



Central Valley Regional Water Quality Control Board

17 November 2017

Mr. Charles Miller
Moller Investment Group, Inc.
6591 Collins Drive, Suite E-11
Moorpark, CA 93012

CERTIFIED MAIL
7010 0290 0000 8536 1581

NOTICE OF APPLICABILITY, GENERAL ORDER NO. R5-2015-0012 Waste Discharge Requirements General Order for In-Situ Remediation and Discharge of Treated Groundwater to Land, Former USA Service Station No. 91, 1915 Auto Center Drive, Antioch, Contra Costa County

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) received a Report of Waste Discharge Permit Application and Notice of Intent (NOI) submitted on your behalf by ES Engineering Services LLC (ES), on 25 February 2016 for the unauthorized underground storage tank (UST) release located at 1915 Auto Center Drive in Antioch, Contra Costa County (Site). The NOI requested coverage under General Order No. R5-2015-0012, Waste Discharge Requirements *General Order for In-Situ Groundwater Remediation and Discharge of Treated Groundwater to Land* (General Order R5-2015-0012). Central Valley Water Board received the application fee on 21 March 2016 and requested that you provide additional information via emails dated 30 August 2016, 16 February 2017, and 27 February 2017. Based on information in your submittals, Central Valley Water Board staff concluded that the Site meets the requirements of General Order R5-2015-0012. All of the requirements contained in the General Order are applicable to the Site and you are assigned Site specific Order No. R5-2015-0012-018.

Project Location:

The project is in the City of Antioch in Contra Costa County
Assessor's Parcel No. 074-370-006
Latitude 38.0060518° North, Longitude 121.8341719° West

Project Description:

Previous use of a UST system at the Site resulted in petroleum hydrocarbon impact to soil and groundwater. The primary constituents of concern include total petroleum hydrocarbons as gasoline, benzene, toluene, ethylbenzene, and total xylenes (BTEX), methyl tert butyl ether (MTBE), and tert butyl alcohol (TBA). The Site is currently an active gasoline station with a convenience store.

ES began injecting ozone injection at the Site on 3 February 2011, with approval from Central Valley Water Board staff.

For this project, the ES submitted the *Site Status Update, Groundwater Monitoring Schedule and Notice of Intent for Continued Ozone Injection*, dated 25 February 2016.

ES proposes using six (6) injection wells (IW-1A, IW-1B, IW2A, IW-2B, IW-3A, and IW-3B) for ozone injection. Injection will occur continuously at an average rate of 52 grams per hour, with a maximum injection rate of 2 pounds per day (lbs/day). ES's recommended the maximum injection volume based on historic operation levels, which have effectively reduced petroleum hydrocarbon concentrations without generating deleterious byproducts.

There are forty-two (42) existing Site wells associated with this Site, thirty-one (31) existing groundwater monitoring wells, five (5) extraction wells, and six (6) ozone injection wells. The Monitoring and Reporting Program, incorporated with this permit, requires monitoring and sampling of 13 of the 42 wells associated with the UST investigation and cleanup project. Monitoring and reporting of remaining Site wells is under the direction of the lead regulatory agency, the Central Valley Water Board. No additional construction of groundwater monitoring wells is needed or anticipated at this time. The Moller Investment Group, Inc. will be responsible for conducting groundwater sampling, and reporting of the results as described in the attached Monitoring and Reporting Program Order No. R5-2015-0012-018.

ES submitted a Contingency Plan in an email dated 16 February 2017. If concentrations of water quality parameters, listed in the table below, in compliance zone wells exceed action levels (20% above established background concentrations), ozone injection will be stopped. ES will then monitor the treatment zone wells (Wells MW-5A, MW-7P, MW-16A, and MW-31A) on a monthly basis; in the event Cr+6 concentrations remain above action levels for 3 consecutive months, ES will restart the system in oxygen injection mode only. Monitoring of the treatment zone wells will continue on a monthly basis until Cr+6 concentrations diminish to below action levels.

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.

