



# California Regional Water Quality Control Board

## Los Angeles Region



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

Linda S. Adams  
Agency Secretary

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Arnold Schwarzenegger  
Governor

July 29, 2008

Mr. Steve Sacco  
Vice President, Environmental Affairs & Sustainability  
Invensys Climate Controls  
33 Commercial Street, B51-2Z  
Foxboro, MA 02035

Certified Mail  
Return Receipt Requested  
Claim No. 7006 3450 0002 4641 8251

**GENERAL WASTE DISCHARGE REQUIREMENTS COVERAGE FOR PILOT STUDY TO INJECT SODIUM PERMANGANATE (ORDER NO. R4-2007-0019; SERIES NO. 070) GROUNDWATER REMEDIATION PILOT STUDY, INVENSYS CLIMATE CONTROLS, 100 WEST VICTORIA STREET, LONG BEACH, CALIFORNIA (SCP # 0536) (SITE ID # 1845000).**

Dear Mr. Sacco:

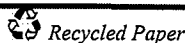
We have completed our review of your application for coverage under the General Waste Discharge Requirements to conduct a pilot study to evaluate the effectiveness of sodium permanganate (NaMnO<sub>4</sub>) addition in reducing concentrations of trichloroethylene (TCE) in groundwater within the pilot study area at the referenced site (Site). The NaMnO<sub>4</sub> study area is adjacent to the Colin Powell Academy Operational Unit, a kindergarten to eighth grade school, which is operated by the Long Beach Unified School District (LBUSD).

### BACKGROUND

Robertshaw developed the Site into three manufacturing buildings and one smaller building that spanned approximately 300,000 square feet, between 1954 and 1970. Buildings 1 and 2 were constructed between 1954 and 1956. Building 1 was used for manufacturing, assembly, storage, machining, parts cleaning, testing, and engineering/administration. Historical operations in former Building 2 included die casting, forging, plating, and waste water treatment. Buildings 3 and 4 were constructed in 1968 and 1970, respectively, and used for storage and maintenance. Currently, only Building 1 remains, and is vacant. Before the building was vacated in March 2008, it was used by Invensys for machining, testing and parts assembly of thermostat control devices. Site investigations began in 1991. Phased site investigations and remediation activities have continued at the Site to the present time, to assess and remediate chemical impacts to soils and groundwater from past manufacturing operations. A site layout and vicinity map is attached (Figure 1).

The pilot test is designed to distribute NaMnO<sub>4</sub> into the near surface aquifer to treat groundwater in a localized area of elevated TCE concentrations beneath the western portion of Building 1 and the area immediately west of Building 1. Based on the subsurface investigations performed in Building 1 and vicinity during the 2002 to 2005 timeframe, soil and groundwater analytical data suggest that the most significant chlorinated volatile organic compound (CVOC) releases within the investigation areas were located in the western portion of Building 1. A TCE isoconcentration contour map is attached (Figure 2).

**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.*

On April 4, 2008, the Regional Board approved the "*Pilot Study Work Plan for Sodium Permanganate Injections, Invensys Controls/Former Robertshaw Facility, 100 West Victoria Street, Long Beach, California,*" (*Workplan*)" dated January 28, 2008.

## INJECTION ACTIVITIES

The NaMnO<sub>4</sub> injections proposed by Invensys will consist of the following activities:

