone as a treatment compound and the application and use of trace materials.
2. Since then, however, at sites throughout Los Angeles County, monitoring and municipal production wells have become polluted with dissolved hexavalent chromium. From the Pacoima – Sunland area in the northeastern San Fernando Valley to the basin's narrows in City of Los Angeles and from the northern edge of Central Basin to Long Beach, hexavalent chromium releases have threatened or have directly impacted monitoring or municipal supply wells.
3. Table I (Attachment A) of Order R4-2007-0019 includes a list of materials that can be used for in-situ remediation purposes. Newly added remedial compounds for in-situ reduction are calcium polysulfide, ferrous sulfate, sodium dithionite, and bioremediation agents such as molasses, lactose, cheese whey or starch and emulsified oil have demonstrated that they can effectively convert hexavalent chromium to chromium III, a less toxic and more stable compound. In addition, activated persulfate (Klozur™) for chemical oxidation has proven to be effective for the remediation of petroleum impacted sites. The revised general WDRs are to include the above to the list of materials approved for in-situ remediation zone treatment purposes and include a brief list of tracer materials that can be utilized at sites to aid in determination of the effectiveness of clean up material application.

4. The California Water Code (CWC), section 13260, subdivision (a)(1) requires that any person discharging wastes, or proposing to discharge wastes other than into a community waste water collection system, which could affect the quality of the waters of the State, shall file a Report of Waste Discharge with the Regional Board. The Regional Board shall then prescribe requirements for the discharge or proposed discharge of wastes.
5. Section 13263, subdivision (i) of the CWC provides that a Regional Board may prescribe general waste discharge requirements for discharges produced by similar operations, involving similar types of wastes, and requiring similar treatment standards.
6. The adoption of general WDRs for in-situ groundwater remediation/cleanup or the extraction of polluted groundwater with above ground treatment and the return of treated groundwater to the same aquifer zone would: a) simplify the application process for dischargers, b) allow more efficient use of Regional Board staff time, c) reduce Regional Board time by enabling the Executive Officer to notify the discharger of the applicability of the general WDRs, d) enhance the protection of surface water quality by eliminating the discharge of wastewater to surface waters, and e) provide a level of protection comparable to individual, site-specific WDRs.
7. Petroleum hydrocarbon fuel, volatile organic compound and hexavalent chromium contaminated groundwater at various sites throughout the Los Angeles region and cause or threaten to cause adverse impacts to existing and potential beneficial uses of the region's groundwater resources. Remediation/cleanup of groundwater at these sites includes the use and application of chemical, biological, and physical treatment processes, such as, chemical oxidation, chemical reduction, oxygen enhanced process, nutrient or chemical addition for enhanced biodegradation, or groundwater pump and treat technology with the return of treated groundwater to the same aquifer zone in some cases.
8. The application of any material to groundwater may result in unintended adverse impacts to groundwater quality. Any potential adverse water quality impacts that may result will be localized, of short-term duration, and will not impact any existing or prospective beneficial uses of groundwater. Groundwater quality will be monitored before addition of any materials, during treatment, and after treatment is completed to verify no long-term adverse impact to water quality.
9. The implementation of in-situ cleanup may require a small-scale pilot testing program or demonstration study prior to the design and implementation of a full-scale remediation project. The discharges from the pilot test programs or demonstration study are also covered under these general WDRs.

10. The Regional Board adopted a revised Water Quality Control Plan (Basin Plan) for the Los Angeles Region on June 13, 1994. The Basin Plan contains water quality objectives and lists the beneficial uses of groundwater in the Los Angeles region. Beneficial uses of groundwater in the Los Angeles region include, among others: municipal and domestic supply, industrial service and process supply, agricultural supply and groundwater recharge. Beneficial uses for individual hydrologic sub-areas are specified in the Basin Plan. See Attachment B Table 3-10 water quality objectives for selected constituents in regional groundwaters.
11. The release of petroleum hydrocarbon fuel, volatile organic compounds and hexavalent chromium, at many sites within the Los Angeles region affects only shallow groundwater sources. Many of the shallow groundwater zones contain general mineral content (total dissolved solids, chloride, and sulfate, etc.) in concentrations, which are considered to be naturally occurring and not the result of pollution that may exceed Basin Plan Objectives for these constituents. Treated groundwater that exhibits general mineral content that are naturally occurring and exceeds Basin Plan Objectives may be returned to the same groundwater formations from which it is withdrawn, with concentrations not exceeding the original background concentrations for the site.
12. Treated groundwater that exhibits general mineral content that is naturally occurring and exceeds Surface Water Basin Plan Objectives must be treated if discharged into surface waters under a separate National Pollutant Discharge Elimination System (NPDES) Permit.
13. The general WDRs are applicable to groundwater remediation projects at, petroleum hydrocarbon fuel, volatile organic compound and hexavalent chromium impacted sites. Depending on the Report of Waste Discharge, the Executive Officer determines the annual fee based on the threat to water quality and complexity of the discharge. The general WDRs are to regulate groundwater discharges that have a threat to water quality of Category 3 and Complexity rating of A for a combined rating of 3-A.
14. Discharges with a rating of 3-A contain pollutants that could degrade water quality or cause a minor impairment of designated beneficial uses within the application area of the receiving groundwater. The discharges covered by these requirements will have a groundwater monitoring program to comply with requirements prescribed in this Order.
15. The requirements contained in this Order were established by considering, and are consistent with, all the water quality control policies, plans, and regulations mentioned above and, if they are met, will protect and maintain the existing beneficial uses of the receiving groundwater.
16. The permitted discharge is consistent with the antidegradation provisions of State Water Resources Control Board Resolution No. 68-16 (Anti-degradation Policy). The impact on

existing water quality will not be significant in comparison to individual WDRs, and the general WDRs will improve the quality of the affected groundwater.

17. These general WDRs are not intended to alter or supersede any existing restrictions or working arrangements relating to cleanup cases with local governmental agencies.
18. In accordance with the Governor's Executive Order requiring any proposed activity be reviewed to determine whether such activity will cause additional energy usage, this Regional Board has determined that implementation of these general WDRs will not result in a change in energy usage exceeding what would be used if site-specific WDRs were issued for cleanup at these sites.
19. The Regional Board has prepared an Initial Study and Mitigated Negative Declaration for the issuance of these general WDRs in accordance with the provisions of the California Environmental Quality Act (CEQA).
20. The Regional Board has notified interested agencies and persons of its intent to prescribe general WDR's for the discharges covered under these general WDRs, and has provided them with an opportunity to submit their written views and recommendations for the requirements.
21. The Regional Board, in a public meeting, heard and considered all comments pertaining to the tentative general WDRs.

IT IS HEREBY ORDERED THAT dischargers authorized under this Order shall meet the provisions contained in Division 7 of the California Water Code, and regulations adopted here under, by complying with the following:

A. ELIGIBILITY

1. A discharger may seek coverage under this Order for:
 - a. existing and future discharges to groundwater of remediation compounds from the cleanup of petroleum hydrocarbon fuel, volatile organic compound and/or hexavalent chromium impacted sites and similar discharges.
 - b. re-injection, percolation or infiltration of treated groundwater from a pump and treat remediation system(s).
2. To be covered under this Order, a discharge must meet the following criteria:
 - a. The Executive Officer must find, based on the Report of Waste Discharge submitted pursuant to Provision C, that the groundwater discharges for which coverage under this Order are sought have a threat to water quality of Category 3

and Complexity rating of A for a combined rating of 3-A, using the rating criteria noted (see on the Regional Board website at:

[http://www.waterboards.ca.gov/losangeles/html/permits/fee_schedule/fee%20schedules%20\(2004-005\).pdf](http://www.waterboards.ca.gov/losangeles/html/permits/fee_schedule/fee%20schedules%20(2004-005).pdf)

b. The discharger must have an approved Remediation Action Plan (RAP). The discharger shall submit a copy of the approved RAP including any conditions of implementation with the Report of Waste Discharge for application of the general WDRs. At a minimum, the RAP shall include the following site-specific information:

- The background water quality of the aquifer of the groundwater remediation site(s) including contaminant types, total dissolved solids, sulfates, chlorides, nitrogen (NH₄, NO₃, NO₂), chemical oxygen demand, biological oxygen demand, phosphorus, pH, dissolved metals, nutrients, dissolved oxygen, dissolved carbon dioxide, methane, temperature, iron, and oxidation-reduction potential;
- Information on any potential adverse impacts to groundwater quality, and whether the impacts will be localized and short-term;
- The results of any pilot testing performed for the treatment technology to be used;
- Site-specific geology (lithology and physical parameters) and hydrogeologic parameters, hydrologic report;
- Infiltration rate;
- Characterization and extent of petroleum hydrocarbon fuel, volatile organic compound and hexavalent chromium plume(s);
- Description of the treatment system(s);
- Adequate groundwater monitoring network with historical groundwater monitoring report;
- Description of the aerial extent of the application area and identification of monitoring wells to be used to determine water quality upgradient, within the application area, downgradient from the application area and identify the compliance point;
- Material Safety Data Sheet (MSDS) information and other product technical information for any materials to be used for cleanup;
- Application rate(s), material type(s) and applied concentrations; and
- Evaluation of loading rates for nitrogen compounds, total dissolved solids, sulfate, and chloride compounds.

- c. The General Waste Discharge Requirements would allow the following materials to be used for in-situ remediation purposes:

1. Oxidation/Aerobic Degradation Enhancement Compounds:

- Fenton's reagent (hydrogen peroxide, ferrous iron catalyst, and pH buffer)
- Hydrogen peroxide
- Potassium or sodium permanganate
- Oxygen release compound (ORC) magnesium peroxide
- Ozone
- Activated Persulfate (Klozur™)

2. Reducing/Reductive Degradation Enhancement Compounds (Table I):

- Calcium Polysulfide (Inorganic)
- Ferrous Sulfate (Inorganic)
- Ferrous Chloride (Inorganic)
- Sodium Dithionite (Inorganic)
- Zero-valent iron (Inorganic)
- Bio-remediation (Organic) using:
 - Molasses,
 - Lactose,
 - Cheese Whey and/or
 - Starch
 - Sodium Lactate
 - Ethanol
 - Emulsified Oil
 - Corn Syrup
 - Hydrogen Release Compound (HRC)--{proprietary}

3. Inorganics/Nutrients:

- Nitrate, ammonia, phosphate, vitamins

4. Carbon Sources/Electron Donors:

- Acetate, lactate, propionate, benzoate, oleate, ethanol, propanol, methanol, glucose, complex sugars such as molasses or corn syrup, other food process byproducts such as milk whey or yeast extract, other complex organic material such as wood chips

5. Study tracer compounds:

- The tracer compounds shall be highly contrast and not reactive with current contaminants to be treated. The tracers may be chloride-based and bromide-based salts, such as sodium-flouroscein, calcium chloride, sodium chloride, calcium bromide, sodium bromide, potassium bromide, potassium iodide, Rhodamine WT, rhodamine (D), eosine, and fluoride salts, or similar materials as approved by the Executive Officer.
3. In applying these general WDRs, the monitoring program shall address changes in geochemistry that may alter the potential occurrence of transference of chromium (III) into chromium (VI), or vice versa, during the oxidation or reduction process in the in-situ remediation under these WDRs.
 4. For the purpose of renewal of existing individual requirements with these general WDRs, provided that all the conditions of these general WDRs are met, renewal is effective upon issuance of a notification by the Executive Officer and issuance of a new monitoring and reporting program.
 5. When the individual WDRs with more specific requirements are issued to a discharger, the applicability of this Order to that discharger is automatically terminated on the effective date of the individual WDRs.