Former USA Service Station No. 91 - Action Levels			
Shallow zone (56 to 68.5 ft. bgs)	Maximum Background Concentration (ug/L)	WQO (ug/L)	Action Level (ug/L)
Bromate	<5.0	10	6
Bromide	2,600	2,300	3,120
Chromium	620	50	744
Hexavalent Chromium	14	10	17

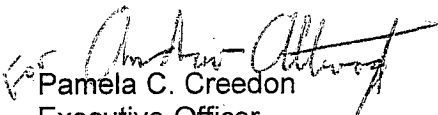
The scope of work for this project is covered by the CEQA documentation for the General Order. Additional CEQA activities are not needed.

No comments were received on the draft Notice of Applicability and draft Monitoring and Reporting Program during the 30-day public comment period from 11 September 2017 to 11 October 2017.

General Information:

1. The project will be operated in accordance with the requirements contained in General Order No. R5-2015-0012 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 rescinded.
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 ozone, 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 the Central Valley Water Board staff.
5. 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.
6. 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.
7. The Responsible Party will implement the Contingency Plan within 30-days of it being triggered.
8. The Responsible Party shall comply with the attached Monitoring and Reporting Program, Order No. R5-2015-0012-018 and any revisions thereto as ordered by the Executive Officer.

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


Pamela C. Creedon
Executive Officer

Attachment: General Order No. R5-2015-0012
Monitoring and Reporting Program No. R5-2015-0012-018

cc: Sriram Iyer, State Water Resources Control Board, UST Cleanup Fund, Sacramento
Jovel Vossler, Regional Water Quality Control Board, Sacramento
Paul Andrews, Contra Costa Hazardous Materials Program, Martinez
Tesoro Sierra Properties, LLC, c/o Property Tax Department 68103, San Antonio
Chris Guesnon, Environ Strategy Consultants, Inc., Orange

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2015-0012-018

FOR
IN-SITU GROUNDWATER REMEDIATION AND DISCHARGE OF
TREATED GROUNDWATER TO LAND
FOR
FORMER USA SERVICE STATION NO. 91
1915 AUTO CENTER DRIVE, ANTIOCH
CONTRA COSTA COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring an in-situ groundwater remediation system for the former USA Service Station No. 91 at 1915 Auto Center Drive, Antioch, California (Site). 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, Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff shall approve specific sample locations prior to implementation of sampling activities.

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

GROUNDWATER MONITORING

1. As shown on Figure 1, there are 41 existing wells, 31 groundwater monitoring wells, four (4) extraction remediation wells, and six (6) injection remediation 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. Monitoring 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 groundwater monitoring 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

Well Number ¹	Constituent ²	Frequency ³	Monitoring Objective
MW-22, MW-28	Suites A and B	Semi-Annually	Compliance Zone ⁴
MW-5A, MW-7P, MW-16A, MW-31A	Suites A and B	Semi-Annually	Treatment Zone ⁵
MW-5P, MW-9, MW-13, MW-26, MW-30A	Suites A and B	Semi-Annually	Transition Zone ⁶
MW-8, MW-18	Suites A and B	Semi-annually	Background ⁷

¹ Well numbers as shown on Figure 1.

² Constituent analytical methods are listed in Table 2.

³ i.e., weekly, monthly, quarterly, semi-annually, annually, other. Semi-annual sampling occurs 1st and 3rd quarters.

⁴ Wells used to determine compliance with water groundwater action levels.

⁵ Wells sampled to evaluate in-situ bioremediation progress inside the treatment zone.

⁶ Wells sampled to evaluate migration of pollutants and byproducts within the transition zone.

⁷ Wells used to develop naturally occurring, background concentrations.

Table 2: Analytical Methods

Constituent	Method ¹	Maximum Practical Quantitation Limit (µg/L) ²
Suite A		
Total Petroleum Hydrocarbons as Gasoline (TPH-G)	EPA 8015/8260	50
Benzene, Toluene, Ethylbenzene, total Xylenes	EPA 8260B	0.50
Methyl tert butyl ether, di-isopropyl ether, tert amyl methyl ether, tert butyl alcohol		
Suite B		
Chromium	EPA 200.8	10.0
Hexavalent Chromium	APHA/EPA 7199 Methods	1.0
Bromide	EPA 300.0	250
Bromate	UV/VIS	1.0

¹ Or an equivalent EPA Method that achieves the maximum Practical Quantitation Limit.