- Previous quarterly groundwater monitoring analytical data will be used to establish baseline CVOC concentrations in groundwater (including new wells located on the LBUSD Operational Unit Property). The groundwater monitoring wells that are proposed to be monitored for the pilot test are shown on Figure 3 (attached). Well VES-32 will serve as an upgradient well, wells PW-06R and PW-09R will serve as source area wells and PW-04, MW-19 and MW-20 will serve as downgradient wells. There are multiple cross-gradient wells on either side of the injection field.
- Prior to injecting the NaMnO<sub>4</sub>, at least four direct push soil borings (SB-11, SB-13, SB-14 and SB-15) will be advanced in the target treatment area or the injection zone to at least 60 feet below ground surface (bgs) or until refusal. The borings will be analyzed using a membrane interface probe (MIP) to further assess zones of CVOC impacts. The data from the MIP borings will be used to further delineate zones of CVOC impacts so that NaMnO<sub>4</sub> injections can more effectively be targeted to specific zones with CVOC impacts. Additional targeted injections of NaMnO<sub>4</sub> in the vadose zone may be performed based on the results of the MIP investigation. The boring and MIP locations are shown on Figure 4 (attached).
- Approximately 22 direct push borings will be installed in the target treatment area or the injection zone to facilitate NaMnO<sub>4</sub> injections. The injection zone is shown on Figure 1 (attached) and proposed injection point locations are shown on Figure 4. Concentrated NaMnO<sub>4</sub> (i.e., 40 percent by weight) will be diluted with potable water to approximately 10 percent (by weight) at the site and then pumped into the injection points under pressure. The injection tool will consist of a steel rod connected to an approximate 1 to 2 foot screen placed at the desired injection depth. The screen will be subsequently raised from the bottom to the top of the targeted treatment zone while NaMnO<sub>4</sub> is injected. The target treatment zone is from approximately 40 to 60 feet bgs. However, this treatment interval may be adjusted in the field based on MIP data and site conditions (i.e., refusal and elevated detections of VOCs in vadose zone). The injection point locations depicted on this figure assumes an injected radius of influence of 12 feet followed by at least 10 feet of NaMnO<sub>4</sub> migration in the downgradient direction before the oxidant is effectively spent. This is only an estimate and will be evaluated during the injections by visually inspecting groundwater samples from nearby monitoring wells and, if necessary, collecting discrete groundwater samples from direct push borings.
- Groundwater in selected wells (VES-30, VES-31, PW-04, PW-06R, and PW-09R) will be sampled on a daily basis during the first week of injections to assess the radius of

influence of the NaMnO<sub>4</sub> injections. In the event that new wells are installed to replace the direct push wells (PW-04, PW-06R, and PW-09R), then the new wells may be sampled in place of the direct push wells. Groundwater samples from monitoring wells PW-04, PW-06R and PW-09R, if conducted, will be collected using low flow purge techniques and will be visually observed for purple discoloration, a reliable and easily identifiable indicator of NaMnO<sub>4</sub> in groundwater.

Regional Board staff has reviewed the information provided and has determined that the proposed discharge meets the conditions specified in Regional Board Order No. R4-2007-0019, "*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.

Enclosed are your Waste Discharge Requirements consisting of Regional Board Order No. R4-2007-0019 (Series No. 070), Monitoring and Reporting Program No. CI-9432.

The "Monitoring and Reporting Program" requires you to implement the monitoring and reporting program on the effective date of this enrollment (July 2008) 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-9432," 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. Please submit each type of report as a separate document. We are including a copy of Order No. R4-2007-0019 for the applicant only. A copy of the order will be furnished to anyone who requests it.

A technical report documenting the effectiveness of the Pilot Study program shall be submitted and reviewed by Regional Board staff prior to expanding the cleanup program. The technical report is to contain all data generated and materials used during the Pilot Test. The technical report is also to include an evaluation of the cleanup technology and any modifications to the injection and monitoring system, which may be needed for full scale operation. The technical report shall contain the locations, number, and depths of additional injection points, and the locations of multi-depth groundwater monitoring wells required for monitoring the upgradient area, source area, and downgradient area, for full scale operation of the cleanup plan. This technical report is due in our office **no later than October 31, 2008**.

Pursuant to Section 13268 of the California Water Code, failure to submit the required reports or documents by the due dates may result in civil liability administratively imposed by the Regional Board in an amount up to one thousand dollars (\$1,000) for each day the report or document is not received.

Prior to full scale operation of the cleanup plan, these Waste Discharge Requirements will need to be revised to incorporate the additional injection points and monitoring locations necessary for full scale cleanup.