B. AUTHORIZATION

To be authorized to discharge under this Order, the discharger must submit a Report of Waste Discharge in accordance with the requirements of Part C of this Order. Upon receipt of the application, the Executive Officer shall determine the applicability of this Order to such a discharge and the completeness of the application package. If the discharge is eligible, the Executive Officer shall notify the discharger that the discharge is authorized under the terms and conditions of this Order and prescribe an appropriate monitoring and reporting program. For new discharges, the discharge shall not commence until receipt of the Executive Officer's written determination and the discharger receives general WDRs to include a site specific monitoring and reporting program.

C. REPORT OF WASTE DISCHARGE

1. Deadline for Submission

- a. Renewal of permits of existing dischargers covered under individual WDRs that meet the eligibility criteria in Part A and have submitted Report of Waste Discharge will consist of a letter of determination from the Executive Officer of coverage under this Order.
 - b. New dischargers shall file a complete application to include all information identified in Items A1, A2 and as above at least 60 days before planned commencement of any discharge.
2. Forms for Report of Waste Discharge
- a. Dischargers shall use the appropriate forms (Standard Form 200) or equivalent forms approved by the State Water Resources Control Board or the Executive Officer of the Los Angeles Regional Board.
 - b. The discharger, upon request, shall submit any additional information that the Executive Officer deems necessary to determine whether the discharge meets the criteria for coverage under this Order, and/or in prescribing an appropriate monitoring and reporting program.
 - c. The Report of Waste Discharge shall be accompanied by the first annual fee (if appropriate) in accordance with the current version of California Code of Regulation, Title 23, Division 7, Chapter 9, Waste Discharge Report and Requirements Article 1 fees for a discharge. The check or money order shall be made payable to the "State Water Resources Control Board."

D. DISCHARGE PROHIBITIONS

1. The discharge of wastes other than those which meet eligibility requirements in Part A of this Order is prohibited unless the discharger obtains coverage under another general permit or an individual site specific permit that regulates the discharge of such wastes.
2. The discharge of any radiological, chemical, or biological warfare agent or high level radiological waste is prohibited.
3. Creation of a pollution, contamination, or nuisance, as defined by section 13050 of the California Water Code (CWC), is prohibited.
4. The surfacing as overflow of wastes from the treatment system at any time and at any location is prohibited.

5. The disposal of wastes in geologically unstable areas or so as to cause earth movement is prohibited.

E. DISCHARGE LIMITATIONS

1. The discharge of wastes shall not cause the pH of the receiving groundwater at the compliance point, downgradient outside the application area, beyond the range of 6.5 and 8.5.
2. The discharge of wastes shall not cause the mineral constituents of the receiving groundwater at the compliance point, downgradient outside the application area, in excess of applicable limits given in Attachment B. In the letter of determination, the Executive Officer shall indicate the groundwater limitations in Attachment B applicable to the particular discharge, and identify the compliance point(s) for the site.
3. The discharge of wastes shall not cause the concentrations of chemical constituents and radionuclides of the receiving groundwater designated for use as domestic or municipal supply at the compliance point, downgradient outside the application area, in excess of the Maximum Contaminant Levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations which are incorporated by reference into the Basin Plan: Table 64431-A of section 64431 (inorganic chemicals), Table 64431-B of section 64431 (fluoride), Table 64444-A of section 64444 (organic chemicals), and Table 4 of section 64443 (radioactivity). This incorporation by reference is prospective including future changes to the incorporated provisions as the changes take effect.
4. Waste discharged shall not cause the concentration of coliform organisms over any seven days period greater than 1.1/100ml.
5. Waste discharged shall not contain salts, heavy metals, or organic pollutants at levels that would cause receiving groundwater at the compliance point, downgradient outside the application area, to exceed the water quality objectives for groundwater or groundwater that may be in hydraulic connection with surface waters designated for marine aquatic life or body contact recreation.
6. Waste discharged shall not cause the groundwater to contain concentrations of chemical substances or its by-products in amounts that adversely affect any designated beneficial use, outside the application area or treatment zone at the compliance point(s).

7. Waste discharged shall not cause the groundwater to contain residual taste or odor in concentrations that cause nuisance or adversely affect beneficial uses, outside the application area or treatment zone at the compliance point(s).
8. Waste discharged shall not cause the groundwater to contain in amounts that cause nitrogen as nitrate-nitrogen plus nitrite-nitrogen ($\text{NO}_3\text{-N} + \text{NO}_2\text{-N}$), 45 mg/L as Nitrate (NO_3), 10 mg/L as nitrate-nitrogen ($\text{NO}_3\text{-N}$), or 1 mg/L as nitrite-nitrogen ($\text{NO}_2\text{-N}$), outside the application area or treatment zone at the compliance point(s).

F. PROVISIONS

1. The Executive Officer may require any discharger authorized under this Order to apply for and obtain individual WDRs with specific requirements. The Executive Officer may require any discharger authorized to discharge under this permit to apply for individual WDRs only if the discharger has been notified in writing that a permit application is required. This notice shall include a brief statement of the reasons for this decision, an application form, a statement setting a deadline for the discharger to file the application, and a statement that on the effective date of the individual requirements, the authority to discharge under this General WDRs are no longer applicable.
2. This Order includes the attached "Tentative Standard Provisions Applicable to Waste Discharge Requirements." (Attachment C) If there is any conflict between provisions stated herein before and the attached "Standard Provisions," those provisions stated herein shall prevail.
3. Adequate facilities shall be provided to divert surface and storm water away from the application area and/or treatment system and areas where any pollutants are stored.
4. The application of materials or the re-injection of treated groundwater shall only be at a site owned or controlled by the discharger.
5. All work must be performed by or under the direction of a registered civil engineer, registered geologist, or certified engineering geologist. A statement is required in all technical reports that the registered professional in direct responsible charge actually supervised or personally conducted all the work associated with the project.
6. The discharge of wastes to or infiltration to a surface water system must be covered by separate WDRs under the National Pollution Discharge Elimination System (NPDES) permit.

7. This Order does not alleviate the responsibility of discharger to obtain other necessary local, state, and federal permits to construct facilities necessary for compliance with this Order; nor does this Order prevent imposition of additional standards, requirements, or conditions by any other regulatory agency. Additionally, the discharger shall notify the Native American Heritage Commission of any plans to disturb the soil in order to comply with California Environmental Quality Act (CEQA) guidelines as set forth in Section 15064.5(b)(c). Furthermore the discharger is required to provide local information prior to excavation to the California Historic Resources Information Center (CHRIS). This will serve as their due diligence record search to provide proximity to Native American historical and archeological resources. The discharger shall also be required to adhere to California Health and Safety Code Section 7050.5, Public Resources Code Section 5097.98, CEQA Section 15064.5(d) and Section 15064.5 (f) to ensure that mitigation plan provisions are in-place to identify, evaluate and consult with your commission about the discovery and disposition of any recovered human remains or artifacts, should the occasion arise, during the remediation process overseen by this agency.
8. The discharger shall notify Regional Board staff by telephone within 24 hours, followed by written notification within one week; in the event it is unable to comply with any of the conditions of this Order due to:
 - a) Breakdown of waste treatment equipment,
 - b) Accident caused by human error or negligence,
 - c) Other causes such as acts of nature, or
 - d) Site construction or development operations.
9. Any discharger authorized under this Order may request to be excluded from coverage of this Order by applying for an individual permit.
10. In accordance with section 13263(e) of the California Water Code, these requirements are subject to periodic review and revision by the Regional Board within a five (5) year cycle.
11. In accordance with Water Code section 13263(g), these requirements shall not create a vested right to continue to discharge and are subject to rescission or modification. All discharges of waste into waters of the state are privileges, not rights.
12. The discharger shall develop a contingency plan and maintain it on site. The contingency plan shall detail appropriate actions to be taken in order to protect human health and the

environment in case of any spill or failure related to the operation or mis-operation of the treatment system.

G. MONITORING AND REPORTING REQUIREMENTS

1. The Executive Officer is hereby authorized to prescribe a Monitoring and Reporting Program for each authorized discharger. This program may include participation of the discharger in a regional monitoring program.
2. The discharger shall file with the Regional Board technical reports on self-monitoring work conducted according to the Monitoring and Reporting Program specified by the Executive Officer and submits other reports as requested by the Regional Board.
3. The discharger shall retain records of all monitoring information and data used to complete the Report of Waste Discharge and application for coverage under this Order for at least five years from the date of permit issuance. The retention period shall be extended during any unresolved litigation regarding the discharge or when requested by the Executive Officer.
4. The discharger shall maintain all sampling, measurement and analytical results, including the date, exact place, and time of sampling or measurement; individual(s) who did the sampling or measurement; the date(s) analyses were done; analysts' names; and analytical techniques or methods used.
5. All sampling, sample preservation, and analyses must be conducted according to test procedures under title 40 Code of Federal Regulations, section 136, unless other test procedures have been specified in this Order or by the Executive Officer.
6. All chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the California Department of Health Services Environmental Laboratory Accreditation Program (CDHS-ELAP) or other state agency authorized to undertake such certification.
7. The discharger shall calibrate and maintain all monitoring instruments and equipment to insure accuracy of measurements, or shall insure that both activities will be conducted.
8. In reporting the monitoring data, the discharger shall arrange the data in tabular form so that the date, constituents, and concentrations are readily discernible. The data shall be summarized to demonstrate compliance with waste discharge requirements. Laboratory

analytical data from any soil testing and/or groundwater monitoring shall be reported in Electronic Deliverable Format in accordance with California Water Code section 13195 et. seq. requirements, if applicable.