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

FIELD SAMPLING

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

Table 3: Field Sampling Requirements

Parameters	Units	Practical Quantitation Limit	Type of Sample
Groundwater Elevation	Feet, Mean Sea Level	0.01 feet	Measurement
Oxidation Reduction Potential	millivolts	10 millivolts	Grab
Electrical Conductivity	uhmos/cm	50 µS/cm ²	Grab
Dissolved Oxygen	mg/L	0.2 mg/L	Down hole
pH	pH Units (to 0.1 units)	0.1 units	Grab
Water Temperature	Degrees Celsius	0.1 °F/°C	Grab

4. All wells that are purged shall be purged until pH, temperature, conductivity and dissolved oxygen are within 10% of the previous value.
5. 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.
 - d. Field calibration reports are submitted as described in item (b) of the "Reporting" section of this MRP.

IN-SITU DISCHARGE MONITORING

4. The Discharger shall monitor the amendments that are 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 aquifer. Periods when the ozone treatment system is inoperative shall be noted with dates and times in the monitoring report.

Table 4: Discharge Monitoring Requirements

Parameter	Units	Type of Sample
Ozone	pounds per day	Meter

REPORTING

5. When reporting the data, the Discharger 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 Discharger shall notify the Regional Board within 48 hours of any unscheduled shutdown of any soil vapor and/or groundwater extraction system. 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 Regional Board.
6. 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.
7. The Discharger shall submit quarterly electronic data reports, which conform to the requirements of the California Code of Regulations, Title 23, Division 3, Chapter 30. The quarterly reports shall be submitted electronically over the internet to the Geotracker database system by the **30th day of the month following the end of each calendar quarter, each 30 April, 30 July, 30 October, and 30 January**, until such time as site conditions and Regional Board staff determine that modification to the reporting requirements are applicable.

8. Each quarterly 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) Cumulative data tables containing the water quality analytical results and depth to groundwater.
 - f) A copy of the laboratory analytical data report, which may be submitted in an electronic format.
 - g) The status of any ongoing remediation, including an estimate of the cumulative mass of pollutant removed from the subsurface, system operating time, the effectiveness of the remediation system, and any field notes pertaining to the operation and maintenance of the system.
 - h) The reasons for and duration of all interruptions in the operation of any remediation system, and actions planned or taken to correct and prevent interruptions.
 - i) Tabular and graphical summaries of all data obtained during the year.
 - j) Groundwater contour maps and pollutant concentration maps containing all data obtained during the previous year.
 - k) A discussion of the long-term trends in the concentrations of the pollutants in the groundwater monitoring wells.
 - l) An analysis of whether the pollutant plume is being effectively treated.
 - m) 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.
 - n) An identification of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.
 - o) A proposal and rationale for any revisions to the groundwater sampling plan frequency and/or list of analytes, if needed.
9. 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

MONITORING AND REPORTING PROGRAM ORDER NO. R5-2015-0012-018
FORMER USA SERVICE STATION NO. 91
1915 AUTO CENTER DRIVE,
ANTIOCH, CONTRA COSTA COUNTY

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Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

