



# California Regional Water Quality Control Board Los Angeles Region



Linda S. Adams  
Acting Secretary for  
Environmental Protection

320 West Fourth Street, Suite 200, Los Angeles, California 90013  
(213) 576-6600 • Fax (213) 576-6640  
<http://www.waterboards.ca.gov/losangeles>

Edmund G. Brown Jr.  
Governor

May 18, 2011

Mr. Gary Hayes  
W9/Rye North Realty, LLC  
c/o Archon Group, LP  
6011 Connection Drive  
Irving, Texas 75039

**SUBJECT: GENERAL WASTE DISCHARGE REQUIREMENTS (ORDER NO. R4-2007-0019, SERIES NO. 159; MRP NO. CI-9690) FOR INJECTION OF SODIUM PERMANGANATE SOLUTION**

**SITE/CASE: RYE CANYON BUSINESS/MANN BIOMEDICAL PARK, 25141 RYE CANYON LOOP, SANTA CLARITA, CALIFORNIA (SCP NO. 1082, SITE ID NO. 2040035)**

Dear Mr. Hayes:

Los Angeles Regional Water Quality Control Board (Regional Board) staff have completed review of your application for coverage under General Waste Discharge Requirements (WDR) for the injection of sodium permanganate solution into the targeted saturated zones to remediate volatile organic compounds in groundwater beneath the site. Regional Board staff 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. Please refer to the attached Fact Sheet for additional discharge information.

You may begin to inject up to approximately 5,177 gallons of sodium permanganate solution into 27 injection wells at the approximate locations and depths indicated in the December 1, 2010, *Feasibility Study/Interim Remedial Action Plan*, which was approved by the Regional Board on January 18, 2011.

Enclosed are your Waste Discharge Requirements, consisting of Regional Board Order No. R4-2007-0019 (Series No. 159) and Monitoring and Reporting Program (MRP) No. CI-9690. Please note that the discharge limits in Attachment B [DWR Basin No. 4-4.07 (Eastern Santa Clara, Santa Clara – Bouquet & San Francisquito Canyons)] of Order No. R4-2007-0019 are applicable to your discharge.

MRP No. CI-9690 requires you to implement the monitoring program on the effective date of this enrollment (May 18, 2011) under Regional Board Order No. R4-2007-0019. By the specified due dates, all monitoring reports required under this MRP, including groundwater monitoring data, shall be uploaded into the State Water Resources Control Board GeoTracker database, in addition to submitting hard copies to the Regional Board, ATTN: Information Technology Unit.

Mr. Gary Hayes  
Archon Group, LP  
SCP No. 1082

- 2 -


May 18, 2011

When submitting monitoring or technical reports to the Regional Board per these requirements, please include a reference to "Compliance File No. CI-9690", which will assure that the reports are directed to the appropriate file and staff. Also, do not combine other reports with your WDR monitoring reports. Submit each type of report as a separate document.

To avoid paying future annual fees, submit a written request for termination of your enrollment under the general WDR in a separate letter, when your project has been completed and the WDR is no longer needed. Be aware that the annual fee covers the fiscal year billing period beginning July 1 and ending June 30, the following year. You will pay the full annual fee if your request for termination is made after the beginning of the new fiscal year beginning July 1.

If you have any questions, please contact Dr. Ann Chang at (213) 620-6070 ([achang@waterboards.ca.gov](mailto:achang@waterboards.ca.gov)), or Ms. Su Han at (213) 576-6735 ([shan@waterboards.ca.gov](mailto:shan@waterboards.ca.gov)).

Sincerely,

  
Samuel Unger, PE  
Executive Officer

Enclosures:   1. Fact Sheet  
                  2. Monitoring and Reporting Program No. CI-9690  
                  3. General Waste Discharge Requirements, Order No. R4-2007-0019

cc:             Richard Freudenberger, WSP Environmental & Energy  
                  Steve Walters, E5, Inc.  
                  Ed Thrift, Legacy Partners Commercial, Inc.  
                  Kenneth Ehrlich, Esquire, Jeffer, Mangels, Butler & Marmaro LLP

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  
RYE CANYON BUSINESS/MANN BIOMEDICAL PARK  
25141 RYE CANYON LOOP, SANTA CLARITA, CALIFORNIA

SODIUM PERMANGANATE SOLUTION INJECTION

ORDER NO. R4-2007-0019 (Series No. 159)  
CI-9690, FILE NO. 11-051, SCP NO. 1082

**FACILITY ADDRESS**

Rye Canyon Business/Mann Biomedical Park  
25141 Rye Canyon Loop  
Santa Clarita, California 91355  
Latitude: 34° 27' 10.12" North  
Longitude: 118° 34' 51.43" West

**FACILITY CONTACT ADDRESS**

Mr. Gary Hayes  
W9/Rye North Realty, LLC  
c/o Archon Group, LP  
6011 Connection Drive  
Irving, Texas 75039

**SITE BACKGROUND**

The Rye Canyon Business/Mann Biomedical Park is located at 25141 Rye Canyon Loop, Santa Clarita, California (Figure 1). The site was operated as an aerospace research and development facility from the late 1950s to 1993. The historic operations included the use of chlorinated solvents. Since 1993 the site has been developed as a commercial/industrial business park, which includes multiple buildings lawns, planters, and associated parking areas, sidewalks, and driveways (Figure 2).

Site investigations have been conducted since the late 1980s. The data collected to date indicate that soil and groundwater beneath the site have been impacted with chlorinated volatile organic compounds (VOC), primarily trichloroethene (TCE). TCE has been detected in groundwater at concentrations up to 280 micrograms per liter ( $\mu\text{g/L}$ ). Groundwater has been encountered at approximately 31 to 95 feet below ground surface (bgs) and generally flows to the south.

To address the groundwater VOC contamination originating from the site, the *Feasibility Study/Interim Remedial Action Plan* (Interim RAP), dated December 1, 2010, was prepared and submitted. The Interim RAP proposes injecting sodium permanganate solution near the identified and suspected source areas to remediate VOC impacted groundwater. The Interim RAP was approved by the Regional Board on January 18, 2011.

**DESCRIPTION OF INJECTION/DISCHARGE**

The proposed remediation involves injecting sodium permanganate solution into targeted saturated zones to treat VOC contamination in groundwater beneath the site. Four application areas are selected near monitoring wells LEG-5, LEG-7, LEG-8, and LEG-10, where VOC contamination sources have been identified or suspected (Figures 3, 4, 5, 6, 7, and 8).