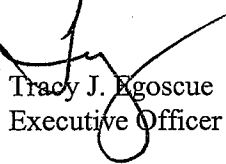
Mr. Steve Sacco  
Invensys Climate Controls

- 4 -

July 29, 2008

Should you have any questions related to this project, please contact Pinaki R. Guha-Niyogi at (213) 576-6731, or Dixon Oriola at (213) 576-6803 or you can send e-mails to [pguha@waterboards.ca.gov](mailto:pguha@waterboards.ca.gov) or [doriola@waterboards.ca.gov](mailto:doriola@waterboards.ca.gov), respectively.

Sincerely,

  
Tracy J. Egoscue  
Executive Officer

Enclosures:    1) *Figures 1 through 4*  
                  2) *Regional Board Revised General WDR Requirements, Order No. R4-2007-0019*  
                  3) *Monitoring and Reporting Program No. CI-9432*

cc:    Ms. Sharon Fair, Department of Toxic Substances Control, Cypress, CA  
       Mr. Shahir Haddad, Department of Toxic Substances Control, Cypress, CA  
       Mr. Amit Pathak, Department of Toxic Substances Control, Cypress, CA  
       Ms. Carri Matsumoto, Long Beach Unified School District, Long Beach, CA  
       Ms. Peggy Williams, Long Beach Unified School District, Long Beach, CA  
       Mr. Doug Riddle, Invensys, Fredrick, MD  
       Mr. Steve Figgins, Brown and Caldwell, Irvine, CA  
       Mr. Paul T. McCullough, URS Consultants, Seattle, WA  
       Mr. Michael Haux, URS Consultants, Santa Ana, CA  
       Mr. Mark Molinari, URS Consultants, Santa Ana, CA  
       Mr. Suman Ghosh, Mission Geoscience, Inc. Long Beach, CA  
       Mr. Mark Cousineau, HMC, San Clemente, CA

***California Environmental Protection Agency***

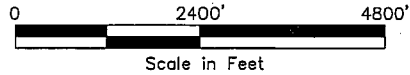
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*Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.*