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

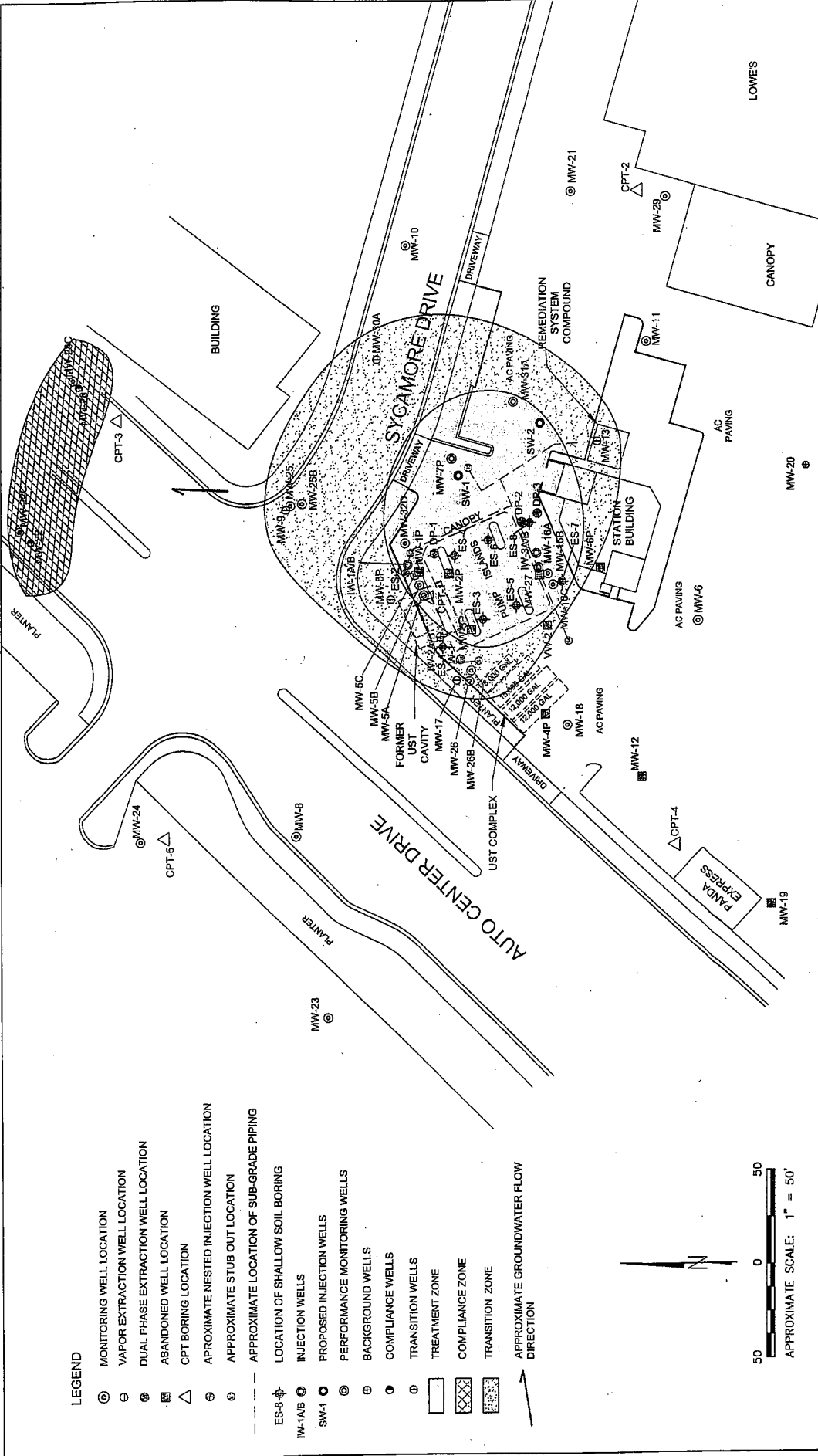
Ordered by:



For PAMELA C. CREEDON
Executive Officer

11/20/17

(Date)



LEGEND

- ⊙ MONITORING WELL LOCATION
- ⊖ VAPOR EXTRACTION WELL LOCATION
- ⊕ DUAL PHASE EXTRACTION WELL LOCATION
- ⊘ ABANDONED WELL LOCATION
- △ CPT BORING LOCATION
- ⊕ APPROXIMATE NESTED INJECTION WELL LOCATION
- ⊖ APPROXIMATE STUB OUT LOCATION
- APPROXIMATE LOCATION OF SUB-GRADE PIPING
- ES-4-4 LOCATION OF SHALLOW SOIL BORING
- IM-1A/B INJECTION WELLS
- SW-1 PROPOSED INJECTION WELLS
- ⊕ PERFORMANCE MONITORING WELLS
- ⊖ BACKGROUND WELLS
- ⊕ COMPLIANCE WELLS
- ⊖ TRANSITION WELLS
- TREATMENT ZONE
- ▨ COMPLIANCE ZONE
- ▩ TRANSITION ZONE
- APPROXIMATE GROUNDWATER FLOW DIRECTION



DATE DRAWN
10/28/2016

PROJECT NO.
733

FILE NO.
733F1-TWDL

FIGURE 1
TREATED WATER DISCHARGE COMPLIANCE
MONITORING LOCATIONS

Former USA Service Station No. 91
1915 Auto Center Drive
(Formerly 1915 Somerville Road)
Antioch, California

environmental services
ES Engineering Services, LLC
1035 W. 16th Avenue - Orange, CA 92665 - (714) 919-9500

SOURCE: STRATUS 2011

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