Approximately 5,236 pounds of sodium permanganate will be used to prepare 11 percent sodium permanganate solution and delivered to the site. The sodium permanganate solution will be transferred from the tanker truck to a temporary polyethylene holding tank set within a secondary containment berm at the site. A total of approximately 5,177 gallons of 11 percent sodium permanganate solution will be introduced to the four application areas and followed by approximately 5,533 gallons of potable chase water. Twenty-seven injection wells with multiple-depth screened intervals will be used for the injection activities. The interval for injection depth at each application area was selected based on the distribution of VOC contamination. The injection rate is expected to be approximately 3 to 5 gallons per minute with a maximum pressure of 100 pounds per square inch applied to the injection wells.

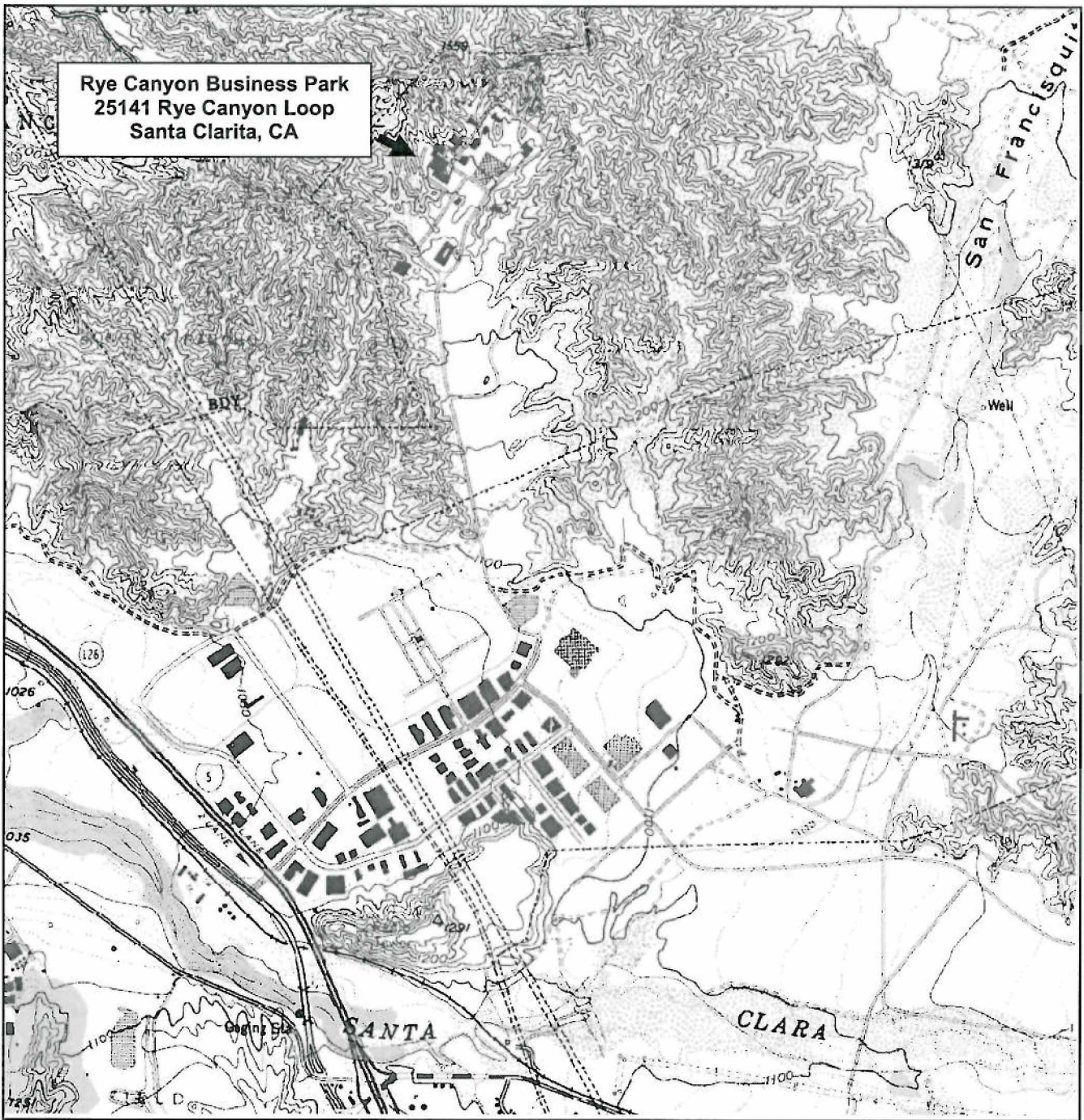
The injection depths and the quantity of sodium permanganate solution and chase water to be injected into each well at each area are presented in the following table:

Application area	Injection depth range (feet bgs)	Number of injection wells	Gallons of NaMnO4 solution per well	Gallons of chase water per well	Gallons of NaMnO4 solution per area	Gallons of chase water per area
LEG-5	40-45	8 (IW-10A to IW-17A)	130.5	139.5	1044	1116
	55-60	8 (IW-10B to IW-17B)	217.5	232.5	1740	1860
LEG-7	93-98	1 (IW-18)	217.5	232.5	217.5	232.5
LEG-8	49-56	1 (IW-19)	217.5	232.5	217.5	232.5
LEG-10	30-35	9 (IW-1 to IW-9)	217.5	232.5	1957.5	2092.5

**REMEDIATION PROGRESS MONITORING**

Thirteen (13) remediation progress monitoring wells are selected to monitor progress of the remediation process. Groundwater samples will be collected to monitor for all required parameters prior to, during, and after the sodium permanganate solution injection activities in accordance with Monitoring and Reporting Program No. CI-9690, under coverage of general Waste Discharge Requirements (WDR) Order No. R4-2007-0019.

Any potential adverse water quality impacts that may result will be localized, of short-term duration; and are not expected to impact any existing or prospective uses of groundwater resource in the site vicinity. Groundwater quality will be monitored to verify that there are no long-term adverse impacts to water quality.