9. For every item where the requirements are not met, the discharger shall submit a statement of the actions undertaken or proposed that will bring the discharge into full compliance with requirements at the earliest time and submit a timetable for correction.
10. The discharger shall file a report of any material change or proposed change in the character, location or volume of the discharge.
11. The discharger shall notify this Regional Board within 24 hours by telephone of any adverse condition resulting from the discharge; such notification shall be affirmed in writing within five working days.
12. Whenever wastes, associated with the discharge under this Order, are transported to a different disposal site, the following shall be reported in the monitoring report: type and quantity of wastes; name and address of the hauler (or method of transport if other than by hauling); and location of the final point(s) of disposal.
13. Each monitoring report must contain an affirmation in writing that:

"All analyses were conducted at a laboratory certified for such analyses by _____ and in accordance with current USEPA procedures or as specified in this Monitoring and Reporting Program."
14. Each report shall contain the following completed declaration:

"I declare under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who managed the system or those directly responsible for gathering the information, the information submitted, is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Groundwater Remediation at
Petroleum Hydrocarbon Fuel, Volatile Organic Compound
And / or Hexavalent Chromium Impacted Sites
Order No. R4-2007-0019

File No. 01-116

Executed on the ___ day of _____ at _____.

_____ (Signature)

_____ (Title)"

H. EXPIRATION DATE AND CONTINUATION OF THIS ORDER

This Order expires on March 1, 2012; however, for those dischargers authorized to discharge under this Order, it shall continue in full force and effect until a new order is adopted.

I. REAUTHORIZATION

Upon re-issuance of a new general permit Order, dischargers authorized under this Order shall file a new Report of Waste Discharge within 45 days of notification by the Executive Officer.

I, Jonathan S. Bishop, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on March 1, 2007.

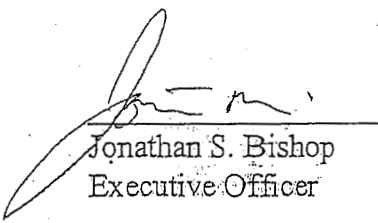

Jonathan S. Bishop
Executive Officer

TABLE I			
Remediation Technologies Used at U.S. Chromium Sites			
Additive	Additive Type	Treatment Mechanism	Comments
Calcium Polysulfide	Inorganic	Sulfide oxidation causing hexavalent chromium reduction to trivalent chromium and precipitation as a sulfide	End products in aerobic conditions is sulfate and sulfide precipitate (retained by soil) and in anaerobic conditions may produce measurable concentrations of aqueous sulfide or other sulfide compounds.
Hydrogen Sulfide Gas	Inorganic		
Sodium Sulfide	Inorganic		
Ferrous Sulfate	Inorganic	Ferrous oxidation causing hexavalent chromium reduction to trivalent chromium and coprecipitation with ferric iron hydroxide	End products in aerobic conditions is ferric coprecipitate (retained by soil) and in anaerobic conditions may produce measurable concentrations of aqueous ferrous iron and trivalent chromium.
Sodium Dithionite	Inorganic	Sulfite oxidation causing hexavalent chromium reduction to trivalent chromium, excess trivalent chromium precipitates as hydroxide	End products in aerobic conditions is a hydroxide precipitate (retained by soil) and, potentially, measurable concentrations of aqueous trivalent chromium and in anaerobic conditions may produce higher measurable concentrations of aqueous trivalent chromium.
Sulfur Dioxide Gas	Inorganic		
Sodium Metabisulfite	Inorganic		
Molasses	Organic (Off-the-Shelf)	Anaerobic biological depression of ORP causing reduction of hexavalent chromium to trivalent chromium, excess trivalent chromium precipitates as hydroxide	End products in aerobic conditions is a hydroxide precipitate (retained by soil) and, potentially, measurable concentrations of aqueous trivalent chromium and in anaerobic conditions may produce higher measurable concentrations of aqueous trivalent chromium and carboxylic acids (incomplete transformation of organic source).
Cheese Whey	Organic (Off-the-Shelf)		
Sodium Lactate	Organic (Off-the-Shelf)		
Emulsified Oil	Organic (Off-the-Shelf)		
Corn Syrup	Organic (Off-the-Shelf)		
Ethanol	Organic (Off-the-Shelf)		
Lactose	Organic (Off-the-Shelf)		
HRC	Organic (Proprietary)	Anaerobic biological depression of ORP causing reduction of hexavalent chromium to trivalent chromium, excess trivalent chromium precipitates as hydroxide	HRC (Hydrogen Release Compound by Regeneration) is propanoic acid, also known as Glycerol Tripropylactate, a carbohydrate. It is a highly viscous material (like Honey) that dissolves slowly, typically about 18 months. End products in aerobic conditions is a hydroxide precipitate (retained by soil) and, potentially, measurable concentrations of aqueous trivalent chromium and in anaerobic conditions may produce higher measurable concentrations of aqueous trivalent chromium and carboxylic acids (incomplete transformation of organic source).
ORC	Organic (Proprietary) blended with Inorganic	Anaerobic biological depression of ORP causing reduction of hexavalent chromium to trivalent chromium, potentially also direct reduction by inorganic sulfide, trivalent chromium precipitates as sulfide	ORC (Oxygen Remediation Compound by Regeneration) is the same material as HRC with an additional organosulfur to precipitate trivalent chromium as a sulfide precipitate. Like HRC, it is a highly viscous material that dissolves slowly, typically about 18 months. End products in aerobic conditions is sulfate and sulfide precipitate (retained by soil) and in anaerobic conditions may produce measurable concentrations of aqueous sulfide or other sulfide compounds and carboxylic acids (incomplete transformation of organic source).
ATTACHMENT A			

Table 3-10. Water Quality Objectives for Selected Constituents in Regional Ground Waters^a.

DWR Basin No. ^b	BASIN	OBJECTIVES (mg/L)			
		TDS	Sulfate	Chloride	Boron
	Pitas Point Area ^c	None specified			
4-1	Ojai Valley				
	Upper Ojai Valley				
	West of Sulfur Mountain Road	1,000	300	200	1.0
	Central area	700	50	100	1.0
	Sisar area	700	250	100	0.5
4-2	Lower Ojai Valley				0.5
	West of San Antonio--Senior Canyon Creeks	1,000	300	200	0.5
	East of San Antonio--Senior Canyon Creeks	700	200	50	
4-3	Ventura River Valley				
	Upper Ventura	800	300	100	0.5
	San Antonio Creek area	1,000	300	100	1.0
	Lower Ventura	1,500	500	300	1.5
4-4	Ventura Central ^d				
	Santa Clara--Piru Creek area				
	Upper area (above Lake Piru)	1,100	400	200	2.0
	Lower area east of Piru Creek	2,500	1,200	200	1.5
	Lower area west of Piru Creek	1,200	600	100	1.5
	Santa Clara--Sespe Creek area				
	Topa Topa (upper Sespe) area	900	350	30	2.0
	Fillmore area				
	Pole Creek Fan area	2,000	800	100	1.0
	South side of Santa Clara River	1,500	800	100	1.1
	Remaining Fillmore area	1,000	400	50	0.7
	Santa Clara--Santa Paula area				
	East of Peck Road	1,200	600	100	1.0
	West of Peck Road	2,000	800	110	1.0
	Oxnard Plain				
	Oxnard Forebay	1,200	600	150	1.0
	Confined aquifers	1,200	600	150	1.0
Unconfined and perched aquifers	3,000	1,000	500	-	
4-6	Pleasant Valley				
	Confined aquifers	700	300	150	1.0
	Unconfined and perched aquifers	-	-	-	-
4-7	Arroyo Santa Rosa	900	300	150	1.0
4-8	Las Posas Valley				
	South Las Posas area				
	NW of Grimes Cyn Rd & LA Ave & Somis Rd	700	300	100	0.5
	E of Grimes Cyn Rd and Hitch Blvd	2,500	1,200	400	3.0
	S of LA Ave between Somis Rd & Hitch Blvd	1,500	700	250	1.0
	Grimes Canyon Rd & Broadway area	250	30	30	0.2
	North Las Posas area	500	250	150	1.0
4-5	Upper Santa Clara				
	Acton Valley	550	150	100	1.0
	Sierra Pelona Valley (Agua Dulce)	600	100	100	0.5
	Upper Mint Canyon	700	150	100	0.5
	Upper Bouquet Canyon	400	50	30	0.5
	Green Valley	400	50	25	-
	Lake Elizabeth--Lake Hughes area	500	100	50	0.5

Table 3-10. Water Quality Objectives for Selected Constituents in Regional Ground Waters^a (cont.)

DWR Basin No. ^b	BASIN	OBJECTIVES (mg/L)			
		TDS	Sulfate	Chloride	Boron
4-4.07	Eastern Santa Clara				
	Santa Clara-Mint Canyon	800	150	150	1.0
	South Fork	700	200	100	0.5
	Placerita Canyon	700	150	100	0.5
	Santa Clara-Bouquet & San Francisquito Canyons	700	250	100	1.0
	Castaic Valley	1,000	350	150	1.0
	Saugus Aquifer	-	-	-	-
4-9	Simi Valley				
	Simi Valley Basin				
	Confined aquifers	1,200	600	150	1.0
	Unconfined aquifers	-	-	-	-
	Gillibrand Basin	900	350	50	1.0
4-10	Conejo Valley	800	250	150	1.0
4-11	Los Angeles Coastal Plain				
	Central Basin	700	250	150	1.0
	West Coast Basin	800	250	250	1.5
	Hollywood Basin	750	100	100	1.0
	Santa Monica Basin	1,000	250	200	0.5
4-12	San Fernando Valley				
	Sylmar Basin	600	150	100	0.5
	Verdugo Basin	600	150	100	0.5
	San Fernando Basin				
	West of Highway 405	800	300	100	1.5
	East of Highway 405 (overall)	700	300	100	1.5
	Sunland-Tujunga area *	400	50	50	0.5
	Foothill area *	400	100	50	1.0
	Area encompassing RT-Tujunga-Erwin-N. Hollywood-Whithall-LA/Verdugo-Crystal Springs-Headworks-Glendale/Burbank Well Fields	600	250	100	1.5
	Narrows area (below confluence of Verdugo Wash with the LA River)	900	300	150	1.5
	Eagle Rock Basin	800	150	100	0.5
4-13	San Gabriel Valley				
	Raymond Basin				
	Monk Hill sub-basin	450	100	100	0.5
	Santa Anita area	450	100	100	0.5
	Pasadena area	450	100	100	0.5
	Main San Gabriel Basin				
	Western area †	450	100	100	0.5
	Eastern area †	600	100	100	0.5
	Puente Basin	1,000	300	150	1.0
4-14 8-2 ^a	Upper Santa Ana Valley				
	Live Oak area	450	150	100	0.5
	Claremont Heights area	450	100	50	-
	Pomona area	300	100	50	0.5
	Chino area	450	20	15	-
	Spadra area	550	200	120	1.0
4-15	Tierra Rejada	700	250	100	0.5
4-16	Hidden Valley	1,000	250	250	1.0
4-17	Lockwood Valley	1,000	300	20	2.0
4-18	Hungry Valley and Peace Valley	500	150	50	1.0

Table 3-10. Water Quality Objectives for Selected Constituents in Regional Ground Waters^a (cont.)

