



## Central Valley Regional Water Quality Control Board

18 September 2015

Bill Stoermer  
Fremont Plaza Investments, LP  
7015 Morton Court  
Stockton, CA 95209

CERTIFIED MAIL  
7010 0290 0000 8536 1512

***NOTICE OF APPLICABILITY OF GENERAL ORDER NO. R5-2015-0012 Waste Discharge Requirements General Order for In-Situ Remediation and Discharge of Treated Groundwater to Land, former Apache Plastics, 2050 East Fremont Street, Stockton, San Joaquin County***

A Report of Waste Discharge Permit Application and Notice of Intent (NOI) were submitted on your behalf by Advanced GeoEnvironmental, Inc. (AGE), on 23 September 2014 requesting coverage under General Order No. R-5-2015-0012 (General Order) for In-Situ Remediation and Discharge of Treated Groundwater to Land (General Order). The application fee was received 26 February 2015. A Notice of Applicability (NOA) to operate under Order No. R5-2015-0012 was issued 19 May 2015, and you were assigned Order No. R5-2015-0012-007.

During baseline sampling of compliance and treatment zone wells, prior to implementation of injection under the General Order, it was determined that the trigger levels establish based on groundwater samples collected from the background wells could not be achieved in compliance zone wells due to changes in groundwater geochemistry within the plume. Revision of the trigger levels based on pre-injection groundwater data from treatment zone, compliance zone and background wells, collected in 2010, prior to any chemical in-situ treatment, and issuance of a revised NOA was deemed appropriate. Order number No. R5-2015-0012-007-Revised is now in effect, and replaces Order No. R5-2015-0012-007.

**Project Location:**

The project is in the City of Stockton in San Joaquin County  
Assessor's Parcel No.153-130-03.

**Project Description:**

Former operations of an underground tank system at the former Apache Plastic facility in Stockton, in San Joaquin County (site) caused pollution of the soil and groundwater. The primary pollutants of concern are petroleum hydrocarbons, including total petroleum hydrocarbons as gasoline, benzene, toluene, ethylbenzene, and total xylenes (BTEX), 1,2-dichloroethane, 1,2-dibromoethane, t-Butyl alcohol and tert-Amyl methyl ether. The site is currently occupied by a large warehouse building and used as a hardware retail store and storage facility.

In August and September 2013, Advanced GeoEnvironmental, Inc. (AGE) conducted a pilot test using a mixture of stabilized hydrogen peroxide and chelated iron for in-well injections. Petroleum constituent

concentrations were reduced in all injection wells and additional injections of hydrogen peroxide were recommended to address residual elevated concentrations of petroleum hydrocarbons in groundwater. San Joaquin County approved the proposed Corrective Action Plan in August 2014.

For this project, the Discharger submitted the following documents:

- *Corrective Action Plan* dated 11 August 2014
- *In-Situ Chemical Oxidation Pilot Study Report* dated 19 August 2014
- *Corrective Action Plan Addendum* dated 21 August 2014
- *Notice of Intent (NOI)* dated 9 September 2014
- *Injection Well Installation Report* dated 24 December 2014
- *Addendum to Notice of Intent* dated 24 April 2015

Eight injection wells (IW-1 through IW-5, EW-1, VEW-1, and VEW-2) will be used for injection of a 5% to 8% hydrogen peroxide solution. Injection will occur during four tri-weekly events. During each event 200 gallons of injectant will be pressure pumped at 1 to 5 gallons per minute (gmp), into each of the injection wells, with a total injection volume of 1,600 gallons per event, and a total of 6,400 gallons of injected during the four tri-weekly events.

There are 17 monitor wells, two extraction wells and five injection wells associated with this site. The Monitoring and Reporting Program, incorporated with this permit, requires sampling of 19 of the 24 wells associated with this site and one monitoring well associated with the underground storage tank cleanup site, north, across East Fremont Street (Stockton City Cab MW-7). Monitoring and reporting of remaining site wells is under the direction of the lead regulatory agency, the Central Valley Water Board. No additional groundwater monitoring wells are needed or anticipated at this time. Apache Plastics will be responsible for conducting groundwater sampling, and reporting of the results as described in the attached Monitoring and Reporting Program.