**Reference**

7.5 Minute Series Topographic Quadrangle  
 Newhall, California  
 Photorevised 1952 Scale 1:24,000



Quadrangle Location



Scale in Feet

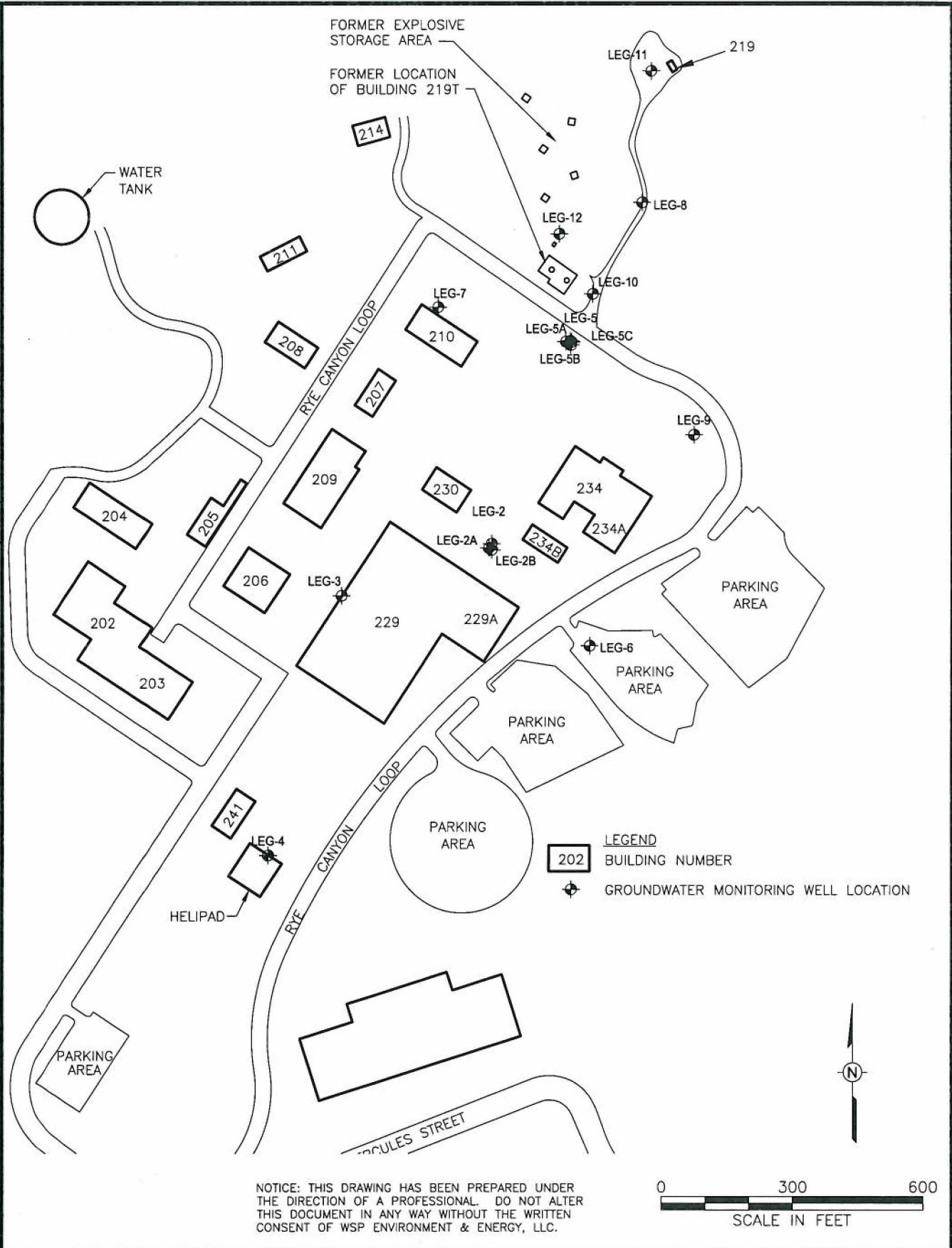


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 Suite 435  
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 408-453-6100

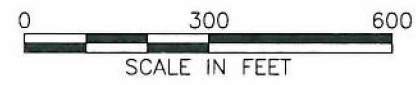
**Figure 1**  
**Site Location**  
 Rye Canyon Business Park  
 Santa Clarita, California

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DWG Name: 00003502-001  
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Approved: AW  
Drawn By: EGC  
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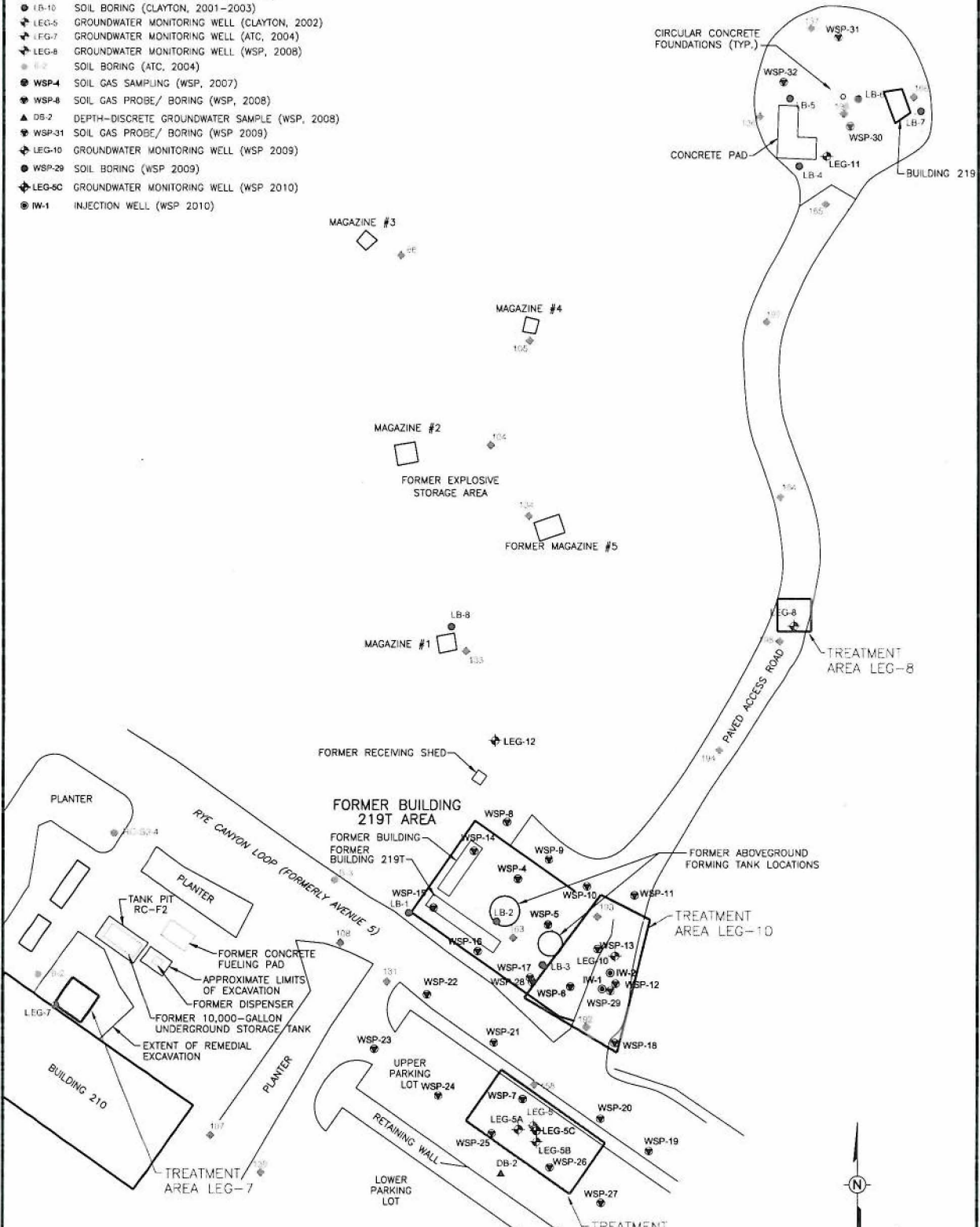
Figure 2  
SITE LAYOUT