DWR Basin No. ^b	BASIN	OBJECTIVES (mg/L)			
		TDS	Sulfate	Chloride	Boron
4-19	Thousand Oaks area	1,400	700	150	1.0
4-20	Russell Valley	1,500	500	250	1.0
	Triunfo Canyon area	2,000	500	500	2.0
	Lindero Canyon area	2,000	500	500	2.0
	Las Virgenes Canyon area	2,000	500	500	2.0
4-21	Conejo-Tierra Rejada Volcanic area ^h	—	—	—	—
4-22	Santa Monica Mountains—southern slopes ⁱ	—	—	—	—
	Camarillo area	1,000	250	250	1.0
	Point Dume area	1,000	250	250	1.0
	Malibu Valley	2,000	500	500	2.0
	Topanga Canyon area	2,000	500	500	2.0
	San Pedro Channel Islands ^j	—	—	—	—
	Anacapa Island	—	—	—	—
	San Nicolas Island	1,100	150	350	—
	Santa Catalina Island	1,000	100	250	1.0
	San Clemente Island	—	—	—	—
	Santa Barbara Island	—	—	—	—

- a. Objectives for ground waters outside of the major basins listed on this table and outlined in Figure 1-9 have not been specifically listed. However, ground waters outside of the major basins are, in many cases, significant sources of water. Furthermore, ground waters outside of the major basins are either potential or existing sources of water for downgradient basins and, as such, objectives in the downgradient basins shall apply to these areas.
- b. Basins are numbered according to Bulletin 118-80 (Department of Water Resources, 1980).
- c. Ground waters in the Pitas Point area (between the lower Ventura River and Rincon Point) are not considered to comprise a major basin, and accordingly have not been designated a basin number by the California Department of Water Resources (DWR) or outlined on Figure 1-9.
- d. The Santa Clara River Valley (4-4), Pleasant Valley (4-6), Arroyo Santa Rosa Valley (4-7) and Las Posas Valley (4-8) Ground Water Basins have been combined and designated as the Ventura Central Basin (DWR, 1980).
- e. The category for the Foothill Wells area in previous Basin Plan incorrectly groups ground water in the Foothill area with ground water in the Sunland-Tujunga area. Accordingly, the new categories, Foothill area and Sunland-Tujunga area, replace the old Foothill Wells area.
- f. All of the ground water in the Main San Gabriel Basin is covered by the objectives listed under Main San Gabriel Basin - Eastern area and Western area. Walnut Creek, Big Dalton Wash, and Little Dalton Wash separate the Eastern area from the Western area (see dashed line on Figure 2-17). Any ground water upgradient of these areas is subject to downgradient beneficial uses and objectives, as explained in Footnote a.
- g. The border between Regions 4 and 8 crosses the Upper Santa Ana Valley Ground Water Basin.
- h. Ground water in the Conejo-Tierra Rejada Volcanic Area occurs primarily in fractured volcanic rocks in the western Santa Monica Mountains and Conejo Mountain areas. These areas have not been delineated on Figure 1-9.
- i. With the exception of ground water in Malibu Valley (DWR Basin No. 4-22), ground waters along the southern slopes of the Santa Monica Mountains are not considered to comprise a major basin and accordingly have not been designated a basin number by the California Department of Water Resources (DWR) or outlined on Figure 1-9.
- j. DWR has not designated basins for ground waters on the San Pedro Channel Islands.

STANDARD PROVISIONS
APPLICABLE TO WASTE DISCHARGE REQUIREMENTS

1. DUTY TO COMPLY

The discharger must comply with all conditions of these waste discharge requirements. A responsible party has been designated in the Order for this project, and is legally bound to maintain the monitoring program and permit. Violations may result in enforcement actions, including Regional Board orders or court orders requiring corrective action or imposing civil monetary liability, or in modification or revocation of these waste discharge requirements by the Regional Board. [CWC Section 13261, 13263, 13265, 13268, 13300, 13301, 13304, 13340, 13350]

2. GENERAL PROHIBITION

Neither the treatment nor the discharge of waste shall create a pollution, contamination or nuisance, as defined by Section 13050 of the California Water Code (CWC). [H&SC Section 5411, CWC Section 13263]

3. AVAILABILITY

A copy of these waste discharge requirements shall be maintained at the discharge facility and be available at all times to operating personnel. [CWC Section 13263]

4. CHANGE IN OWNERSHIP

The discharger must notify the Executive Officer, in writing at least 30 days in advance of any proposed transfer of this Order's responsibility and coverage to a new discharger containing a specific date for the transfer of this Order's responsibility and coverage between the current discharger and the new discharger. This agreement shall include an acknowledgement that the existing discharger is liable for violations up to the transfer date and that the new discharger is liable from the transfer date on. [CWC Sections 13267 and 13263]

5. CHANGE IN DISCHARGE

In the event of a material change in the character, location, or volume of a discharge, the discharger shall file with this Regional Board a new Report of Waste Discharge. [CWC Section 13260(c)]. A material change includes, but is not limited to, the following:

- (a) Addition of a major industrial waste discharge to a discharge of essentially domestic sewage, or the addition of a new process or product by an industrial facility resulting in a change in the character of the Waste.

November 7, 1990
WDR

Standard Provisions Applicable to
Waste Discharge Requirements

- (b) Significant change in disposal method, e.g., change from a land disposal to a direct discharge to water, or change in the method of treatment which would significantly alter the characteristics of the waste.
- (c) Significant change in the disposal area, e.g., moving the discharge to another drainage area, to a different water body, or to a disposal area significantly removed from the original area potentially causing different water quality or nuisance problems.
- (d) Increase in flow beyond that specified in the waste discharge requirements.
- (e) Increase in the area or depth to be used for solid waste disposal beyond that specified in the waste discharge requirements. [CCR Title 23 Section 2210]

6. REVISION

These waste discharge requirements are subject to review and revision by the Regional Board. [CCR Section 13263]

7. TERMINATION

Where the discharger becomes aware that it failed to submit any relevant facts in a Report of Waste Discharge or submitted incorrect information in a Report of Waste Discharge or in any report to the Regional Board, it shall promptly submit such facts or information. [CWC Sections 13260 and 13267]

8. VESTED RIGHTS

This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, do not protect the discharger from his liability under Federal, State or local laws, nor do they create a vested right for the discharger to continue the waste discharge. [CWC Section 13263(g)]

9. SEVERABILITY

Provisions of these waste discharge requirements are severable. If any provision of these requirements are found invalid, the remainder of the requirements shall not be affected. [CWC Section 921]

Standard Provisions Applicable to
Waste Discharge Requirements

10. OPERATION AND MAINTENANCE

The discharger shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with conditions of this Order. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order. [CWC Section 13263(f)]

11. HAZARDOUS RELEASES

Except for a discharge which is in compliance with these waste discharge requirements, any person who, without regard to intent or negligence, causes or permits any hazardous substance or sewage to be discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, shall, as soon as (a) that person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State toxic disaster contingency plan adopted pursuant to Article 3.7 (commencing with Section 8574.7) of Chapter 7 of Division 1 of Title 2 of the Government Code, and immediately notify the State Board or the appropriate Regional Board of the discharge. This provision does not require reporting of any discharge of less than a reportable quantity as provided for under subdivisions (f) and (g) of Section 13271 of the Water Code unless the discharger is in violation of a prohibition in the applicable Water Quality Control plan. [CWC Section 1327(a)]

12. PETROLEUM RELEASES

Except for a discharge which is in compliance with these waste discharge requirements, any person who without regard to intent or negligence, causes or permits any oil or petroleum product to be discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, shall, as soon as (a) such person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State oil spill contingency plan adopted pursuant to Article 3.5 (commencing with Section 8574.1) of Chapter 7 of Division 1 of Title 2 of the Government Code. This provision does not require reporting of any discharge of less than 42 gallons unless the discharge is also required to be reported pursuant to Section 311 of the Clean Water Act or the discharge is in violation of a prohibition in the applicable Water Quality Control Plan. [CWC Section 13272]

Standard Provisions Applicable to
Waste Discharge Requirements

13. ENTRY AND INSPECTION

The discharger shall allow the Regional Board, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:

- (a) Enter upon the discharger's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;
- (b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;
- (c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
- (d) Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order, or as otherwise authorized by the California Water Code, any substances or parameters at any location. [CWC Section 13267]

14. MONITORING PROGRAM AND DEVICES

The discharger shall furnish, under penalty of perjury, technical monitoring program reports; such reports shall be submitted in accordance with specifications prepared by the Executive Officer, which specifications are subject to periodic revisions as may be warranted. [CWC Section 13267]

All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year, or more frequently, to ensure continued accuracy of the devices. Annually, the discharger shall submit to the Executive Office a written statement, signed by a registered professional engineer, certifying that all flow measurement devices have been calibrated and will reliably achieve the accuracy required.

Unless otherwise permitted by the Regional Board Executive officer, all analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. The Regional Board Executive Officer may allow use of an uncertified laboratory under exceptional circumstances, such as when the closest laboratory to the monitoring location is outside the State boundaries and therefore not subject to certification. All analyses shall be required to be conducted in accordance with the latest edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants" [40CFR Part 136] promulgated by the U.S. Environmental Protection Agency. [CCR Title 23, Section 2230]

Standard Provisions Applicable to
Waste Discharge Requirements

15. TREATMENT FAILURE

In an enforcement action, it shall not be a defense for the discharger that it would have been necessary to halt or to reduce the permitted activity in order to maintain compliance with this Order. Upon reduction, loss, or failure of the treatment facility, the discharger shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored or an alternative method of treatment is provided. This provision applies, for example, when the primary source of power of the treatment facility fails, is reduced, or is lost. [CWC Section 13263(f)]

16. DISCHARGE TO NAVIGABLE WATERS

Any person discharging or proposing to discharge to navigable waters from a point source (except for discharge of dredged or fill material subject to Section 404 of the Clean Water Act and discharge subject to a general NPDES permit) must file an NPDES permit application with the Regional Board. [CCR Title 2 Section 22357]

17. ENDANGERMENT TO HEALTH AND ENVIRONMENT

The discharger shall report any noncompliance which may endanger health or the environment. Any such information shall be provided verbally to the Executive Officer within 24 hours from the time the discharger becomes aware of the circumstances. A written submission shall also be provided within five days of the time the discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected; the anticipated time it is expected to continue and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Executive officer, or an authorized representative, may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The following occurrence(s) must be reported to the Executive Office within 24 hours:

- (a) Any bypass from any portion of the treatment facility.
- (b) Any discharge of treated or untreated wastewater resulting from sewer line breaks, obstruction, surcharge or any other circumstances.
- (c) Any treatment plan upset which causes the effluent limitation of this Order to be exceeded. [CWC Sections 13263 and 13267]

18. MAINTENANCE OF RECORDS

The discharger shall retain records of all monitoring information including all calibration and maintenance records, all original strip chart recordings for continuous monitoring instrumentation, copies off all reports required by this Order, and record of all data used

Standard Provisions Applicable to
Waste Discharge Requirements

to complete the application for this Order. Records shall be maintained for a minimum of three years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board Executive Officer.

