CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

[TENTATIVE] MONITORING AND REPORTING PROGRAM NO. R5-2015-0012-XXXX

FOR

IN-SITU GROUNDWATER REMEDIATION
AND DISCHARGE OF TREATED GROUNDWATER TO LAND
FORMER DINUBA CLEANERS
331 EAST TULARE STREET, DINUBA, CALIFORNIA

This Monitoring and Reporting Program (MRP) describes requirements for monitoring a groundwater remediation system for Haden Company, Inc. (Discharger) at a former dry cleaner facility (Site) located at 331 East Tulare Street, Dinuba, California. 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 groundwater sample shall be recorded on the sample chain of custody form.

GROUNDWATER MONITORING

Figure 1 shows the location of the Site. Figure 2 shows existing monitoring wells, proposed monitoring well locations, and proposed direct-push boring locations into which substances will be discharged for in-situ groundwater remediation activities. Monitoring and sampling of these wells and any additional wells installed for the purposes of monitoring the groundwater remediation system subsequent to the issuance of this MRP shall follow the schedule in Table 1 and the samples shall be analyzed by the methods in Table 2. Sample collection and analysis shall follow standard U.S. EPA protocol. Currently, semi-annual groundwater monitoring is performed at the Site, which needs to continue in addition to the requirements herein. When concurrent sampling for both monitoring programs can meet requirements, a single report can satisfy both reporting objectives.

Table 1: Sampling Frequency

Well Number (See 1 Below)	Constituent (See 2 Below)	Frequency (See 7 Below)	Monitoring Objective
MW-2, MW-26C, MW-38C	See Table 2	Quarterly	Background (See 3 Below)
MW-7, MW-45D, PMW-1 Shallow, PMW-1 Deep, PMW-2 Shallow, PMW-2 Deep	See Table 2	Quarterly	Treatment Zone (See 4 Below)
MW-9, MW-11	See Table 2	Quarterly	Transition Zone (See 5 Below)
MW-4, MW-12	See Table 2	Quarterly	Compliance (See 6 Below)

(1) Well numbers as shown on Figure 2.
(2) Constituent suite listed in Table 2.
(3) Wells sampled to develop background concentrations.
(4) Wells sampled to evaluate in-situ remediation progress inside the treatment zone.
(5) Wells sampled to evaluate migration of pollutants within the transition zone.
(6) Wells sampled to determine compliance groundwater limitations.
(7) Samples shall be collected monthly for the first 3 months, and quarterly thereafter.

Table 2: Analytical Methods

Constituent	Method (See 1 Below)	Maximum Practical Quantitation Limit (ug/L) (See 2 Below)
Total Fe	Colorimetric HACH Method or EPA 6000 series with filtered and unfiltered samples	30
Total Mn		
Dissolved Fe		
Dissolved Mn		
Sulfate	EPA 375.3 or EPA 9056	200
Sulfide	EPA 376.1	30
Nitrate	EPA 353.1 or EPA 9056	300
Total Organic Carbon	EPA 415.1 or EPA 9060	300
Alkalinity	EPA 310.2	300
Chloride	EPA 300	300
Methane, Ethane, Ethene, CO2	ASTM D1945	0.1

(1) Or an equivalent U.S. EPA or Standard Methods that achieves the maximum Practical Quantitation Limit.
(2) For constituents not detected. All concentrations between the Method Detection Limit and the Practical Quantitation Limit shall be reported as an estimated value. The units of measurement listed are micrograms per liter (ug/L).

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 3.

Table 3: Field Sampling

Parameters	Units	Practical Quantitation Limit	Method
pH	pH Units	0.1 units	Field Meter
Water Temperature	ºF	0.1 ºF	Field Meter
Electrical Conductivity	µhmos/cm	50 µS/cm	Field Meter
Dissolved Oxygen	mg/L	0.2 mg/L	Field Meter
Oxidation Reduction Potential	Millivolts	10 millivolts	Field Meter
Groundwater Elevation	Feet, Mean Sea Level	0.01 Feet	Measurement

All wells that are purged shall be purged until pH, temperature, electrical conductivity and dissolved oxygen are within approximately 10% of the previous value. The units of measurement for electrical conductivity is micromhos per centimeter (µhmos/cm) and for dissolved oxygen is milligrams per liter (mg/L).

Field meter usage must include:

1. Operator training in proper use and maintenance of the instruments;
2. Instrument calibration in accordance with the manufacturer's specifications prior to each monitoring event;
3. Instrument service and/or calibration by the manufacturer at the recommended frequency; and
4. Submittal of field calibration reports 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 4. Each amendment addition shall be recorded individually, along with information regarding the time period over which the amendment was injected into the aquifer.

Table 4: Discharge Monitoring Requirements

Parameters	Units	Type of Sample
Injected Water Volume	Gallons per day/per injection area	Meter
Amendments(s) added	Pounds per day/per injection area	Measured

AMENDMENT ANALYSIS

Prior to use, amendments shall be analyzed for the constituents listed in Table 5. 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 test.