RYE CANYON BUSINESS PARK  
SANTA CLARITA, CALIFORNIA  
PREPARED FOR  
ARCHON GROUP

B

LEGEND

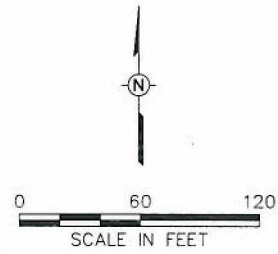
- 70-69-1 SOIL BORING (GREGG, 1987)
- 107 SOIL GAS SAMPLING (TETRA TECH, 1994)
- LB-10 SOIL BORING (CLAYTON, 2001-2003)
- LEG-5 GROUNDWATER MONITORING WELL (CLAYTON, 2002)
- LEG-7 GROUNDWATER MONITORING WELL (ATC, 2004)
- LEG-8 GROUNDWATER MONITORING WELL (WSP, 2008)
- 6-2 SOIL BORING (ATC, 2004)
- WSP-4 SOIL GAS SAMPLING (WSP, 2007)
- WSP-8 SOIL GAS PROBE/ BORING (WSP, 2008)
- ▲ DB-2 DEPTH-DISCRETE GROUNDWATER SAMPLE (WSP, 2008)
- WSP-31 SOIL GAS PROBE/ BORING (WSP 2009)
- LEG-10 GROUNDWATER MONITORING WELL (WSP 2009)
- WSP-29 SOIL BORING (WSP 2009)
- LEG-8C GROUNDWATER MONITORING WELL (WSP 2010)
- IW-1 INJECTION WELL (WSP 2010)



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REFERENCES: 1. ADAPTED FROM CLAYTON GROUP SERVICES, INC., 2002 AND ATC, 2005)  
 2. ELEVATION CONTOURS INTERPRETED BASED ON RIDGE LINE SURVEY BY CASE LAND SURVEYING, INC. JULY 2009 (NAVD 88)



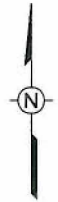
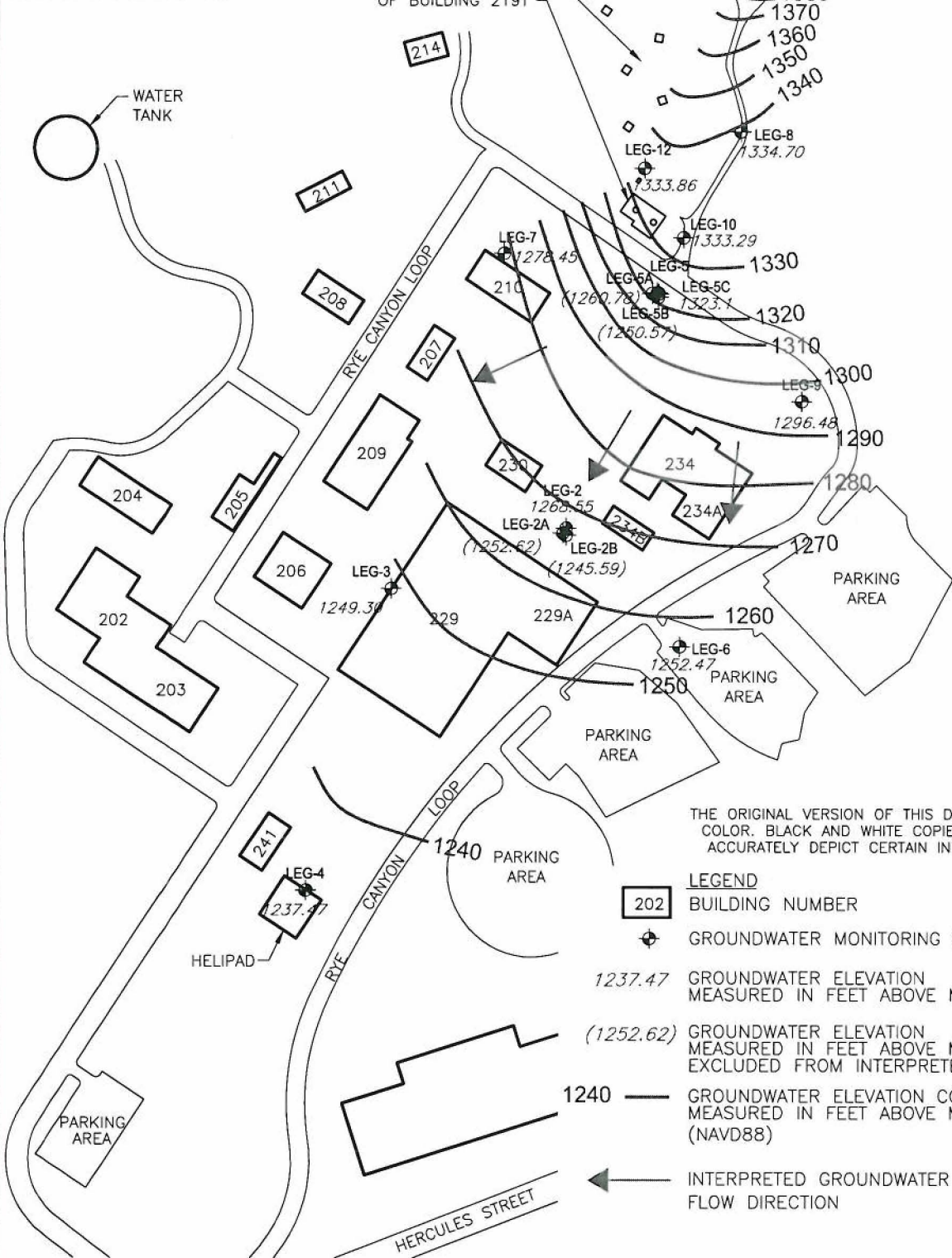
<p>WSP Environment &amp; Energy, LLC        11190 Sunrise Valley Drive, Suite 300        Reston, Virginia 20191        (703) 709-6500        www.wspenvironmental.com/usa</p>	<p>Figure 3</p> <p><b>PROPOSED TREATMENT AREAS</b></p>	<p>RYE CANYON BUSINESS PARK        SANTA CLARITA, CALIFORNIA</p> <p>PREPARED FOR  <b>ARCHON GROUP</b></p>	<p>Drawn By: JME</p>
			<p>Checked: Pc</p>
			<p>Approved: AW</p>
			<p>DWG Name: 00003502-002</p>