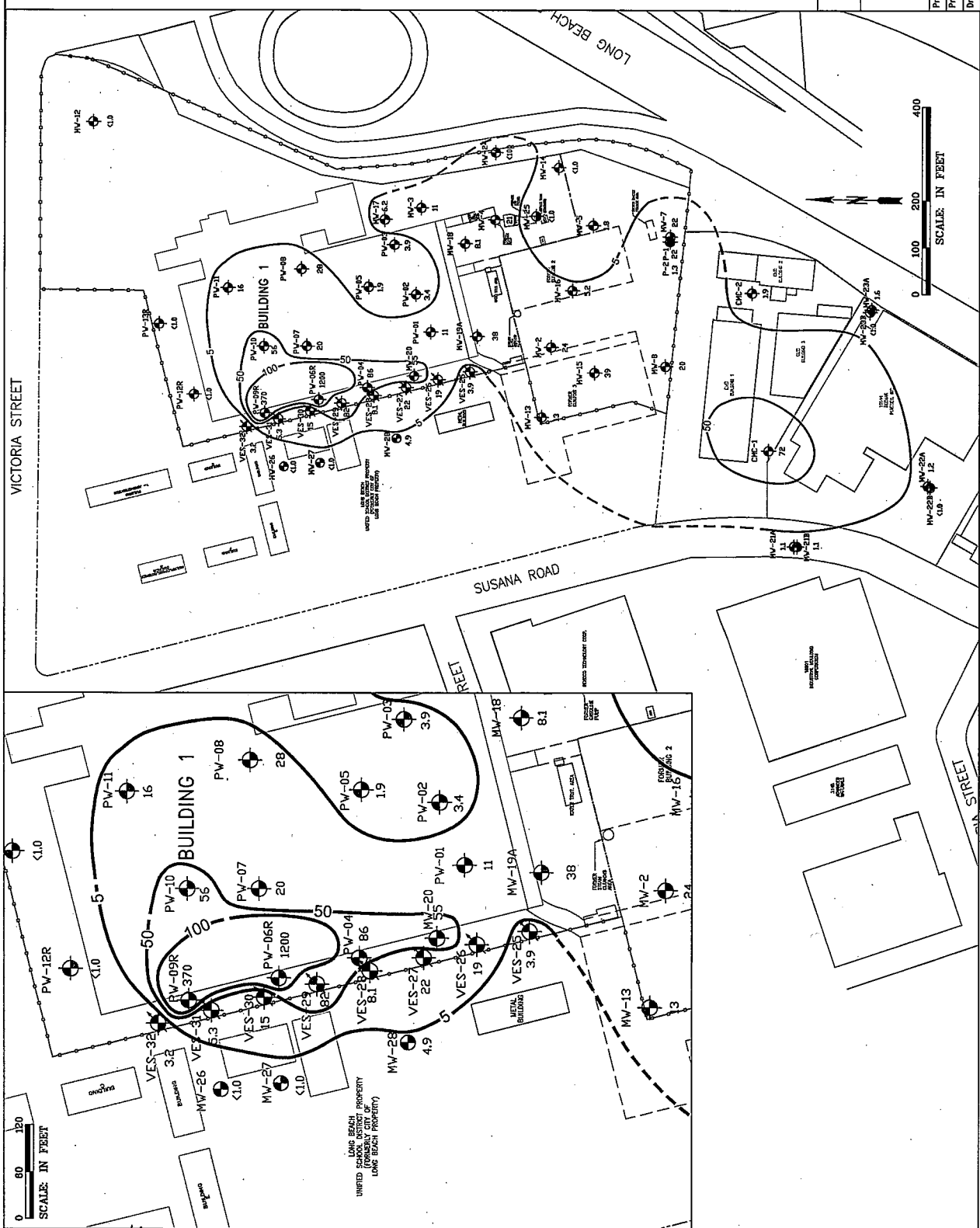


**Site**

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<b>URS Corporation</b>	
SITE LAYOUT AND VICINITY MAP	
Proj. No.: 2986822	Date: SEPTEMBER 2007
Project: Robertshaw	CAD ID.:
Drawn by: GN	Checked by: JV
Figure: 1	



**EXPLANATION:**

- 50
- 100
- 150

**NOTE:** CONTOURS BASED ON RESULTS OF MAXIMUM CONCENTRATIONS DETECTED IN THE SHALLOW AND DEEP WELLS WITHIN THE SAME AQUIFER

- ROBERTSHAW PROPERTY LINE
- LBUSD "OPERATIONAL AREA" PROPERTY LINE
- LBUSD "NON-OPERATIONAL AREA" PROPERTY LINE
- FENCE LINE

MW-8  
 20  
 GROUNDWATER MONITORING WELL (WITH TCE CONCENTRATION IN PARTS PER BILLION (µg/L)) SAMPLED FEBRUARY/MARCH 2008.

VES-32  
 3.2  
 MULTI-PURPOSE REMEDIATION WELL (WITH TCE CONCENTRATION IN (µg/L)) SAMPLED MARCH 2008.





MW-26  
 <1.0  
 GROUNDWATER MONITORING WELL (WITH TCE CONCENTRATION IN PARTS PER BILLION (µg/L)) SAMPLED DECEMBER 2007 AND FEBRUARY 2008.