A Contingency Plan was submitted by AGE in a letter response received 14 November 2014. AGE proposes that wells showing negative effects due to injection be pumped at a rate between 1 and 3 gallons per minutes until impacted wells are below action levels. Water from the wells will be stored on-site in a 20,000 gallon capacity tank. Once the capacity of the tank has been reached the water will be hauled to a licensed waste facility and properly disposed.

The Contingency Plan to address any unforeseen negative impacts is as follows:

1. The following wells are classified as compliance wells: MW-2, MW-8, MW-11, MW-21 and MW-22. Compliance wells will be utilized as groundwater extraction wells, if deleterious by-products above action levels are observed in these wells.
2. For the purposes of this contingency plan, an impact to water quality is defined as one of the constituents exceeding an action level. Background concentrations and action levels are shown in the table below.

<b>Apache Plastics - Action Levels</b>			
Shallow zone (56 to 68.5 ft. bgs)	Maximum Background Concentration (ug/L)	WQO (ug/L)	Action Level (ug/L)
Arsenic	15 <sup>c</sup>	10	20
Barium	1,090 <sup>c</sup>	100	1,119
Bromate	6,860 <sup>b</sup>	10	7,860
Bromide	8,470 <sup>b</sup>	2,300	9,549
Cadmium	<10 <sup>a</sup>	10	10
Chromium	<10 <sup>a</sup>	50	12
Cr VI	<10 <sup>b</sup>	10	10
Copper	21 <sup>a</sup>	300	25
Iron	17,300 <sup>b</sup>	300	23,623
Dissolved Iron	9,410 <sup>b</sup>	300	12,590
Lead	<10 <sup>a</sup>	15	12
Manganese	7,240 <sup>b</sup>	50	7,607
Selenium	<1 <sup>a</sup>	50	1.2
TDS	1,190,000 <sup>c</sup>	450 mg/L	1,547,000
EC	968 µmhos/cm	700 µmhos/cm	968 µmhos/cm
Deep Zone (116 to 121)	Maximum Background Concentration (ug/L)	WQO (ug/L)	Action Level (ug/L)
Arsenic	70 <sup>c</sup>	10	75
Barium	510 <sup>c</sup>	100	680
Bromate	5,570 <sup>b</sup>	10	6,096
Bromide	7,370 <sup>b</sup>	2,300	7,878
Cadmium	<10 <sup>a</sup>	10	10
Chromium	10 <sup>a</sup>	50	12
Cr VI	<10 <sup>b</sup>	10	10
Copper	47 <sup>c</sup>	300	53
Iron	37,800 <sup>b</sup>	300	41,218
Dissolved Iron	12,900 <sup>b</sup>	300	13,778
Lead	<10 <sup>a</sup>	15	12
Manganese	3,270 <sup>b</sup>	50	3,456
Selenium	<1 <sup>a</sup>	50	1.2
TDS	970,000 <sup>c</sup>	450,000	1,253,443
EC	1,065 µmhos/cm	700 µmhos/cm	1,065 µmhos/cm

a – 2015 sample data from background wells MW-4 or CSS-MW-7

b – 2010 pre-injection sample data

c – baseline data using June 2015 data from treatment zone and compliance zone wells

If water quality concentrations exceed action levels in compliance wells, the well(s) will be sampled during the next quarterly monitoring event and if concentrations still exceed action levels, groundwater extraction will be initiated as outlined below. Groundwater extraction will continue until concentrations in compliance wells reduce to less than action levels.

If the Responsible Party desires to modify the injectants and/or volume of injectants, a revised Notice of Intent must be submitted and a new Notice of Applicability issued prior to proceeding with the additional/modified injection.