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- LEGEND**
- 202 BUILDING NUMBER
  - GROUNDWATER MONITORING WELL LOCATION
  - 1237.47 GROUNDWATER ELEVATION MEASURED IN FEET ABOVE MSL (NAVD88)
  - (1252.62) GROUNDWATER ELEVATION MEASURED IN FEET ABOVE MSL (NAVD88) EXCLUDED FROM INTERPRETED CONTOUR
  - 1240 — GROUNDWATER ELEVATION CONTOUR MEASURED IN FEET ABOVE MSL (NAVD88)
  - INTERPRETED GROUNDWATER FLOW DIRECTION

REFERENCE POINT ELEVATIONS MEASURED RELATIVE TO NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88)



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Figure 4  
**GROUNDWATER ELEVATION MAP**  
DECEMBER 6, 2010

**RYE CANYON BUSINESS PARK**  
SANTA CLARITA, CALIFORNIA  
PREPARED FOR  
ARCHON GROUP

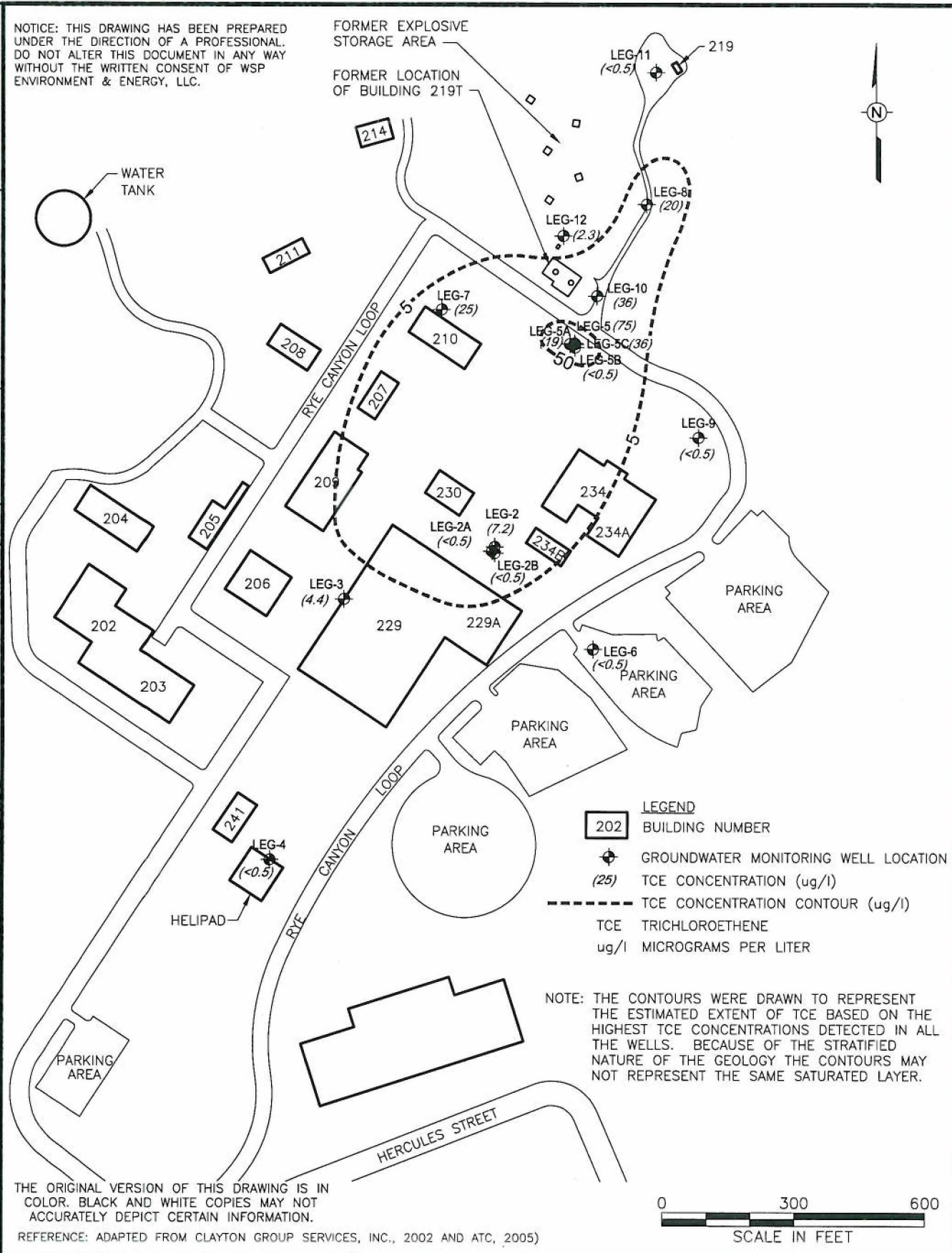


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FORMER EXPLOSIVE STORAGE AREA  
FORMER LOCATION OF BUILDING 219T



**LEGEND**

202 BUILDING NUMBER

◆ GROUNDWATER MONITORING WELL LOCATION

(25) TCE CONCENTRATION (ug/l)

--- TCE CONCENTRATION CONTOUR (ug/l)

TCE TRICHLOROETHENE

ug/l MICROGRAMS PER LITER

NOTE: THE CONTOURS WERE DRAWN TO REPRESENT THE ESTIMATED EXTENT OF TCE BASED ON THE HIGHEST TCE CONCENTRATIONS DETECTED IN ALL THE WELLS. BECAUSE OF THE STRATIFIED NATURE OF THE GEOLOGY THE CONTOURS MAY NOT REPRESENT THE SAME SATURATED LAYER.