Table 5: Amendment Analytical Requirements

Constituents	Method (See 1 Below)	Maximum Practical Quantitation Limit (µg/L) (See 2 Below)
Volatile Organic Compounds	EPA 8020 or 8260B	0.5
General Minerals (See 3 Below)	Various	Various
Metals, Total and Dissolved (See 4 Below)	EPA 200.7, 200.8	Various
Semi-Volatile Organic Compounds	EPA Method 8270	5
Total Dissolved Solids	EPA 160.1	10,000
pH	Meter	NA
Electrical Conductivity	Meter	NA

(1) Or an equivalent U.S. 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 an estimated value.
(3) General Minerals include: alkalinity, bicarbonate, potassium, chloride, sulfate, total hardness, nitrate, nitrite, and ammonia.
(4) Metals include arsenic, barium, cadmium, calcium, total chromium, copper, iron, lead, manganese, magnesium, mercury, molybdenum, nickel, selenium and silica.

ESTABLISHMENT OF BACKGROUND CONCENTRATION VALUES

The Discharger shall develop background groundwater values for all constituents listed in Table 2 and Table 3, following the procedures found in the California Code of Regulations section 20415(e)(10). The Discharger shall conduct a baseline sampling event in which all groundwater monitoring wells are sampled prior to implementation of the groundwater remediation. Ongoing monitoring for changes in background concentrations shall be evaluated by conducting sampling wells in accordance with the schedule in Table 1.

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 MRP. The results of any monitoring done more frequently than required at the locations specified in this MRP 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 quarterly 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 for the first four quarters. Following the first year of data collection, the frequency of data submittals becomes semi-annually until such time as the Executive Officer determines that the reports are no longer necessary.

Each quarterly and 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, and show and when samples were collected;
(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, calibration of field instruments, 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) gradients;
(g) cumulative data tables containing the water quality analytical results and depth to groundwater; and
(h) a copy of the laboratory analytical data report;

An Annual Report shall be submitted to the Central Valley Water Board by 1 February (1 November for semi-annual monitoring) of each year. This report shall contain an evaluation of the effectiveness and progress of the pilot test. The Annual Report may be substituted for the fourth quarter (or second semi-annual) monitoring report as long as it contains all of the information required for that report plus that required for the Annual 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; an identification of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program;
(f) an identification of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program; and
(g) if desired, a proposal and rationale for any revisions to the groundwater sampling plan frequency and/or list of analytes.

A letter transmitting the monitoring reports shall accompany each report. Such 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 pilot test 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:

> "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."

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

Ordered by:

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FOR PATRICK PULUPA
Executive Officer