The scope of work for this project is covered by the CEQA documentation for the General Order. Additional CEQA activities are not needed.

No comments were received on the draft Notice of Applicability and Monitoring and Reporting Program during the 30-day public comment period ending 25 April 2015. Completion of a second public comment period for issuance of this Revised Order is not necessary.

**Specific Requirements:**

1. The project will be operated in accordance with the requirements contained in the General Order and in accordance with the information submitted in the Notice of Intent.
2. The required annual fee (as specified in the annual billing you will receive from the State Water Resources Control Board) shall be submitted until this Notice of Applicability is officially revoked.
3. The Responsible Party shall comply with the attached General Order No. R5-2015-0012, General Waste Discharge Requirements for In-situ Groundwater Remediation and Discharge of Treated Groundwater to Land.
4. Injection of materials other than dilute hydrogen peroxide, into the subsurface is prohibited, unless analysis, as specified in Order No. R5-2015-0012, of the injectant is provided and approval is given by Board staff.
5. Failure to abide by the conditions of the General Order could result in an enforcement action as authorized by provisions of the California Water Code.
6. The Responsible Party will implement the final contingency plan, included as part of the Notice of Intent, within 30-days of it being triggered.
7. The Responsible Party shall comply with the attached Monitoring and Reporting Program, Order No. R5-2015-0012-007-Revised and any revisions thereto as ordered by the Executive Officer.

Former Apache Plastics  
2050 East Fremont Street  
Stockton, San Joaquin Co.

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18 September 2015

If you have any questions or concerns please contact Vera Fischer at (916) 464-4792 or contact her at [vera.fischer@waterboards.ca.gov](mailto:vera.fischer@waterboards.ca.gov).

  
For Pamela C. Creedon  
Executive Officer

Attachment: General Order No. R5-2015-0012  
Monitoring and Reporting Program No. R5-2015-0012-0810

cc: Jovel Vossler, Regional Water Quality Control Board, Sacramento  
Gabriel Gonzalez, San Joaquin County Environmental Management, Stockton  
Daniel Villanueva, Advanced GeoEnvironmental, Inc., Stockton

ATTACHMENT C

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2015-0012-007-Revised

FOR  
IN-SITU GROUNDWATER REMEDIATION  
AND DISCHARGE OF TREATED GROUNDWATER TO LAND  
FOR  
APACHE PLASTICS (Former)  
2050 EAST FREMONT STREET, STOCKTON, CA  
SAN JOAQUIN COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring a groundwater remediation system for the former Apache Plastics facility at 2050 East Fremont Street in Stockton, San Joaquin County. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer. As appropriate, California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) staff shall approve specific sample station locations prior to implementation of sampling activities.

All samples should be representative of the volume and nature of the discharge or matrix of the material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form.

**GROUNDWATER MONITORING**

1. As shown on Figure 2, there are 17 monitor wells, two (2) extraction wells, and five (5) injection wells associated with this site. The groundwater monitoring program for these wells and any treatment system wells installed subsequent to the issuance of this MRP shall follow the schedule below. Monitor wells with free phase petroleum product or visible sheen shall be monitored, at a minimum, for product thickness and depth to water. The volume of extracted groundwater, if applicable, shall also be provided in quarterly monitoring reports. Sample collection and analysis shall follow standard EPA protocol.
2. The monitor wells, extraction wells and/or injection wells shall be sampled according to the schedule in Table 1 and the samples analyzed by the methods in Table 2, as follows:

**Table 1: Sampling Frequency and Constituent Suite**

<b>Well Number<sup>1</sup></b>	<b>Constituent Suite(s)<sup>3</sup></b>	<b>Frequency<sup>2</sup></b>	<b>Monitoring Objective</b>
MW-2, MW-8, MW-11, MW-21 and MW-22	Suite A, Suite B	Once within 6 months of treatment. Semi-Annually thereafter	Compliance <sup>4</sup>