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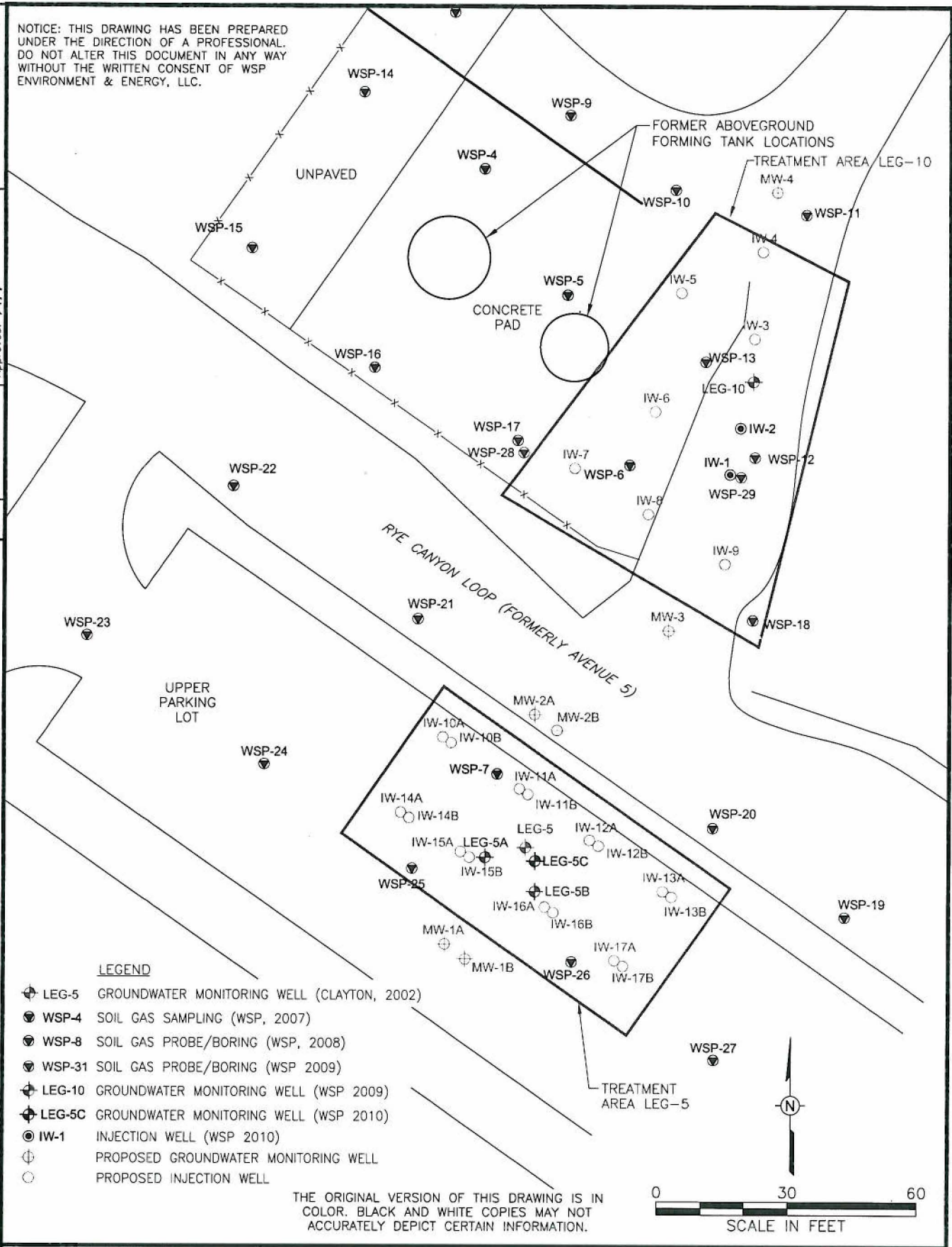
Figure 5  
TCE CONCENTRATIONS IN  
GROUNDWATER - DECEMBER 2010

RYE CANYON BUSINESS PARK  
SANTA CLARITA, CALIFORNIA  
PREPARED FOR  
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R:\ACAD\CADD\00003502-Rye\_Canyon\CAD\00003502-012.dwg, Figure 6., 3/17/2011 3:46:52 PM, usec01012

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- LEGEND**
- ⊕ LEG-5 GROUNDWATER MONITORING WELL (CLAYTON, 2002)
  - ⊕ WSP-4 SOIL GAS SAMPLING (WSP, 2007)
  - ⊕ WSP-8 SOIL GAS PROBE/BORING (WSP, 2008)
  - ⊕ WSP-31 SOIL GAS PROBE/BORING (WSP 2009)
  - ⊕ LEG-10 GROUNDWATER MONITORING WELL (WSP 2009)
  - ⊕ LEG-5C GROUNDWATER MONITORING WELL (WSP 2010)
  - ⊙ IW-1 INJECTION WELL (WSP 2010)
  - ⊕ PROPOSED GROUNDWATER MONITORING WELL
  - PROPOSED INJECTION WELL

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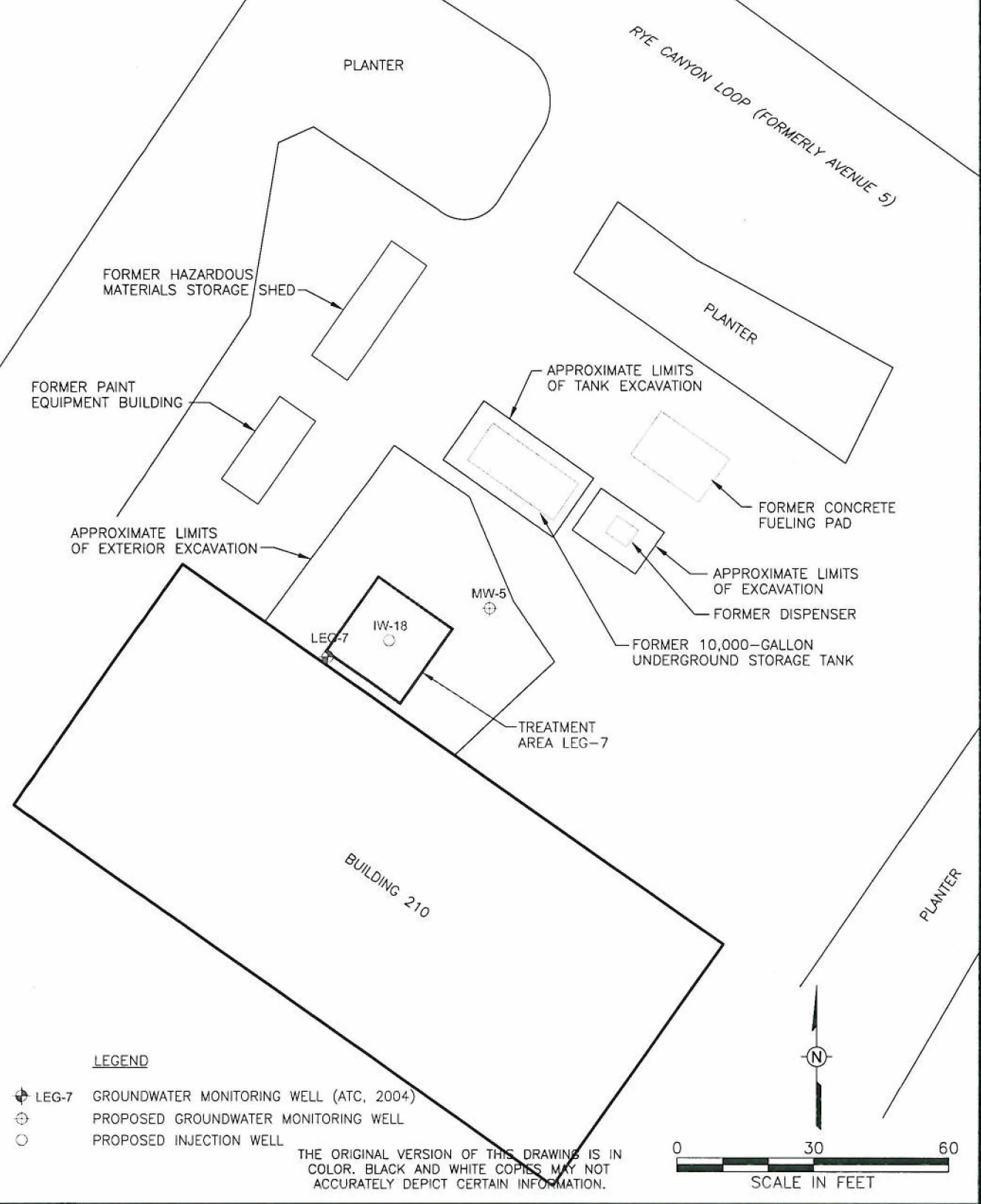
Figure 6  
**TREATMENT AREAS  
 LEG-5 AND LEG-10**

