July 31, 2019

Ms. Barbara Savarino
The Savarino Family Trust
8367 Barton Road
Granite Bay, CA 95746

NOTICE OF APPLICABILITY OF GENERAL ORDER NO. R5-2015-0012-055, SAVARINO FAMILY TRUST PROPERTY, 1876 STOCKTON BOULEVARD, SACRAMENTO, SACRAMENTO COUNTY

The Savarino Family Trust submitted a completed Notice of Intent, dated February 22, 2019, requesting coverage under Order No. R5-2015-0012, *Waste Discharge Requirements General Order for In-situ Groundwater Remediation and Discharge of Treated Groundwater to Land*. Based on information in the submittal, it is our determination that this project meets the required conditions to be approved under Order No. 2015-0012. All of the requirements contained in the general order are applicable to this project. The project is assigned Order No. R5-2015-0012-055.

Project Location:

The project is in Sacramento County, Township 8N, Range 5E, Section 8, Mount Diablo Baseline & Meridian. Assessor's Parcel Numbers 010-0072-028, 010-0072-031; Latitude 38°33'40" N, Longitude 121°27'51"W.

Project Description:

The Savarino Family Trust property is located on the southwest side of Stockton Boulevard, east of 35th Street and north of Highway 50 in Sacramento. The property is currently occupied by an automotive maintenance and repair business. Leaks and spills of trichloroethene formerly used at the property contaminated soil and groundwater beneath the property.

Soil beneath the site is generally fine grained. The shallow water-bearing unit includes sand and silty sand lenses located at depths between 25 and 37 feet deep and at 55 and 58 feet deep. Depth to groundwater is approximately 25 feet deep. The primary constituent of concern at the site impacting groundwater is trichloroethene. The highest concentrations of trichloroethene are located in shallow groundwater beneath the southwest edge of the property and extend beneath and across 35th Street to the west.

The in-situ groundwater remediation project consists of injecting a slurry solution of ELS™ with zero valent iron plus SDC-9 into the groundwater to treat concentrations of trichloroethene and cis-1,2-dichloroethene. ELS™ is a lecithin-based micro emulsion composed of complex organic carbon used to enhance biological reduction of contaminants. Another similar amendment, EDS-ER™ plus KB-1, is also being considered instead of ELS™ plus SDC-9. Zero valent iron can chemically reduce trichloroethene and cis-1,2-dichloroethene. SDC-9 and KB-1 bioaugmentation cultures are microbial consortiums capable of biologically degrading trichloroethene and cis-1,2-dichloroethene. Up to 34,000 pounds of ELS™ and 82,000 pounds of zero valent iron may be injected using direct push tooling into the groundwater within the areas shown on Figure 2 of the attached Groundwater Monitoring and Reporting Program.

The Central Valley Water Board circulated a fact sheet describing the project. One comment was received from the California Department of Transportation (Caltrans), which owns nearby property where some of the injections are planned. Caltrans requested that the injections be conducted to reduce the likelihood of pushing groundwater containing trichloroethene further onto the Caltrans property. To address this request, the Savarino Family Trust will start with injection locations on the Caltrans property when and where possible to balance injections conducted on the Savarino Family Trust property. The Savarino Family Trust will be conducting sampling and reporting the results as described in the attached Groundwater Monitoring and Reporting Program.

General Information:

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 completed 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. Injection of materials other than ELS™, EDS-ER™, zero valent iron, SDC-9, KB-1 and water into the subsurface is prohibited.

4. 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.

5. The Savarino Family Trust shall comply with the attached Monitoring and Reporting Program, Order No. R5-2015-0012-055 and any revisions thereto as ordered by the Executive Officer.

If you have any questions regarding this matter, please call Nathan Casebeer at (916) 464-4665.

ORIGINAL SIGNED BY ANDREW ALTEVOGT FOR

PATRICK PULUPA

Executive Officer

Attachment

cc: Ms. Della Kramer, Regional Water Quality Control Board, Rancho Cordova
Mr. Brian Silva, GHD, Rancho Cordova

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2015-0012-055

FOR
IN-SITU GROUNDWATER REMEDIATION
AND DISCHARGE OF TREATED GROUNDWATER TO LAND

SAVARINO FAMILY TRUST PROPERTY
1876 STOCKTON BOULEVARD
SACRAMENTO, SACRAMENTO COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring groundwater remediation for the Savarino Family Trust property. 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 material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form.