**Table 1: Sampling Frequency and Constituent Suite (con't)**

Well Number <sup>1</sup>	Constituent Suite(s) <sup>3</sup>	Frequency <sup>2</sup>	Monitoring Objective
MW-9, MW-13, MW-23, MW-24, EW-1, VEW-1 and VEW-2	Suite A, Suite B	Quarterly	Treatment Zone <sup>5</sup>
MW-4 and SCC-MW-7	Suite A, Suite B	Annually	Background <sup>6</sup>
MW-10, MW-14, MW-15, MW-18, MW-19 and MW-20	Suite A	Semi-Annually	Other <sup>7</sup>

<sup>1</sup> Well numbers as shown on Figure 1.

<sup>2</sup> Prior to startup and stated frequency thereafter.

<sup>3</sup> Constituent suite components listed in Table 2.

<sup>4</sup> Wells used to determine compliance with groundwater limitations.

<sup>5</sup> Wells sampled to evaluate progress inside the treatment zone.

<sup>6</sup> Wells used to develop background concentrations.

<sup>7</sup> Wells used to define the extent of pollution.

**Table 2: Analytical Methods**

Constituent	Method <sup>1</sup>	Maximum Practical Quantitation Limit (µg/L) <sup>2</sup>
<b>Suite A</b>		
TPH-Gasoline	EPA 8260B or 8015	50
TPH-Diesel	EPA 8260B or 8015	50
BTEX <sup>3</sup>	EPA 8260B	0.5
1,2-Dichloroethane	EPA 8260B	0.5
t-Butyl alcohol	EPA 8260B	5
tert-Amyl methyl ether	EPA 8260B	0.5
1,2-Dibromoethane	EPA 8260B	0.5
<b>Suite B</b>		
Metals, Dissolved <sup>4</sup>	EPA 6010 or 6020	Various
Hexavalent Chromium	EPA 7199	1.0
Total Dissolved Solids	EPA SM250C	10
Bromate and Bromide	EPA 300.1	1000

<sup>1</sup> Or an equivalent EPA Method that achieves the same or lower Practical Quantitation Limit.

<sup>2</sup> All concentrations between the Method Detection Limit and the Practical Quantitation Limit shall be reported as trace.

<sup>3</sup> BTEX = benzene, toluene, ethylbenzene, and total xylenes

<sup>4</sup> Metals include: Aluminum, Arsenic, Barium, Copper, Iron, Manganese, and Zinc.

**FIELD SAMPLING**

3. In addition to the above sampling and analysis, field sampling and analysis shall be conducted each time a monitoring well or injection well is sampled. The sampling and analysis of field parameters shall be as specified in Table 3.

**Table 3: Field Sampling Requirements**

Parameters	Units	Practical Quantitation Limit	Analytical Method
Groundwater Elevation	Feet, Mean Sea Level	0.01 feet	Measurement +/- 0.01 ft.
Oxidation-Reduction Potential	Millivolts	10 millivolts	Field Meter
Electrical Conductivity	uhmos/cm	50 $\mu$ S/cm <sup>2</sup>	Field Meter
Dissolved Oxygen	mg/L	0.2 mg/L	Field Meter
pH	pH Units (to 0.1 units)	0.1 units	Field Meter
Temperature	<sup>o</sup> F/ <sup>o</sup> C	0.1 <sup>o</sup> F/ <sup>o</sup> C	Field Meter

All wells that are purged shall be purged until pH, temperature, conductivity and dissolved oxygen are within 10% of the previous value.

4. Field test instruments (such as those used to test pH and dissolved oxygen) may be used provided that:
  - (a) The operator is trained in proper use and maintenance of the instruments;
  - (b) The instruments are calibrated prior to each monitoring event;
  - (c) Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
  - (d) Field calibration reports are submitted as described in item (b) of the "Reporting" section of this MRP.

**IN-SITU DISCHARGE MONITORING**

5. The Discharger shall monitor during the injection event the discharge of hydrogen peroxide that is injected into the groundwater according to the requirements specified in Table 4. Each amendment addition shall be recorded individually, along with information regarding the time period over which the amendment was injected into the subsurface.