Records of monitoring information shall include:

- (a) The date, exact place, and time of sampling or measurement;
 - (b) The individual(s) who performed the sampling or measurement;
 - (c) The date(s) analyses were performed;
 - (d) The individual(s) who performed the analyses;
 - (e) The analytical techniques or method used; and
 - (f) The results of such analyses.
19. (a) All application reports or information to be submitted to the Executive Office shall be signed and certified as follows:
- (1) For a corporation – by a principal executive officer or at least the level of vice president.
 - (2) For a partnership or sole proprietorship – by a general partner or the proprietor, respectively.
 - (3) For a municipality, state, federal, or other public agency – by either a principal executive officer or ranking elected official.
- (b) A duly authorized representative of a person designated in paragraph (a) of this provision may sign documents if:
- (1) The authorization is made in writing by a person described in paragraph (a) of this provision.
 - (2) The authorization specifies either an individual or position having responsibility for the overall operation of the regulated facility or activity; and
 - (3) The written authorization is submitted to the Executive Officer.

Any person signing a document under this Section shall make the following certification:

Standard Provisions Applicable to
Waste Discharge Requirements

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. [CWC Sections 13263, 13267, and 13268]"

20. OPERATOR CERTIFICATION

Supervisors and operators of municipal wastewater treatment plants and privately owned facilities regulated by the PUC, used in the treatment or reclamation of sewage and industrial waste shall possess a certificate of appropriate grade in accordance with Title 23, California Code of Regulations Section 3680. State Boards may accept experience in lieu of qualification training. In lieu of a properly certified wastewater treatment plant operator, the State Board may approve use of a water treatment plant operator of appropriate grade certified by the State Department of Health Services where reclamation is involved.

Each plan shall be operated and maintained in accordance with the operation and maintenance manual prepared by the municipality through the Clean Water Grant Program [CWC Title 23, Section 2233(d)]

ADDITIONAL PROVISIONS APPLICABLE TO
PUBLICLY OWNED TREATMENT WORKS' ADEQUATE CAPACITY

21. Whenever a publicly owned wastewater treatment plant will reach capacity within four years the discharger shall notify the Regional Board. A copy of such notification shall be sent to appropriate local elected officials, local permitting agencies and the press. The discharger must demonstrate that adequate steps are being taken to address the capacity problem. The discharger shall submit a technical report to the Regional Board showing flow volumes will be prevented from exceeding capacity, or how capacity will be increased, within 120 days after providing notification to the Regional Board, or within 120 days after receipt of notification from the Regional Board, of a finding that the treatment plant will reach capacity within four years. The time for filing the required technical report may be extended by the Regional Board. An extension of 30 days may be granted by the Executive Officer, and longer extensions may be granted by the Regional Board itself. [CCR Title 23, Section 2232]

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

MONITORING AND REPORTING PROGRAM NO. CI-9428
FOR
LA HABRA BOOSTER STATION
LOS ANGELES COUNTY, CALIFORNIA
(HYDROGEN PEROXIDE INJECTION FOR GROUNDWATER CLEANUP)
(ORDER NO. R4-2007-0019) (SERIES NO. 066)
(FILE NO. 08-073)

I. REPORTING REQUIREMENTS

- A. Kinder Morgan Energy Partners (hereinafter Discharger) shall implement this monitoring program on the effective date (June 30, 2008) of Regional Board Order No. R4-2007-0019. The first monitoring report under this program, for July-September 2008, shall be received at the Regional Board by October 15, 2008. Subsequent monitoring reports shall be received at the Regional Board according to the following schedule:

<u>Monitoring Period</u>	<u>Report Due</u>
January – March	April 15
April – June	July 15
July – September	October 15
October – December	January 15

- B. If there is no discharge or injection during any reporting period, the report shall so state. Monitoring reports must be addressed to the Regional Board, Attention: Information Technology Unit.
- C. By March 1st of each year, the Discharger shall submit an annual summary report to the Regional Board. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous calendar year. In addition, the Discharger shall explain the compliance record and the corrective actions taken, or planned, which may be needed to bring the discharge into full compliance with the waste discharge requirements (WDRs).
- D. The Discharger shall comply with requirements contained in Section G. of Order No. R4-2007-0019 "*Monitoring and Reporting Requirements*" in addition to the aforementioned requirements.

June 30, 2008

II. HYDROGEN PEROXIDE INJECTION MONITORING REQUIREMENTS

The quarterly reports shall contain the following information regarding injection activities:

1. Location map showing injection points used for the hydrogen peroxide solution.
2. Written and tabular summary defining the quantity of hydrogen peroxide injected per month to the groundwater and a summary describing the days on which the injection system has been operating:
3. Monthly visual inspection at each injection well shall be conducted to evaluate the well casing integrity for a period of three months after each injection. The quarterly report shall include a summary of the visual inspection.

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total hydrogen peroxide delivered per injection point	Gallons/day	--	<ul style="list-style-type: none">• Bi-weekly for the first month following injection• Monthly for the next 3 months• Quarterly thereafter

III. GROUNDWATER MONITORING PROGRAM

The Discharger shall sample monitoring wells MW-05, MW-29, PMW-2, MW-08, MW-22, and the upper sump to provide groundwater quality information prior to and after the hydrogen peroxide injection. Groundwater from the wells noted above shall be monitored for the duration of the remediation in accordance with the following discharge monitoring program:

CONSTITUENT	UNITS ¹	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total petroleum hydrocarbons as gasoline (TPHg) Total petroleum hydrocarbons as diesel (TPHd)	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Methyl tertiary butyl ether (MTBE), Tertiary butyl alcohol (TBA), Tertiary amyl methyl ether (TAME), Di-isopropyl ether (DIPE), Ethyl tertiary butyl ether (ETBE)	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Ethanol Formaldehyde Acetone	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Total dissolved solids Chloride Sulfate	Mg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Oxidation-reduction potential	Milivolts		<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter

Dissolved Oxygen	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Dissolved ferrous iron	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Total Chromium and chromium six ²	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
PH	pH units	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Temperature	⁰ F/ ⁰ C	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Groundwater Elevation	Feet, mean sea level and below ground surface	In situ	<ul style="list-style-type: none"> • 1 week before injection • Quarterly thereafter

¹ µg/l - micrograms per liter

² The Discharger is required to monitor for total chromium and chromium six if total chromium is detected in the baseline samples. The monitoring is required only for the well(s) that the total chromium was detected.

All groundwater monitoring reports must include, at a minimum, the following:

- a. Well identification, date and time of sampling;
- b. Sampler identification, and laboratory identification;
- c. Quarterly observation of groundwater levels, recorded to 0.01 feet mean sea level and groundwater flow direction.

IV. MONITORING FREQUENCIES

Monitoring frequencies may be adjusted to a less frequent basis or parameters dropped by the Executive Officer if the Discharger makes a request and the Executive Officer determines that the request is adequately supported by statistical trends of monitoring data submitted.

V. CERTIFICATION STATEMENT

Each report shall contain the following declaration:

"I certify under penalty of law that this document, including all attachments and supplemental information, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

Executed on the _____ day of _____ at _____.

(Signature)

(Title)

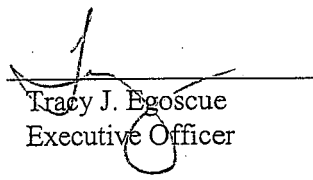
Kinder Morgan Energy Partners
La Habra Booster Station
Monitoring & Reporting Program No. CI-9428

File No. 08-073
Order No. R4-2007-0019

VI. PUBLIC DOCUMENTS

These records and reports are public documents and shall be made available for inspection during normal business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region.

Ordered by:


Tracy J. Egoscue
Executive Officer

Date: June 30, 2008



California Regional Water Quality Control Board

Los Angeles Region



Linda S. Adams
Acting Agency
Secretary

Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: <http://www.waterboards.ca.gov/losangeles>

Arnold Schwarzenegger
Governor

TO: La Habra Booster Station file, Site Cleanup Program No. 0018

FROM: Henry Jones

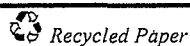
DATE: June 20, 2008

SUBJECT: EVALUATION OF INFORMATION SUPPORTING GENERAL WASTE DISCHARGE REQUIREMENTS FOR INJECTION OF HYDROGEN PEROXIDE TO REMEDIATE HYDROCARBONS IN GROUNDWATER - LA HABRA BOOSTER STATION, LOS ANGELES COUNTY, CALIFORNIA (SITE CLEANUP PROGRAM NO. 0018, SITE ID NO. 204H00)

Site Background

- Southern Pacific Pipelines, Inc. constructed a 16 inch diameter mixed refined product pipeline across the Puente Hills and through the Puente Field of the Brea-Olinda Oilfield in 1955. The pipeline has been used to carry various refined petroleum products from the Watson Pump Station in Carson, California to the Colton Pump Station in Colton, California. The La Habra Booster Station was built in 1964 on 0.67 acres at the highest point of crossing. The site, which does not have a formal address, is located in Los Angeles County at Latitude 33°57'15"N, Longitude 117°54'60"W. (Figure 1)
- The former Booster Station resides on a 0.67 acre parcel located within the Puente area of the 4,400 acre Brea-Olinda Oil Field. The site investigations extend beyond the 0.67 acres of the booster station to include an area that is approximately 42 acres.
- In 1982, a pipe flange failure led to the release of fuel hydrocarbons at the booster station. Three years later, fuel hydrocarbons were noted at a perennial spring or seep located approximately 1,000 feet west of the booster station. Release characterization and remedial efforts were initiated in 1985 and have continued to the present day.
- Constituents of petroleum, including BTEX and fuel oxygenates, are the primary contaminants detected in groundwater. A maximum concentration of benzene (8,000 µg/L) was detected in groundwater monitoring well MW-08 on July 17, 2002. A maximum concentration of toluene (360 µg/L), ethylbenzene (2,300 µg/L), and total xylenes (2,500 µg/L) was detected in groundwater at MW-5-W-A on July 22, 2002, January 22, 2002, and October 25, 2001, respectively. A maximum concentration of MTBE (8.0 µg/L) was detected at MW-18 on October 31, 2002. (Figure 2)
- LNAPL recovery began in 1986 and was conducted by pumping of wells MW-5, MW-18, and MW-22. Approximately 813,750 gallons of groundwater, including 5920 gallons of LNAPL, was removed from the three recovery wells between 1986 and 1990. In addition, approximately 2,500 gallons of total fluids was recovered from sump vacuum operations between June 1987 and June 1990, when LNAPL recovery decreased to less than 0.5 gallons per day and product thicknesses were no longer measurable.