_____

Date

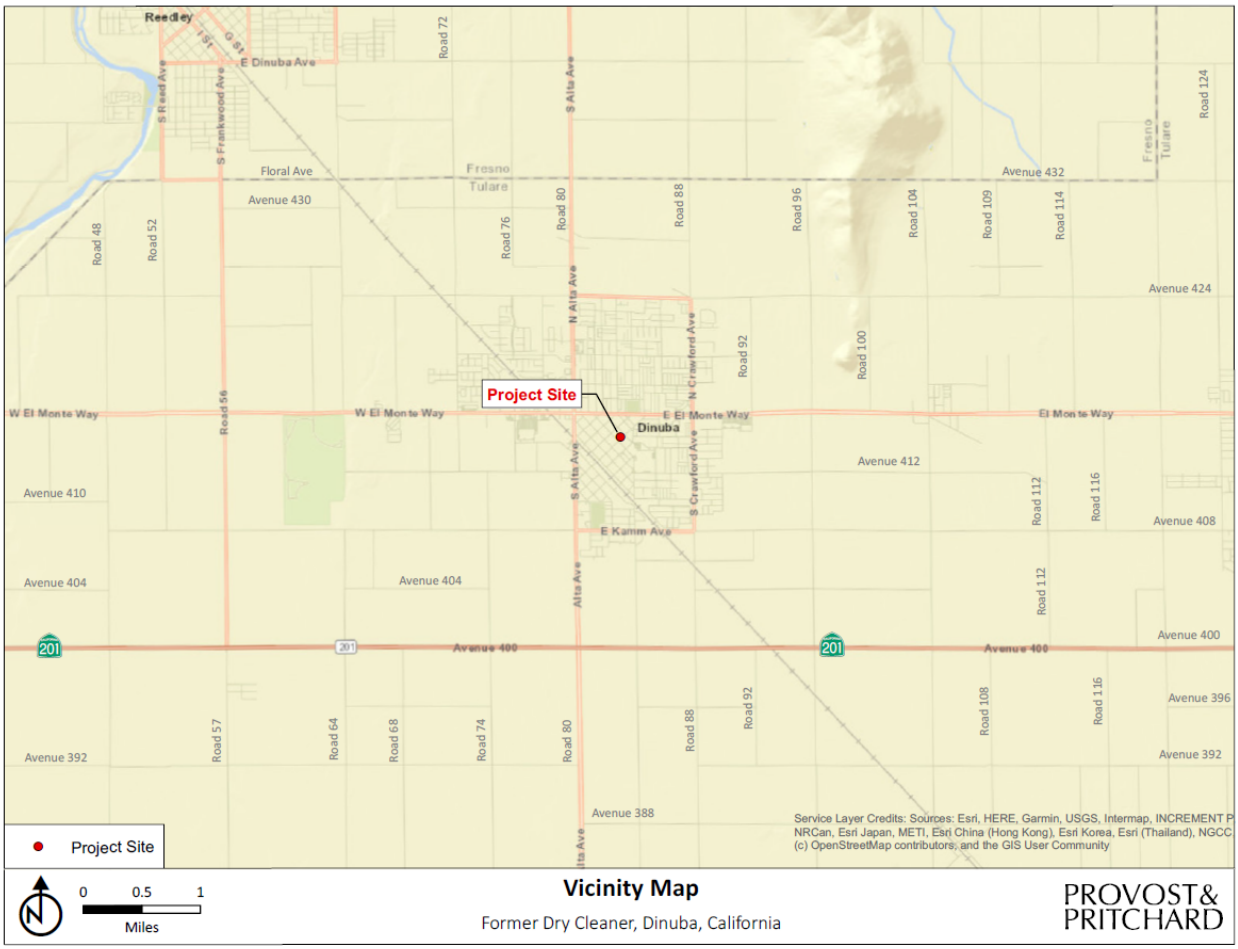

Figure 1:Site Location

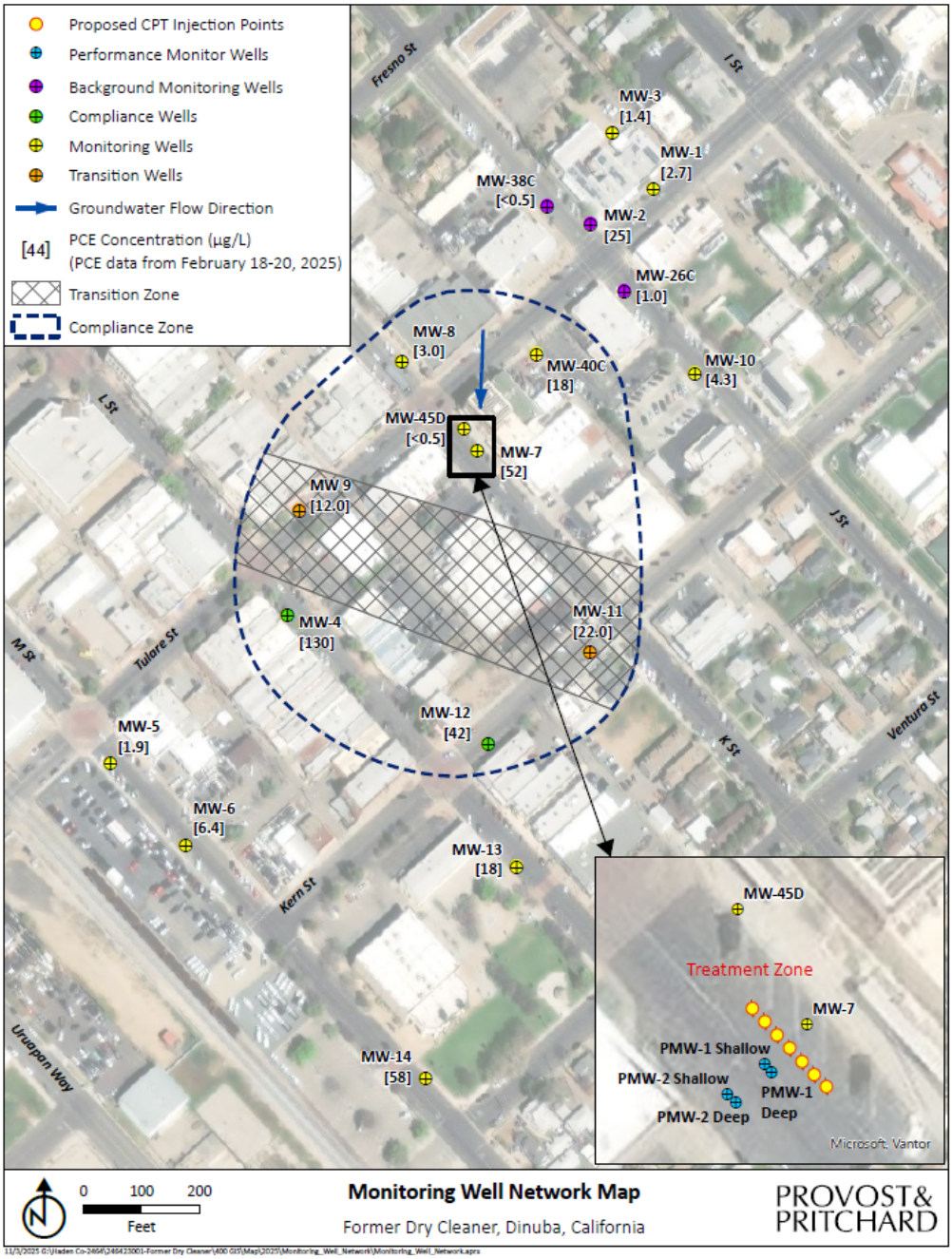

Figure 2: Monitoring Well Network