## URS Corporation

### ESTIMATED TCE CONCENTRATION CONTOURS IN GROUNDWATER

Proj. No.: 288582Z	Date: APRIL 2008	GMD No.: GMD FILE
Project: Robertshaw	Checked by: JH	Figure: 2
Drawn by: JV		

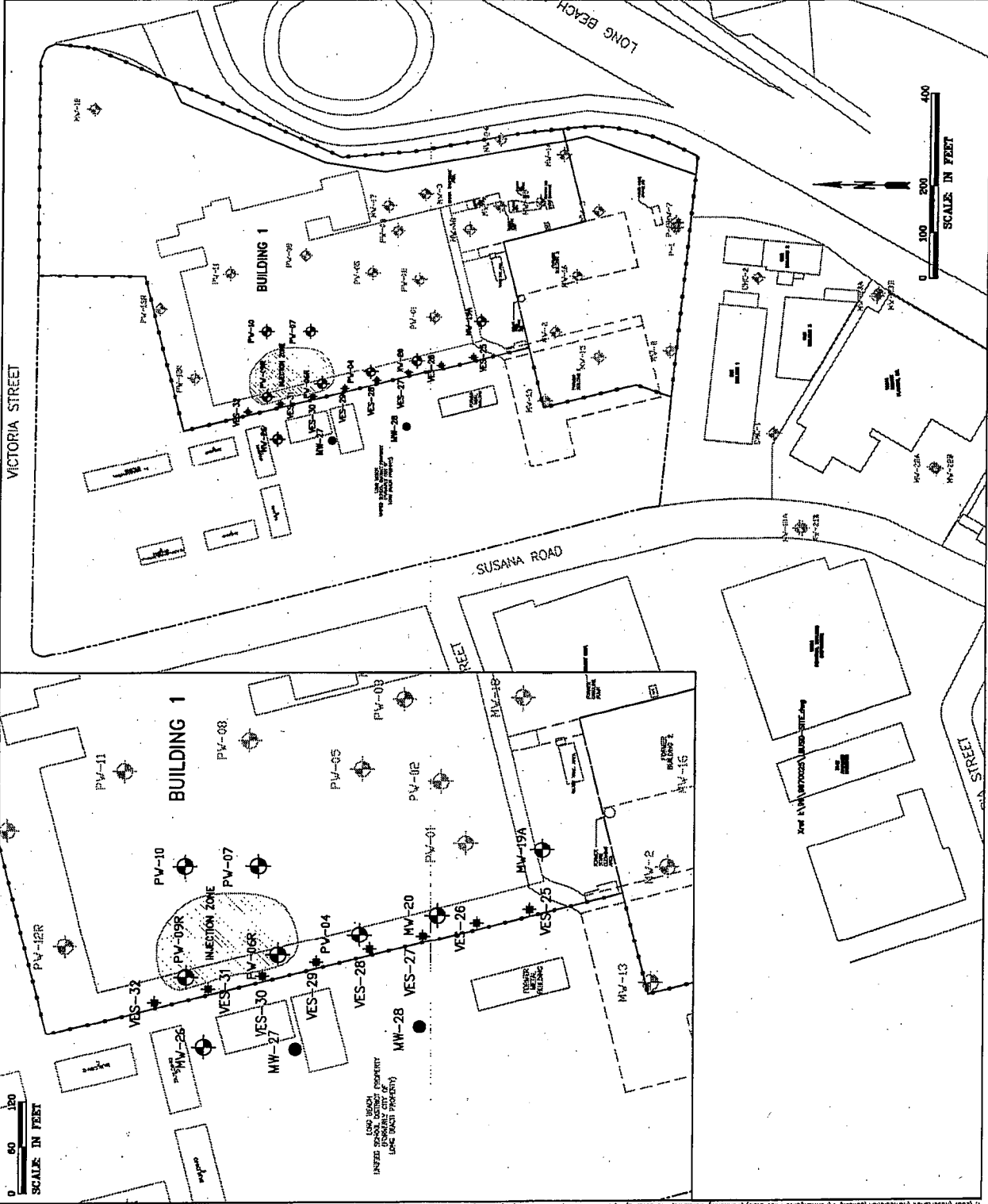
I:\2007\Robertshaw\WPC\TCE\Contour\JCH\2008-10-20\TCE\Figures\Fig 2 TCE Map.DWG. File date: 4/29/2008 11:31 PM. Print date: 7/15/2008 by: JH