California Environmental Protection Agency



Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.

- From December 1985 through June 1990, groundwater sampling occurred on a quarterly basis from selected wells and the upper sump. Groundwater sampling was conducted periodically from between 1990 and 2000, although not on a set regular schedule. Quarterly monitoring was reinitiated during the first quarter of 2001, and was conducted on a quarterly basis until last year. In August 2005 the Regional Board concurred with the reduction from quarterly events to semiannual events based on the interpretation that the hydrocarbon contaminant concentrations within the plume have exhibited a decreasing trend.
- LNAPL monitoring and recovery is conducted twice-monthly. Product thickness varies from trace to approximately 2 feet. During the period from late March to early April 2005, LNAPL was measured in well MW-32 at thicknesses of 11.28 and 14.71 feet during a period of time when product recovery activities had not been occurring for over two months and during a time of unusually heavy seasonal precipitation.
- Six wells (MW-22, MW-31, MW-32, PRW-1, MW-4-W-A, and MW-4-W-B) are currently monitored for the presence and amount of LNAPL thickness. Two wells, (MW-32 and PRW-1) contain passive skimmers, which are emptied on a bi-weekly basis. At the remaining four wells (MW-22, MW-31, MW-4-W-A and MW-4-W-B), LNAPL is bailed by hand on an as needed basis based on the measured thicknesses. The lower, middle, and upper sumps are also observed for the presence of LNAPL during each of these bi-weekly events. No other remedial activities besides groundwater monitoring are currently occurring.
- There are no production wells within one mile of the site. The nearest production well is located 21,800 feet northwest of the site.

Site Geology and Plume Details

- The injection/remediation will take place in the Puente Hills of Los Angeles County. It is bounded to the south by the Whittier Fault and underlain by uplifted Pliocene/Miocene marine rocks. These rocks are composed of predominately impermeable siliceous siltstones, which were later uplifted, folded, and faulted. During a 2003 investigation, tan to gray fractured siltstone with multiple degrees of cementation was reported as the main surface member. These rocks were reported to belong to the La Vida Member of the Puente Formation.
- The majority of the hydrocarbon impact at the site is confined to a syncline that forms an east/west trending ridge that traverses the site. Materials are compressed in the synclinal axis of a fold providing for a lowered weathering potential as related to anticlines where stress opens the fractures providing more surface area for chemical and physical weathering. In the vicinity of the booster station, the anticlines have weathered out and become steep valleys on either side of the syncline core ridge. The paired synclines and anticlines are sympathetic folds associated with the Whittier Fault Zone, which is considered to be responsible for the folding, fracturing, and faulting of the region.
- The potentiometric surface of the groundwater beneath the site is indicative of a relatively uniform flow field, with the potentiometric surface providing a generalized expression of the surface topography. On a site wide scale, saturated bedrock behaves as an equivalent porous media.

- Hydrocarbons released from the booster station migrate preferentially along the syncline axis, forming a narrow westward trending plume, approximately 980 feet in length and 210 feet in width, and change direction to the south/southeast (towards the upper sump) in response to permeabilities associated with two faults. One fault trace is orientated to the northeast and roughly corresponds to the deeply incised drainage that includes the upper, middle, and lower sumps. The other fault, east of the upper sump, is orientated fault is orientated to the north/northeast. (Figure 3)
- Depth to groundwater measurements on October 4, 2007, ranged from 17.89 feet bgs in well MW-28 to 135.95 feet bgs in well MW-27. The depth to groundwater at the remediation site is approximately 75 feet bgs. The hydraulic gradient is approximately 0.15 foot per foot towards the west-southwest.
- The location, small scale, and controlled nature of the remediation project prevent the possibility of any adverse impact to groundwater quality.

Description of the Remedial Approach

- The Discharger proposes to inject a 3% to 6% hydrogen peroxide solution to assess the feasibility of using this remedial approach at the site. The hydrogen peroxide solution will be used to lower the concentration of hydrocarbons in groundwater at the site. To further characterize the subsurface, a boring field consisting of approximately five borings (designated INJ-01 through INJ-05) to the depth of 100 feet below ground surface, up-gradient of the transecting groundwater monitoring wells PMW-2, MW-05, and MW-29 will be installed. The borings will then be completed as injection wells with four inch casing and used for the hydrogen peroxide solution injection. (Figure 4)
- The screened interval depth and slot size for the injection wells will be selected in the field and will be designed to target depths that exhibit the greatest fracture density, hydraulic interconnectiveness, and/or fracture size. The injection wells will not be screened deeper than the immediate down-gradient monitoring wells (which extend to approximately 96 feet bgs) but they will most likely overlap them.
- The injection will occur into the western half of the hydrocarbon plume, approximately 650 feet west of the La Habra Booster Station at Latitude 33°57'17"N, Longitude 117°55'07"W.
- A potential total of 5000 gallons of solution will be manually injected into the wells to assess the solutions effect on the hydrocarbon plume. Up to five injections are planned (1000 gallons each event, 200 gallons per well per event), each injection event will be spaced at least one month apart to allow for a month of post injection performance monitoring. Groundwater monitoring wells immediately down-gradient of the pilot test area (PMW-2, MW-05, MW-29), up-gradient (MW-08), and down-gradient (MW-22, upper sump) will be used for performance monitoring and baseline characterization.
- Since this will be an aerobic biodegradation process, there are only two major reactions that will occur. Petroleum hydrocarbons will breakdown into carbon dioxide and water. Hydrogen peroxide will breakdown to water and oxygen.

- If affected groundwater or product is observed in the down-gradient upper sump, injection activities will be stopped, a liner and collection basin will be installed in the sump, and product will be pumped/skimmed from the surface water as needed. A formal plan will be submitted to the Regional Board on July 15, 2008.

Storm Water Issue

- Since the wells are capped, no impact to surface water is expected. An NPDES or other storm water permit is not necessary.

Justification for General Waste Discharge Requirements

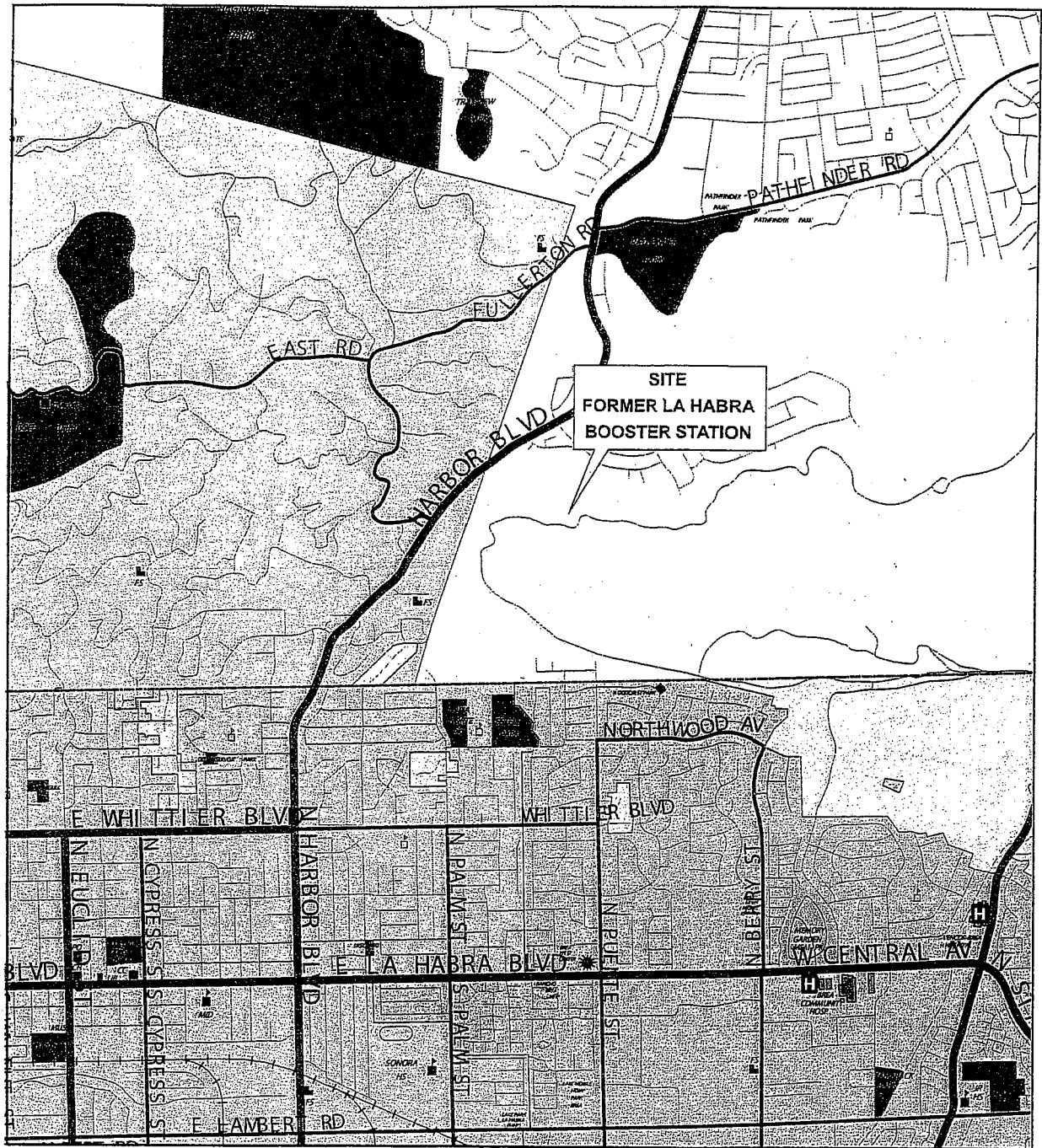
- The proposed injection is to evaluate the ability of the process to oxidize and decompose the hydrocarbons in situ in the La Habra Booster Station area. Site assessment is complete, and the proposed remediation pilot test process satisfies all the criteria for enrollment under Board Order No. R4-2007-0019, "*Revised General Waste Discharge Requirements for Groundwater Remediation at Petroleum Hydrocarbon Fuel, Volatile Organic Compound and/or Hexavalent Chromium Impacted Sites,*" adopted by this Regional Board on March 1, 2007, including:
 - **Injection of chemical compounds** – During the proposed gravity driven injection, a maximum of approximately 5,000 gallons of a 3% to 6% hydrogen peroxide solution will be discharged. The discharge is expected to take approximately a week. The expected injection rate at each injection well is 3 gallons per minute. This rate may vary somewhat with aquifer characteristics. Injection will occur using a boring field consisting of five borings up-gradient of the transecting groundwater monitoring wells MW-05, MW-29, and PMW-2.