GROUNDWATER MONITORING

As shown on Figure 2, there are 7 monitoring wells (MW-1 through MW-7) associated with this site. Two monitoring wells included in this MRP, MW-10 and MW-12, are owned by Caltrans at 3400 R Street. Use of MW-10 and MW-12 is subject to access provided by Caltrans. 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. Sample collection and analysis shall follow standard EPA protocol. The monitoring wells shall be sampled according to the schedule in Table 1, as follows:

Table 1: Sampling Frequency and Constituent Suite

Well Number	Constituent	Frequency	Monitoring Objective
MW-12	Volatile Organic Compounds analyzed by EPA Method 8260B	Quarterly	Compliance wells used to determine compliance with groundwater limitations.
MW-4, MW-5	Volatile Organic Compounds analyzed by EPA Method 8260B	Quarterly	Treatment Zone wells sampled to evaluate in-situ bioremediation progress inside the treatment zone.
MW-6, MW-10	Volatile Organic Compounds analyzed by EPA Method 8260B	Quarterly	Transition Zone well sampled to evaluate migration of pollutants from the treatment zone.
MW-1, MW-2, MW-3, MW-7	Volatile Organic Compounds analyzed by EPA Method 8260B	Quarterly	Background wells used to develop background concentrations.

FIELD SAMPLING

In addition to the above sampling and laboratory analyses, field sampling and analysis shall be conducted each time a monitoring well or extraction well is sampled. The sampling and analysis of field parameters shall be as specified in Table 2.

Table 2: Field Sampling Requirements

Parameters	Units	Practical Quantitation Limit	Analytical Method
Groundwater Elevation	Feet, Mean Sea Level	0.01 feet	Measurement
Oxidation-Reduction Potential	Millivolts	10 millivolts	Field Meter
Electrical Conductivity	uhmos/cm	50 µS/cm[2]	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	°F/°C	0.1 °F/°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.

Field test instruments (such as those used to test pH and dissolved oxygen) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are calibrated prior to each monitoring event;

3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in item (b) of the “Reporting” section of this MRP.

IN-SITU DISCHARGE MONITORING

The Discharger shall monitor daily the discharge of water and amendments that are injected into the groundwater according to the requirements specified in Table 3. Each amendment addition shall be recorded individually, along with information regarding the time period over which the amendment was injected into the aquifer.

Table 3: Discharge Monitoring Requirements

Parameters	Units	Type of Sample
Injected Volume	gallons per day	Meter
Amendment(s) Added	pounds per day	Measured

AMENDMENT ANALYSIS

Prior to use, amendments shall be analyzed for the constituents listed in Table 4 using the listed method or an equivalent EPA Method that achieves the maximum Practical Quantitation Limit. The analysis should be done on a mixture of the amendment and deionized water at the estimated concentration that would be injected during the pilot project. All concentrations between the Method Detection Limit and the Practical Quantitation Limit shall be reported, and reported as an estimated value.

Table 4: Amendment Analytical Requirements

Constituent	Method	Maximum Practical Quantitation Limit (ug/L)
Volatile Organic Compounds	EPA 8260B	0.5
General Minerals including alkalinity, bicarbonate, potassium, chloride, sulfate, total hardness, nitrate, nitrite, ammonia.	Various	Various
Metals, Total and Dissolved, including arsenic, barium, cadmium, calcium, total chromium, copper, iron, lead, manganese, magnesium, mercury, molybdenum, nickel, selenium and silica.	EPA 200.7, 200.8	Various
Semi-Volatile Organic Compounds	EPA 8270	5.0
Total Dissolved Solids	EPA 160.1	10,000
pH	meter	Not Applicable
Electrical Conductivity	meter	Not Applicable

REPORTING

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 Central Valley Water 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 Central Valley Water Board.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all reports shall be prepared by a registered professional Civil Engineer or Geologist or their subordinate and signed by the registered professional.

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 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 calendar quarter by **1 February, 1 May, 1 August, and 1 November**, until such time as the Executive Officer determines that the reports are no longer necessary.

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, if applicable;

(d) pollutant concentration maps for all groundwater zones, if applicable;

(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 (if applicable) 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;

(i) A discussion of the long-term trends in the concentrations of the pollutants in the groundwater monitoring wells;

(j) An analysis of whether the pollutant plume is being effectively treated;

(k) 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;

(l) The status of any ongoing remediation, including an estimate of the cumulative mass of pollutant removed from or treated in the subsurface, system operating time, the effectiveness of the remediation system, and any field notes pertaining to the operation and maintenance of the system; and

(m)If applicable, 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.