**Table 4: Discharge Monitoring Requirements**

Parameters	Units	Type of Sample
Injected Volume	gallons of injectant per day	Meter

**ESTABLISHMENT OF BACKGROUND CONCENTRATION VALUES**

6. The Discharger established the following background values for concentrations in shallow (about 56 to 68 feet below ground surface) in Table 5A and deep (about 116-121 feet below ground surface) groundwater in Table 5B.

**Table 5A: Shallow Background Concentration Values**

<b>Constituent</b>	<b>Background Concentration (µg/L)</b>
Arsenic	15
Barium	1090
Bromate	6,860
Bromide	8,470
Cadmium	<10
Chromium	<10
Hexavalent Chromium	<10
Copper	21
Iron	17,300
Dissolved Iron	9,410
Lead	<10
Manganese	7,240
Selenium	<1
Total Dissolved Solids	1,190,000
Electrical Conductivity	968 umhos/cm

**Table 5B: Deep Background Concentration Values**

<b>Constituent</b>	<b>Background Concentration (µg/L)</b>
Arsenic	70
Barium	510
Bromate	5,570
Bromide	7,370
Cadmium	<10
Chromium	10
Hexavalent Chromium	<10
Copper	14
Iron	37,800
Dissolved Iron	12,900
Lead	<10
Manganese	3,270
Selenium	<1
Total Dissolved Solids	970,000
Electrical Conductivity	1,065 umhos/cm

## REPORTING

7. When reporting the data, the Responsible Party shall arrange the information in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner as to illustrate clearly the compliance with this Order. In addition, the Responsible Party shall notify the Central Valley Water Board within 48 hours of any changes in scheduled injection and/or monitoring events. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall also be reported to the Central Valley Water Board.
8. As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all reports shall be prepared by a registered professional or their subordinate and signed by the registered professional.
9. The Discharger shall submit semi-annual electronic data reports, which conform to the requirements of the California Code of Regulations, Title 23, Division 3, Chapter 30. The semi-annual reports shall be submitted electronically over the internet to the Geotracker database system by the **1st day of the second month following the end of each half of the year (i.e., by 1 February and 1 August)** until such time as the Executive Officer determines that the reports are no longer necessary.
10. Electronic copies of semi-annual reports shall be submitted to the State Water Resources Control Board GeoTracker database by the **1st day of the second month following the end of each half of the year (by 1 February and 1 August)**. Each semi-annual report shall include the following minimum information:
  - (a) A description and discussion of the groundwater sampling event and results, including trends in the concentrations of pollutants and groundwater elevations in the wells, how and when samples were collected, and whether the pollutant plume(s) is delineated.
  - (b) Field logs that contain, at a minimum, water quality parameters measured before, during, and after purging, method of purging, depth of water, volume of water purged, etc.
  - (c) Groundwater contour maps for all groundwater zones.
  - (d) Pollutant concentration maps for all groundwater zones.
  - (e) A table showing well construction details such as well number, groundwater zone being monitored, coordinates (longitude and latitude), ground surface elevation, reference elevation, elevation of screen, elevation of bentonite, elevation of filter pack, and elevation of well bottom.
  - (f) A table showing historical lateral and vertical flow directions and gradients.
  - (g) Cumulative data tables containing the water quality analytical results and depth to groundwater.