**RYE CANYON BUSINESS PARK  
 SANTA CLARITA, CALIFORNIA**  
 PREPARED FOR  
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LEGEND

- ⊕ LEG-7 GROUNDWATER MONITORING WELL (ATC, 2004)
- ⊕ MW-5 PROPOSED GROUNDWATER MONITORING WELL
- IW-18 PROPOSED INJECTION WELL

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Figure 7  
TREATMENT AREA LEG-7

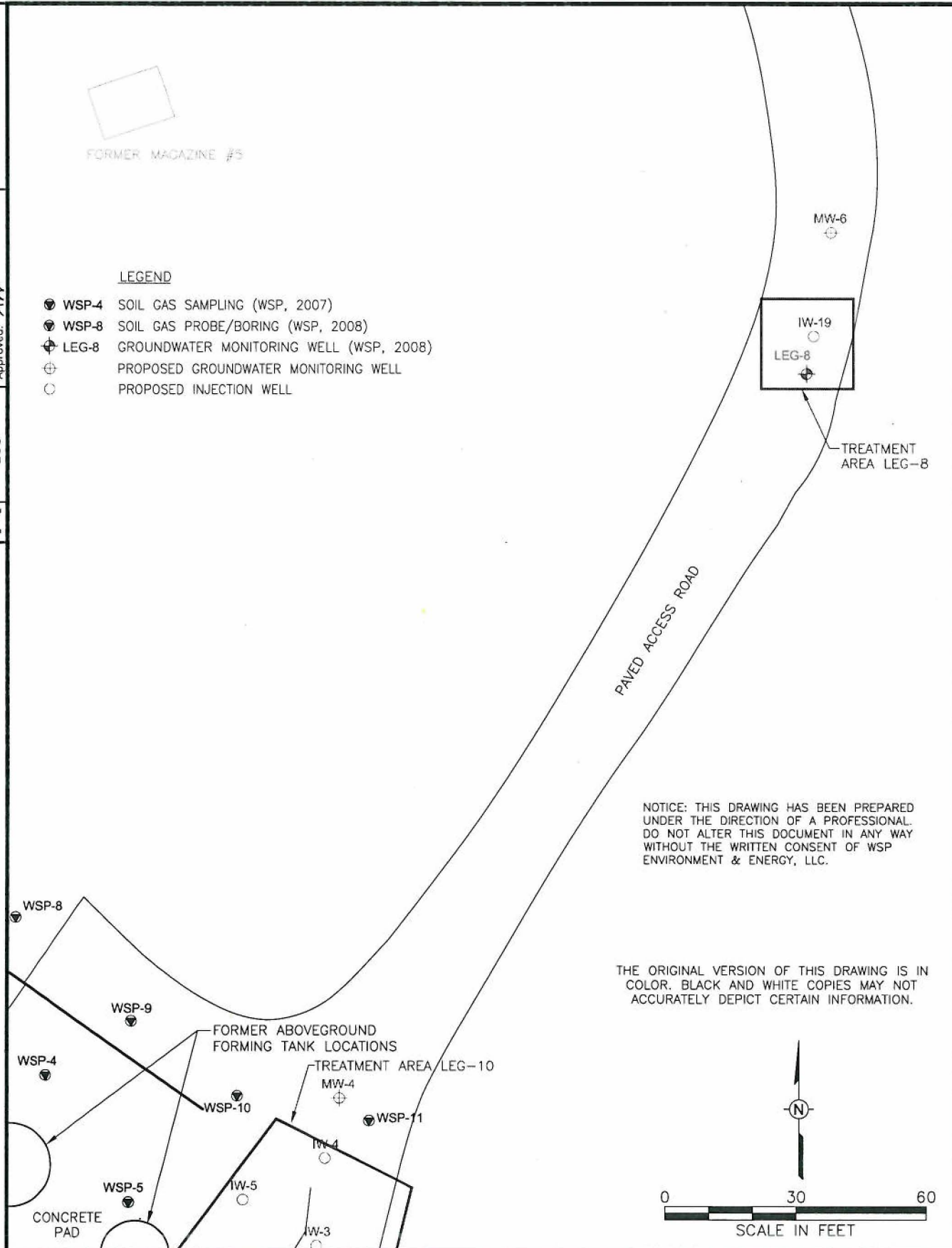
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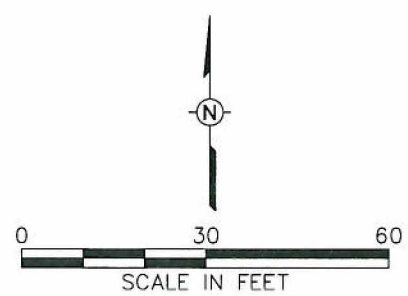
FORMER MAGAZINE #5

- LEGEND**
- WSP-4 SOIL GAS SAMPLING (WSP, 2007)
  - WSP-8 SOIL GAS PROBE/BORING (WSP, 2008)
  - ⊕ LEG-8 GROUNDWATER MONITORING WELL (WSP, 2008)
  - ⊕ PROPOSED GROUNDWATER MONITORING WELL
  - PROPOSED INJECTION WELL