EXPLANATION	
	GROUNDWATER MONITORING WELL MONITORED DURING PILOT STUDY
	MULTI-PURPOSE REMEDIATION WELL MONITORED DURING PILOT STUDY
	PROPOSED GROUNDWATER MONITORING WELL DURING PILOT STUDY
	MONITORING WELL NOT MONITORED DURING PILOT STUDY

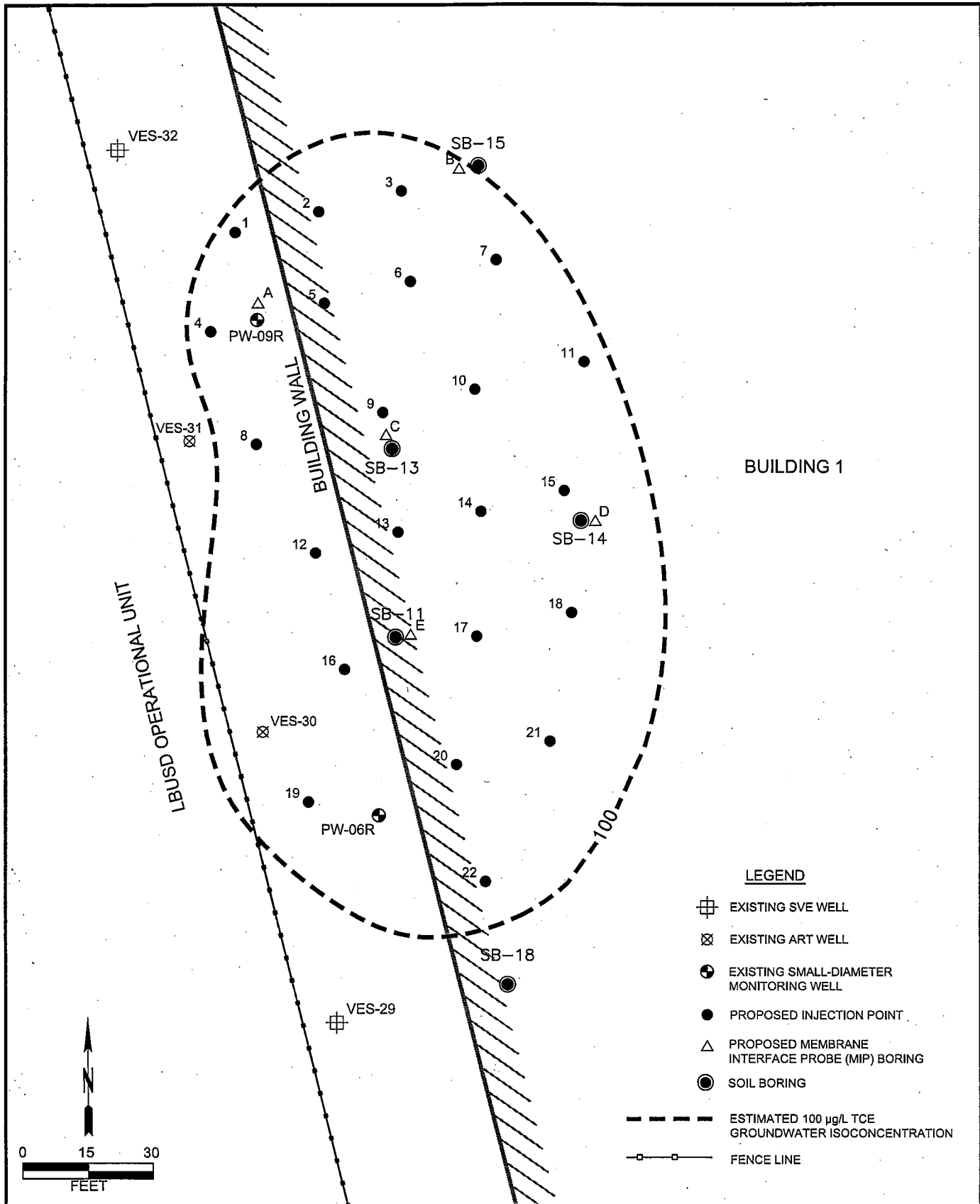
**URS Corporation**

**PROPOSED MONITORING WELLS FOR PERMANGANATE PILOT STUDY**

Proj. No.:	20060022	Date:	FEBRUARY 2008
Project:	Remediation	CAD ID:	CAD FILE
Drawn By:	MM	Checked by:	MM
		Page:	3