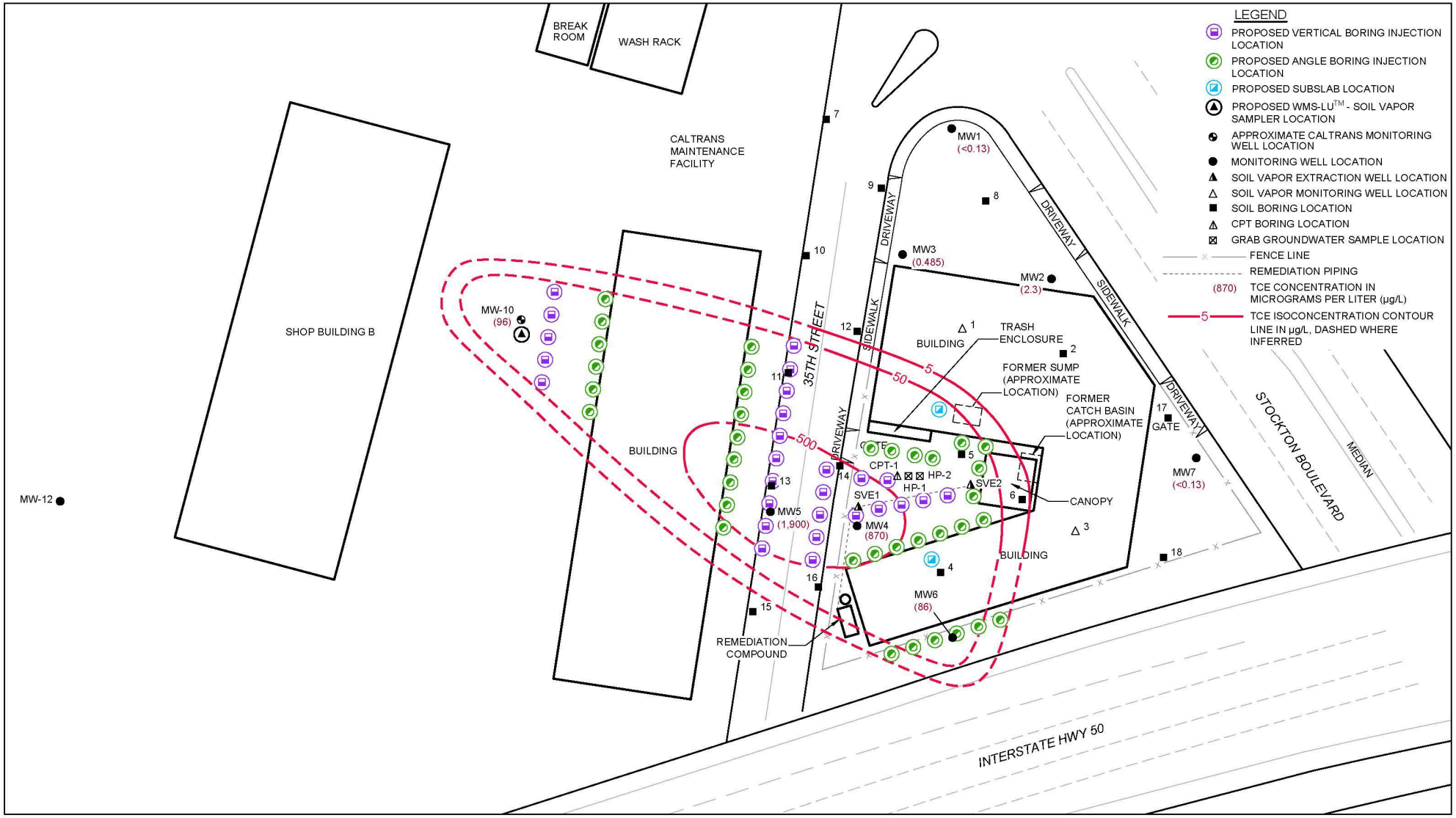
A letter transmitting the monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger 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.

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

Ordered by: _____
PATRICK PULUPA Executive Officer

_____
(Date)



Source: Microsoft Product Screen Shot(s) Reprinted with permission from Microsoft Corporation, Acquisition Date [unknown], Accessed: 2018. WallaceKuhl & Associates Site Plan dated 1/12. Geocon Consultants, Inc. Groundwater Elevation Map - October 2016 dated 4/2017. WallaceKuhl & Associates Site Plan dated 1/12 and Figure 6 TCE Concentration at 7 to 8 Feet BGS dated 11/08. ERM Site Plan dated 4/14.

0 20 40ft

Coordinate System: California State Plane Zone 2 CA83-IIF

SAVARINO FAMILY TRUST
1876 STOCKTON BOULEVARD
SACRAMENTO, CALIFORNIA

11119152-2019
Mar 1, 2019

PROPOSED REMEDIAL INJECTION BORING LOCATIONS

FIGURE 2

CAD File: I:\Sonoma.Public\CAD\drawings\11110000s\11119152\11119152-REPORTS\11119152-2019(010)GN\11119152-2019(010)GN-SO002.DWG