Additional information on the groundwater gradient, contaminant distribution, hydrostratigraphy, metals, and other data related to the pilot test are included in the December 14, 2007, document with the subject, *Revised Work Plan to Conduct Remedial Pilot Study at the Former La Habra Booster Station*.

- **Discharger must have an approved Remedial Action Plan** – The December 14, 2007 work plan for this project (received on December 18), was approved by this Regional Board in a letter dated June 9, 2008. The Regional Board documented the "Form 200" complete in a June 11, 2008 letter.
- **CEQA requirements** – The Regional Board has prepared an Initial Study and Mitigated Negative Declaration for the issuance of these general waste discharge requirements in accordance with the provisions of the California Environmental Quality Act (CEQA).
- **Discharge has a rating of 3-A** – Any potential adverse water quality impacts that may result will be localized, of short-term duration, and will not impact any existing or prospective uses of groundwater. Groundwater quality will be monitored to verify no long-term adverse impact to water quality.

- **Application/Annual Fee** – A check from the consultant in the amount of \$3,380 was received by our office on December 18, 2007.
- **Staff recommends that the enrollment of the subject case under General WDR No. R4-2007-0019 is appropriate.**

SUC No 18 Revised Sub Plan...



SOURCE: ThomasGuide Digital Edition 2001, La Habra, CA

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0 900 ft

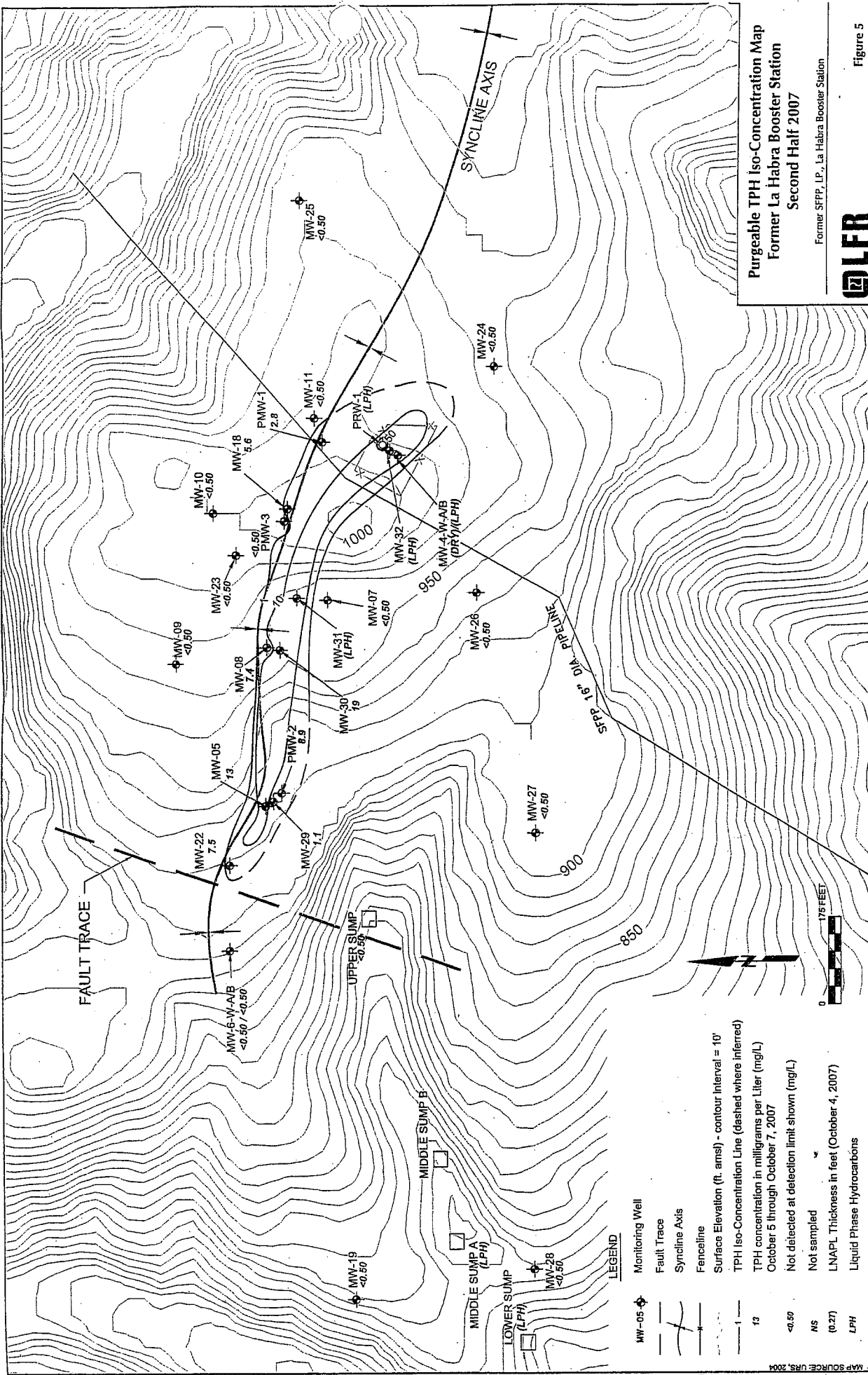
Vicinity Map

Former SFPP, LP., La Habra Booster Station



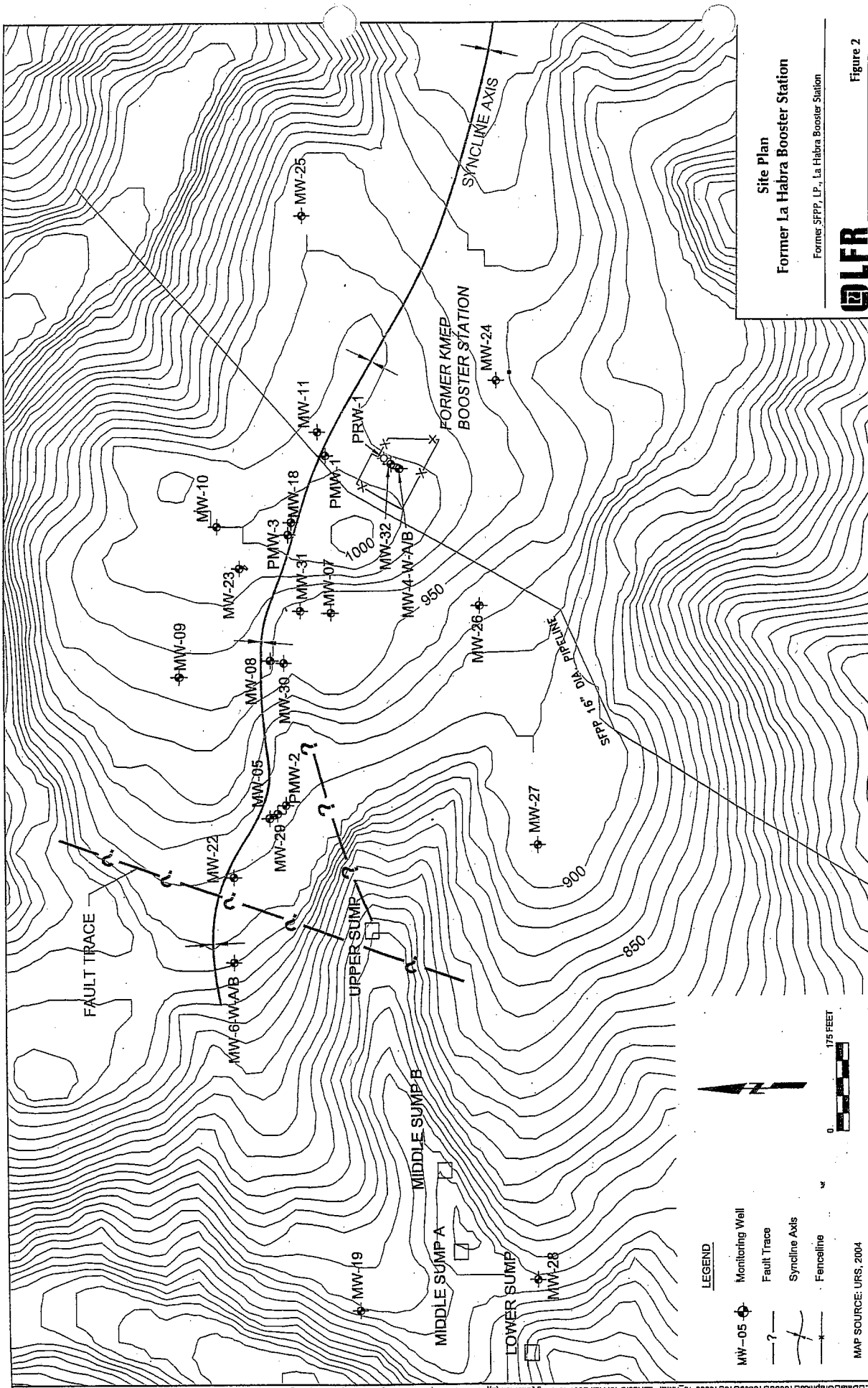
Figure 1

FIGURE 1



S/LC No. 18 Semi Annual Gas Mon. Rpt
 1/12/08 1.0

FIGURE 2



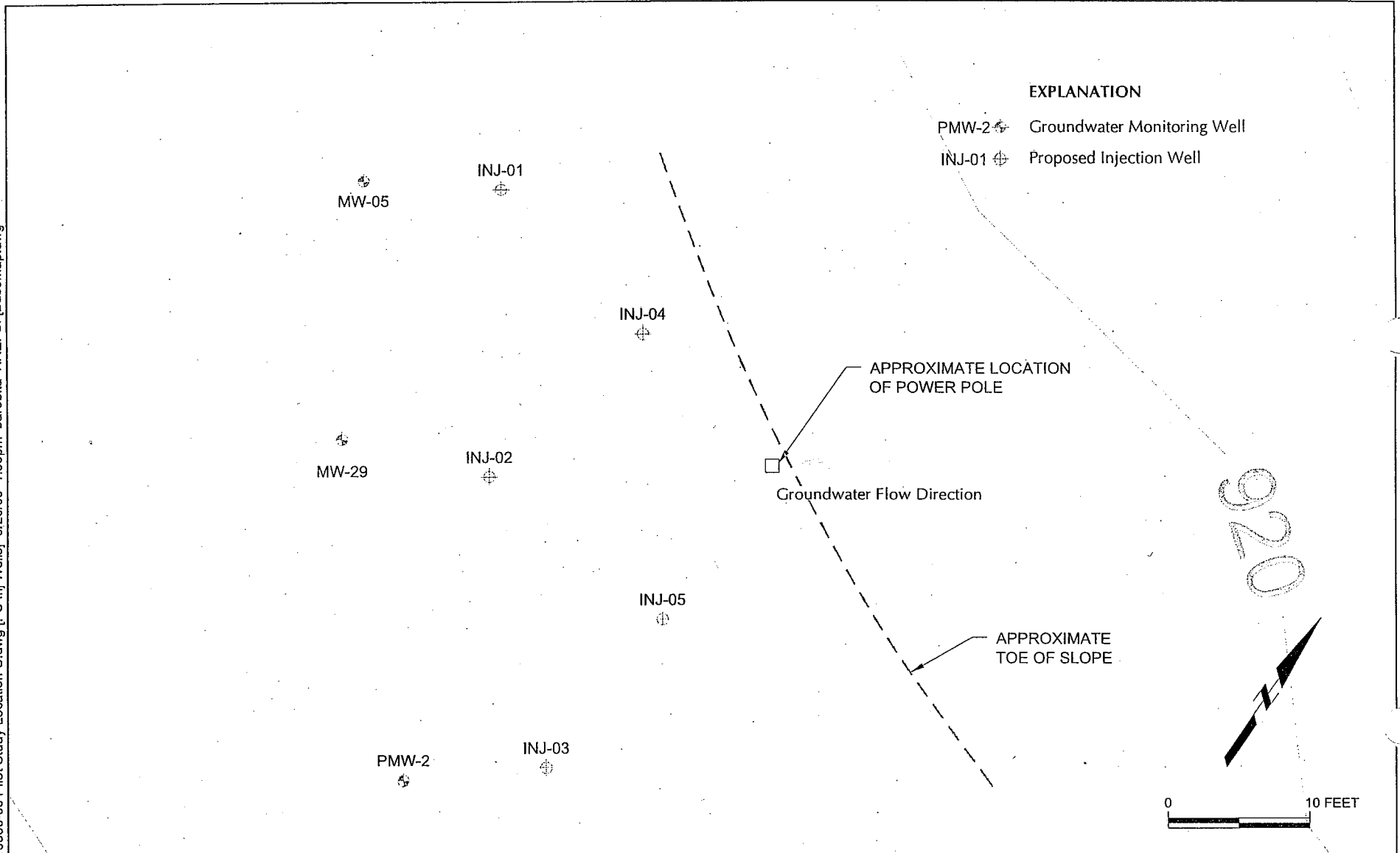
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 12/14/07