I:\2007\Remediation\Permanente\Building 1\Permanente Pilot Study\Monitoring Well.DWG, File Date: 2/15/2008 4:19 PM, Print Date: 2/15/2008 by Admin Account



APPROXIMATE INJECTION POINT AND MIP BORING LOCATIONS

Project No.: 29865742

Date: MAY 2007

Project: FORMER ROBERTSHAW FACILITY  
LONG BEACH, CA

Fig. 4



**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<sup>TM</sup>) 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 (NH<sub>4</sub>, NO<sub>3</sub>, NO<sub>2</sub>), 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 A. In the letter of determination, the Executive Officer shall indicate the groundwater limitations in Attachment A 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 Contaminate 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 ( $\text{NO}_3$ ), 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)"

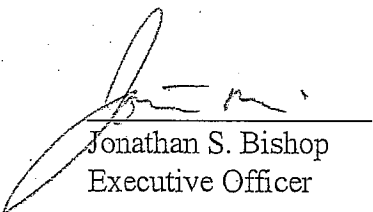
**H. EXPIRATION DATE AND CONTINUATION OF THIS ORDER**

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

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

MONITORING AND REPORTING PROGRAM NO. CI-9432  
FOR  
INVENSYS CLIMATE CONTROLS

ENROLLMENT UNDER REGIONAL BOARD  
ORDER NO. R4-2007-0019 (Series No. 070)  
FILE NO. 08-083

I. REPORTING REQUIREMENTS

- A. Invensys Climate Controls (hereinafter Discharger) shall implement this monitoring program on the effective date of this enrollment (July 15, 2008) under Regional Board Order No. R4-2007-0019. The first monitoring report under this Program is due by **October 15, 2008**.

Monitoring reports shall be received by the dates in the following schedule:

<u>Reporting 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 1** 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. Each monitoring report shall contain a separate section titled "Summary of Non-Compliance" which discusses the compliance record and the corrective actions taken or planned that may be needed to bring the discharge into full compliance with WDRs. This section shall be located at the front of the report and shall clearly list all non-compliance with discharge requirements, as well as all excursions of effluent limitations.
- E. 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.

II. SODIUM PERMANGANATE INJECTION MONITORING REQUIREMENTS

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

1. Location Map showing the injection point for the sodium permanganate, and
2. Written summary defining:
  - Depth of injection point;
  - Volume and quantity of sodium permanganate injected.

III. GROUNDWATER MONITORING PROGRAM

A groundwater-monitoring program shall be designed to detect and evaluate impacts associated with the sodium permanganate injection activities. The following shall constitute the monitoring program for Monitoring Wells Nos. VES-32, PW-06R, PW-04, MW-19 and MW-20 (Figure 3). These sampling stations shall not be changed and any proposed change of monitoring locations shall be identified and approved by the Regional Board Executive Officer (Executive Officer) prior to their use. The Discharger shall conduct baseline sampling one or two weeks prior to sodium permanganate injection and regular sampling with the required frequencies of the monitoring wells for the following constituents:

