

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

WASTE DISCHARGE REQUIREMENTS ORDER R5-2015-0136  
FOR  
UNIVAR USA INC.  
IN-SITU CHEMICAL OXIDATION GROUNDWATER REMEDIATION PROJECT  
1152 G STREET, FRESNO  
FRESNO COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Central Valley Water Board), finds that:

1. Univar USA Inc. (Discharger) submitted a Report of Waste Discharge (ROWD) on 16 February 2015 for an in-situ groundwater treatment system to treat tetrachloroethene-contaminated groundwater at and downgradient of the former Van Waters and Rogers site at Fresno and G Streets, Fresno, Fresno County. The Discharger submitted the document *Full Scale ISCO Workplan* dated February 2015. Univar will be constructing and operating the remediation systems. The Union Pacific Railroad, the City of Fresno, and the California High Speed Rail Authority are the owners of the land on which the system will be constructed.
2. The project will be constructed at 1152 G Street in Fresno, on Union Pacific Railroad and California High Speed Rail property to the northwest of 1152 G Street, on City of Fresno property to the northeast of the railroad tracks, and on City of Fresno right-of-ways downgradient of 1152 G Street (collectively referred to as the "Site"). The project site plan is shown on Attachment A, which is attached hereto and made part of this Order by reference.

**BACKGROUND**

3. Univar leased the property at 1152 G Street from approximately 1965 to 1986. An aboveground storage tank located at the northeast corner of the Site was used for storing tetrachloroethene. The tank was removed in the mid 1980's.
4. The 1152 G Street property was occupied by a chemical supply company known as United Agri-Products (UAP) from 1987 to 1989. The property was not used for chemical mixing or repackaging. Beginning in 1989, the property was leased to the Good Guys Tire Center for use as a warehouse for storage of tires. Currently the property is unoccupied but will be developed by the California High Speed Rail Authority in the near future.
5. Numerous assessments have been conducted at the Site. Tetrachloroethene was detected at high concentrations in soil and groundwater at the Site. A soil vapor extraction system (SVE) was operated at the Site from 1998 to 2003. During operation of the SVE system, the concentration of PCE in on-site groundwater declined from 14,000 micrograms per liter (ug/L) in 1998 to 280 ug/L in 2005.
6. The SVE system was upgraded and moved off-site in 2009 to the vicinity of monitoring well MW-4, where it is currently operating. Vapors are extracted from up to nine wells, extending northwest from well MW-4.

7. Groundwater assessments indicate that impacted groundwater has migrated approximately 1,500 feet to the north and 1,800 feet to the west. The maximum concentration of tetrachloroethene in November 2014 was 940 micrograms per liter in well VW-05. Tetrachloroethene has been detected as deep as 250 feet below ground surface (bgs). Tetrachloroethene concentrations below the State of California maximum contaminant level for drinking water of five micrograms per liter have been detected in City of Fresno well 22A, 1,800 feet west of the Site.

### **HYDROLOGY, GEOLOGY, AND LAND USE**

8. Groundwater beneath the Site is encountered at depths of 100 to 110 feet bgs. Groundwater in the vicinity of the Site is of good inorganic constituent quality, with water from nearby City of Fresno well 22A having a total dissolved solids concentration of approximately 330 milligrams per liter (mg/L), a chloride concentration of 22 mg/L, and a sodium concentration of 27 mg/L.
9. Boring logs from site investigations indicate that soils encountered at the Site consist predominantly of silt and clay from the surface to a depth of approximately 20 feet bgs, and alternating layers of poorly graded sand, silty sand, and clay to a depth of approximately 50 feet bgs. Soils encountered below 50 feet bgs to about 80 feet bgs consists of alternating layers of silt and sandy silts and, below 80 feet bgs to 90 feet bgs, the soil becomes more permeable and consists predominantly of sand.
10. Historical groundwater flow near the Site was predominantly to the north-northwest. More recent groundwater elevation data have indicated a shift towards the west. The apparent westerly shift in the groundwater flow direction appears to be influenced by the operation of City well 22A, located northwest of the Site. Shallow groundwater flow at the Site was to the west/southwest in November 2014 and the downward gradient ranged from 0.002 ft/ft to 0.05 ft/ft.