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Figure 8  
TREATMENT AREA LEG-8

RYE CANYON BUSINESS PARK  
SANTA CLARITA, CALIFORNIA  
PREPARED FOR  
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STATE OF CALIFORNIA  
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LOS ANGELES REGION

MONITORING AND REPORTING PROGRAM NO. CI-9690  
FOR  
RYE CANYON BUSINESS/MANN BIOMEDICAL PARK  
25141 RYE CANYON LOOP, SANTA CLARITA, CALIFORNIA

ORDER NO. R4-2007-0019 (Series No. 159)  
FILE NO. 11-051, SCP NO. 1082

**I. MONITORING AND REPORTING REQUIREMENTS**

- A. The Discharger shall implement this monitoring program on the effective date of this enrollment (May 18, 2011) under Regional Board Order No. R4-2007-0019. Upon the initiation of groundwater monitoring and sampling, the first monitoring report shall be submitted by **October 15, 2011** for the first five months (May 2011 through September 2011) of this remediation program. Subsequent quarterly or semi-annual monitoring reports shall be received by the Regional Board according to the following schedule:

<u>Monitoring Period</u>	<u>Report Due</u>
January – March	April 15 (quarterly)
April – June	July 15 (quarterly or semi-annual)
July – September	October 15 (quarterly)
October – December	January 15 (quarterly or semi-annual)
Annual Summary Report	March 1 of each year

- B. If there is no discharge or injection, during any reporting period, the report shall so state. By the above specified due dates, all monitoring reports shall be uploaded into the State Water Resources Control Board GeoTracker database, in addition to submitting hard copies to the Regional Board, Attention: Information Technology Unit. Once you demonstrate mastery of electronic submittal of reports to GeoTracker for the site, you may request that the Regional Board waive the requirement of submitting hard copies of reports.
- 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 (including volatile organic compounds [VOC] concentration contour maps) summaries of the monitoring data obtained during the previous calendar year. In addition, the Discharger shall discuss 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.
- 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.

**II. DISCHARGE MONITORING**

Prior to the start of the injection of sodium permanganate solution, the Discharger shall sample from the following groundwater monitoring wells for baseline groundwater parameters:

Application Area	Upgradient Well	Injection Zone Well	Downgradient Well
LEG-5 (40-Foot Sand)	MW-2A	LEG-5C	MW-1A
LEG-5 (60-Foot Sand)	MW-2B	LEG-5	MW-1B
LEG-7	MW-5		LEG-7
LEG-8	MW-6		LEG-8
LEG-10	MW-4	LEG-10	MW-3

Following the collection of baseline groundwater samples, all of the above-listed upgradient, injection zone, and downgradient wells shall be monitored for the life of the sodium permanganate remediation project in accordance with the following discharge monitoring program:

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total Daily Injection Waste Flow	gallons/day	in-situ	Daily during injection
Groundwater Elevation and Depth to Water	Feet above mean sea level (msl) and below ground surface (bgs)	in-situ	Baseline, months 1, 3, 6, 9, and 12 after injection, and semi-annually thereafter
Color	color unit	grab	Same as specified above
Dissolved Oxygen	mg/L	grab	Same as specified above
Oxidation-Reduction Potential	millivolts	grab	Same as specified above
pH	pH units	grab	Same as specified above
Specific Conductivity	mS/cm	grab	Same as specified above
Temperature	°C	grab	Same as specified above
Turbidity	NTU	grab	Same as specified above
Total Dissolved Solids	mg/L	grab	Same as specified above
Total Organic Carbon	mg/L	grab	Same as specified above

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Chlorinated Volatile Organic Compounds	µg/L	grab	Baseline, months 1, 3, 6, 9, and 12 after injection, and semi-annually thereafter
Boron	mg/L	grab	Same as specified above
Permanganate	mg/L	grab	Same as specified above
Chemical Oxygen Demand	mg/L	grab	Same as specified above
Biological Oxygen Demand	mg/L	grab	Same as specified above
Dissolved Carbon Dioxide and Methane	mg/L	grab	Same as specified above
Major Anions (bromide, chloride, nitrate, nitrite, O-phosphate, and sulfate)	mg/L	grab	Same as specified above
Major Cations (barium, calcium, iron, ferrous iron, magnesium, manganese, potassium, and sodium)	mg/L	grab	Same as specified above
Total Chromium and Hexavalent Chromium	mg/L	grab	Same as specified above

Footnotes:

1. To adequately monitor groundwater gradient prior to, during, and after the injection of sodium permanganate solution, groundwater elevation data shall be collected from all existing groundwater monitoring wells during each monitoring event at the site.
2. Groundwater potentiometric surface maps and VOC concentration contour maps shall be created from the data collected during each monitoring and sampling event, and provided in the monitoring reports.

**III. 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.

**IV. 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)"

**V. PUBLIC DOCUMENTS**

All records and reports submitted in compliance with Order No.R4-2007-0019 and Monitoring and Reporting Program No. CI-9690 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:   
Samuel Unger, PE  
Executive Officer

Date: May 18, 2011



**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 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 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

<b>TABLE I</b>			
<b>Remediation Technologies Used at U.S. Chromium Sites</b>			
<b>Additive</b>	<b>Additive Type</b>	<b>Treatment Mechanism</b>	<b>Comments</b>
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, measureable 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, measureable 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, measureable 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).
<b>ATTACHMENT A</b>			

Table 3-10. Water Quality Objectives for Selected Constituents in Regional Ground Waters<sup>a</sup>.

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



Table 3-10. Water Quality Objectives for Selected Constituents in Regional Ground Waters<sup>a</sup> (cont.)

DWR Basin No. <sup>b</sup>	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 <sup>a</sup>	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<sup>a</sup> (cont.)**

DWR Basin No. <sup>b</sup>	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
	Russell Valley	2,000	500	500	2.0
	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 <sup>h</sup>	--	--	--	--
4-22	Santa Monica Mountains--southern slopes <sup>i</sup>	1,000	250	250	1.0
	Camarillo area	1,000	250	250	1.0
	Point Dume area	2,000	500	500	2.0
	Malibu Valley	2,000	500	500	2.0
	Topanga Canyon area	2,000	500	500	2.0
	San Pedro Channel Islands <sup>j</sup>	--	--	--	--
	Anacapa Island	1,100	150	350	--
	San Nicolas Island	1,000	100	250	1.0
	Santa Catalina Island	--	--	--	--
	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.

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Standard Provisions Applicable to  
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- (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]

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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:



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"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 plan 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]