<u>CONSTITUENT</u>	<u>UNITS</u> <sup>1</sup>	<u>TYPE OF SAMPLE</u>	<u>MINIMUM FREQUENCY OF ANALYSIS</u>
Temperature <sup>1</sup>	°F	grab	Quarterly <sup>2</sup>
pH <sup>1</sup>	pH units	grab	Quarterly <sup>2</sup>
Oxidation-reduction potential <sup>1</sup>	millivolts	grab	Quarterly <sup>2</sup>
Specific conductivity <sup>1</sup>	µmhos/cm	grab	Quarterly <sup>2</sup>
Vinyl Chloride	µg/L	grab	Quarterly <sup>2</sup>
Tetrachloroethene (PCE)	µg/L	grab	Quarterly <sup>2</sup>
Trichloroethene (TCE)	µg/L	grab	Quarterly <sup>2</sup>
Cis-1,2-dichloroethene (Cis-1,2-DCE)	µg/L	grab	Quarterly <sup>2</sup>
Trans-1,2-dichloroethene (Trans-1,2-DCE)	µg/L	grab	Quarterly <sup>2</sup>
1,1-dichloroethene (1,1-DCE)	µg/L	grab	Quarterly <sup>2</sup>
1,2-dichloroethane (1,2-DCA)	µg/L	grab	Quarterly <sup>2</sup>



1,1,1-trichloroethane (1,1,1-TCA)	µg/L	grab	Quarterly <sup>2</sup>
Carbon tetrachloride	µg/L	grab	Quarterly <sup>2</sup>
1,2,4-trimethylbenzene	µg/L	grab	Quarterly <sup>2</sup>
1,1,2-trichloroethane	µg/L	grab	Quarterly <sup>2</sup>
Dissolved organic carbon	µg/L	grab	Quarterly <sup>2</sup>
Manganese	µg/L	grab	Quarterly <sup>2</sup>
Total iron	µg/L	grab	Quarterly <sup>2</sup>
Ferrous iron	µg/L	grab	Quarterly <sup>2</sup>
Alkalinity	µg/L	grab	Quarterly <sup>2</sup>
Total dissolved solids	mg/L	grab	Quarterly <sup>2</sup>
Sulfate	mg/l	grab	Quarterly <sup>2</sup>
Chloride	mg/L	grab	Quarterly <sup>2</sup>
Nitrate	mg/L	grab	Quarterly <sup>2</sup>
Carbon dioxide	mg/L	grab	Quarterly <sup>2</sup>
1,4-dioxane	µg/L	grab	One-time <sup>3</sup>
1,2,3-Trichloropropane	µg/L	grab	One-time <sup>3</sup>
Hexavalent Chromium	µg/L	grab	One-time <sup>3</sup>

Note: mg/L: milligrams per liter; µg/L: micrograms per liter; µmhos/cm: micromhos per centimeter; °F: degree Fahrenheit.

<sup>1</sup> Field instrument will be used to test for this constituent.

<sup>2</sup> Quarterly sampling events are required after the six months sampling event for monitoring wells MW-5, MW-8, MW-9, and MW-10.

<sup>3</sup> One time sampling event before the injection of treated groundwater is required for all wells on and off site. If detected, quarterly monitoring is required from the same monitoring wells.

All groundwater monitoring reports must include, at 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

Specifications in this monitoring program are subject to periodic revisions. Monitoring requirements may be modified or revised by the Executive Officer based on review of monitoring data submitted pursuant to this Order. Monitoring frequencies may be adjusted to a less frequent basis or parameters and locations dropped by the Executive Officer if the Discharger makes a request and the request is backed by statistical trends of monitoring data submitted.

V. CERTIFICATION STATEMENT

Each report shall contain the following completed 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.

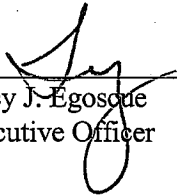
Executed on the \_\_\_\_ day of \_\_\_\_\_ at \_\_\_\_\_.

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)"

All records and reports submitted in compliance with this Order are public documents and will be made available for inspection during business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region, upon request by interested parties. Only proprietary information, and only at the request of the Discharger, will be treated as confidential.

Ordered by:

  
\_\_\_\_\_  
Tracy J. Egoscue  
Executive Officer

Date: July 29, 2008