FIGURE 3

K:\Data\Graphics\10000\10300\06\10300-06 Pilot Study Location C.dwg [PS In] Wells] 6/26/08 1:58pm barobita XREFS: [BaseMap.dwg

FIGURE 4

920



Anticipated Layout of Pilot Study Injection Wells

Former La Habra Booster Station
Kinder Morgan Energy Partners - 002-10300-06

DRAFT



Figure

SLIC No. 18 Email: Kristine Schroeder (LFR) 6/26/08

Site and Receptor Map

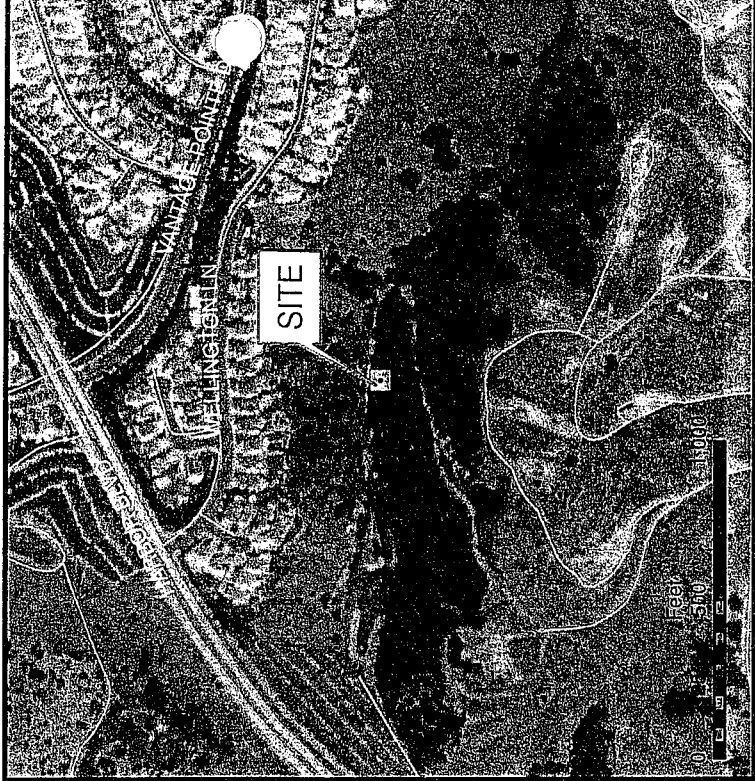
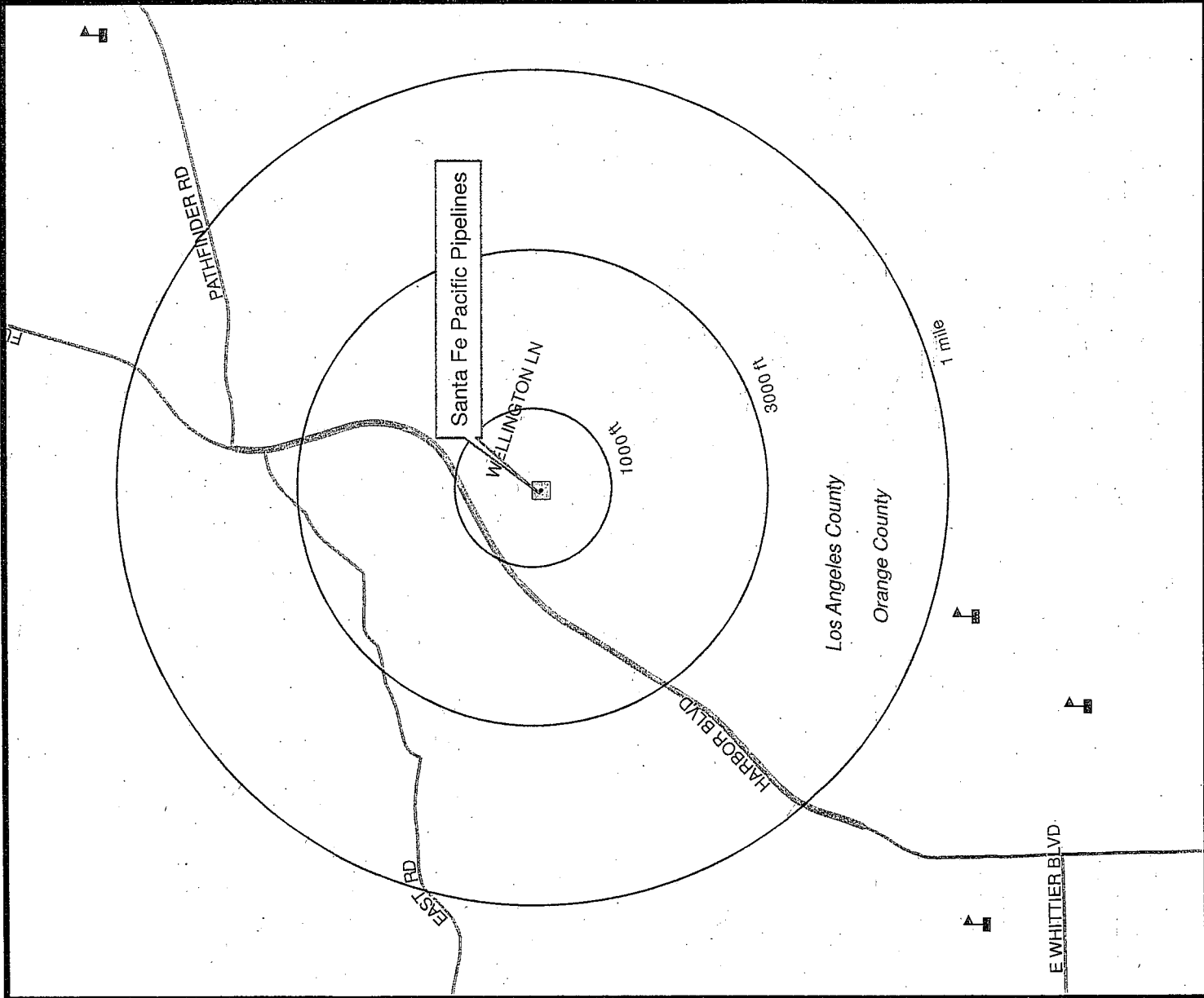
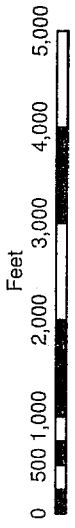


Santa Fe Pacific Pipelines (SLIC ID 0018)

- SLIC Site
- Production Wells
- Schools



Scale 1:24,000



16

GROUNDWATER PERMITS
SLIC IV

MAIL CHECKLIST-KEEP ON TOP

EXECUTIVE OFFICER to Sign SITE ID# 2046H00

File P.C.A.# 18041

Return File to ORIGINATOR Originator HJ

Mail out by _____ Spellcheck by ORIGINATOR

ADDRESSEE: Mr. Scott Martin

FILE# SCP # 0018

ENCLOSURES: 1) General Waste Discharge Requirements, Order No. R4-2007-0019
2) Monitoring and Reporting Program, CI No. 9428
3) Fact Sheet

ATTACHMENTS: 1) FIG. 1 Site and Receipts Map
2) FIG. 2 Anticipated Layout of Pilot Study Injection Wells.

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FILE _____ 3

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Please provide the email address for the addressee and cc's

Scott-Martin@kindermorgan.com
Kristine.Schroeder@LEP.com
scott.seaford@LEP.com
dawn.burgess@LEP.com
Stephen.D.Pitman@kindermorgan.com
mjlancher@veraenergy.com

MAIL CONTROL LOG#

REPORTING REQUIREMENTS:

INSPECTION REPORT YES _____ NO _____

BACKGROUND MEMO YES _____ NO _____

TRACKING SHEET YES _____ NO _____

NAME CHANGE _____

APPROVED FOR MAILOUT

<p>HJ 6/24/08 HJ 6/27/08</p>	<p>PE <u>KL</u></p>	<p><u>[Signature]</u></p>	<p><u>[Signature]</u></p>	<p>DATE</p>	<p>6/24/08 6/27/08</p>	<p>JUL 01 2008 MAILOUT</p>	<p>DISK: TITLE:</p>
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