- (h) A copy of the laboratory analytical data report, which may be submitted in an electronic format.
  - (i) The status of any ongoing remediation, including an estimate of the cumulative mass of pollutant removed from the subsurface, the effectiveness of the remediation system, and any field notes pertaining to the injection and monitoring of the remedial action.
  - (j) The reasons for and duration of all interruptions in the operation of the remediation project, and actions planned or taken to correct and prevent interruptions.
11. An Annual Report shall be submitted to the State Water Resources Control Board GeoTracker database by **1 February** of each year. This report shall contain an evaluation of the effectiveness and progress of the investigation and remediation, and may be substituted for the second semi-annual monitoring report. The Annual Report shall contain the following minimum information:
- (a) Both tabular and graphical summaries of all data obtained during the year.
  - (b) Groundwater contour maps and pollutant concentration maps containing all data obtained during the previous year.
  - (c) A discussion of the long-term trends in the concentrations of the pollutants in the groundwater monitoring wells.
  - (d) An analysis of whether the pollutant plume is being effectively treated.
  - (e) A description of all remedial activities conducted during the year, an analysis of their effectiveness in removing the pollutants, and plans to improve remediation system effectiveness.
  - (f) An identification of any data gaps and potential deficiencies/redundancies in the monitoring network or reporting program.
  - (g) A proposal and rationale for any revisions to the groundwater sampling plan frequency and/or list of analytes.
12. A letter transmitting the monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

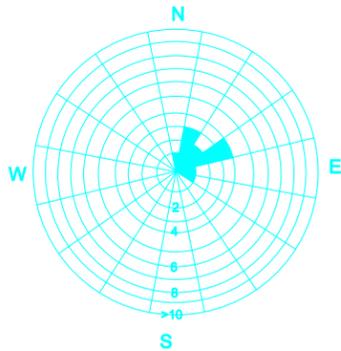
MONITORING AND REPORTING PROGRAM ORDER NO. R5-2015-0012-007-Revised  
APACHE PLASTICS (Former)  
2050 EAST FREMONT STREET, STOCKTON  
SAN JOAQUIN COUNTY

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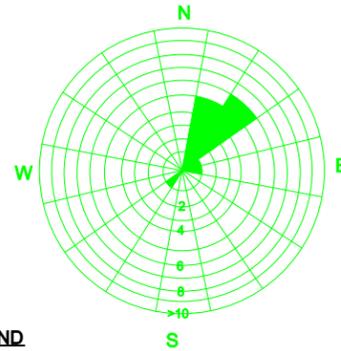
The Discharger shall implement the above monitoring program on the first day of the month following adoption of this Order.

Ordered by: Andrew Altevord  
For Pamela C. Creedon, Executive Officer  
9/18/15  
(Date).

SHALLOW ZONE (40 TO 70 FEET BSG) ROSE DIAGRAM



DEEP ZONE (94 TO 125 FEET BSG) ROSE DIAGRAM



**LEGEND**

- MW-11  

 GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- VEW-1  

 VAPOR EXTRACTION WELL LOCATION AND DESIGNATION
- (MW-12)  

 PROPERLY DESTROYED WELL LOCATION AND FORMER DESIGNATION
- CPT-1  

 APPROXIMATE CPT BORING LOCATION AND DESIGNATION
- CB-2  

 SOIL BORING LOCATION AND DESIGNATION
- MP-1  

 PROPERLY DESTROYED MANOMETER LOCATION AND DESIGNATION
- FORMER SUNLAND GASOLINE GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION (LOCATION APPROXIMATE)
- FORMER SUNLAND GASOLINE SOIL BORING LOCATION AND DESIGNATION (LOCATION APPROXIMATE)
- FORMER SUNLAND GASOLINE CPT BORING LOCATION (LOCATION APPROXIMATE)
- WAREHOUSE ROLL-UP DOORS
- EW-1  

 GROUNDWATER EXTRACTION WELL
- EXISTING DEEP INJECTION WELL LOCATIONS
- DEEP MONITORING WELL LOCATION
- SHALLOW MONITORING WELL LOCATIONS



**SITE PLAN**  
**FORMER APACHE PLASTICS FACILITY**  
**2050 EAST FREMONT STREET**  
**STOCKTON, CALIFORNIA**

**Advanced GeoEnvironmental, Inc.**  
 www.advgeoenv.com  
 PROJECT NO. AGE-NC-1579  
 DATE: OCTOBER 2012  
 FILE: DRAWN BY: MAC  
 FIGURE: 2