### **PROPOSED REMEDIATION SYSTEM**

11. The Discharger proposes to remediate groundwater by in-situ chemical oxidation. Potassium permanganate will be injected directly into groundwater. Potassium permanganate breaks the bonds between the carbon atoms in tetrachloroethene and dechlorinates the individual molecules, resulting in the production of carbon dioxide.
12. The proposed groundwater remediation system is composed of three zones, a treatment zone, a transition zone, and a compliance zone. The proposed remediation system locations are shown on Attachment A. An estimated minimum of fifteen injection wells will be installed in the treatment zone. Potassium permanganate will be injected in the wells and allowed to move downgradient until it is consumed. The California High Speed Rail line is projected to be built on at least a portion of the Site. If that project proceeds, locations of wells and equipment may need to be adjusted. If adjustments in locations of wells and/or equipment within 300 feet of currently proposed locations are needed, a report needs to be submitted to the Executive Officer proposing the new location(s) and including justification for the requested change(s).
13. The potassium permanganate solution will be mixed onsite using water and dry, bulk, solid potassium permanganate. It is anticipated that RemOxS, a proprietary potassium permanganate will be used. Approximately 30,400 pounds of potassium permanganate will be

required to treat the target area. It will be injected in a solution no stronger than 2.5 percent potassium permanganate by weight. It is anticipated that approximately 14,500 gallons of 2.5 percent potassium permanganate solution will be injected into each of the wells.

14. The majority of potassium permanganate is expected to be consumed prior to migration to the transition zone. Some residual oxidant may migrate into this zone but it is anticipated that all oxidant will be consumed prior to migration to the compliance zone.
15. The upgradient portion of the compliance zone is approximately 1,600 feet from the nearest City of Fresno supply well. Numerous monitoring wells are located throughout the compliance zone between the area to be treated and the City of Fresno supply well. If potassium permanganate is detected in any compliance well, the data will be analyzed and an effective method of arresting further downgradient oxidant migration instigated. It is noted that the estimated time required for groundwater to migrate from the treatment zone to the City of Fresno well is 20 or more years.

### REGULATORY CONSIDERATIONS

16. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition, revised January 2004* ("Basin Plan") designates beneficial uses, establishes narrative and numerical water quality objectives, contains implementation plans and policies for protecting all waters of the Basin, and incorporates, by reference, plans and policies of the State Water Board. In accordance with section 13263(a) of the Water Code, these requirements implement the Basin Plan.
17. The Site is in Detailed Analysis Unit (DAU) 233, within the Kings Basin hydrologic unit. The Basin Plan identifies the beneficial uses of groundwater as municipal and domestic supply, agricultural supply, industrial service supply, industrial process supply, and water contact and non-contact water recreation.
18. The Basin Plan establishes numerical and narrative water quality objectives for surface water and groundwater within the basin, and recognizes that water quality objectives are achieved primarily through the Board's adoption of waste discharge requirements and enforcement orders. Where numerical water quality objectives are listed, these are limits necessary for the reasonable protection of beneficial uses of the water. Where compliance with narrative water quality objectives is required, the Board will, on a case-by-case basis, adopt numerical limits in orders, which will implement the narrative objectives to protect beneficial uses of the waters of the state.
19. The Basin Plan identifies numerical water quality objectives for waters designated as municipal supply. These are the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of section 64431, Table 64444-A (Organic Chemicals) of section 64444, and Table 64449-A (Secondary Maximum Contaminant Levels- Consumer Acceptance Limits) of section 64449. The Basin Plan's incorporation of these provisions by reference is prospective, and includes future changes to the incorporated provisions as the changes take effect. The Basin Plan recognizes that the Board may apply limits more stringent than MCLs to ensure that

waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

20. The Basin Plan contains narrative water quality objectives for chemical constituents, tastes and odors, and toxicity. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants or animals. The chemical constituent objective requires that groundwater shall not contain chemical constituents in concentrations that adversely affect beneficial uses. The tastes and odors objective requires that groundwater shall not contain tastes or odors producing substances in concentrations that cause nuisance or adversely affect beneficial uses.
21. This Order addresses water quality as it relates to the chemicals being injected, as well as the byproducts and breakdown products produced by the reactions of the injectants, chemicals being treated and geological materials. As discussed above, chemicals are injected to stimulate reduction in concentrations of the target waste constituent and the target waste constituent may undergo a series of transformations to other constituents as it degrades. The injected chemical itself may leave residuals of its components, as well as cause changes in groundwater chemistry that liberate metals found in the formation materials.

Background/baseline concentrations of metals and total dissolved solids will be established pursuant to the attached Monitoring and Reporting Program. The applicable WQOs are the narrative toxicity objective, Primary and Secondary Maximum Contaminant Levels, and the narrative taste and odor objective as found in the Basin Plan. The following Table presents numerical WQOs and numerical limits that implement narrative WQOs for waste constituents of concern at the Site:

<b>Constituent</b>	<b>WQO/Limit</b>	<b>Reference</b>
trichloroethene	5 µg/L	Primary Maximum Contaminant Level
tetrachloroethene	5 µg/L	Primary Maximum Contaminant Level
vinyl chloride	2 µg/L	Primary Maximum Contaminant Level
cis 1,2-dichloroethene	6 µg/L	Primary Maximum Contaminant Level
1,2-dichloroethene	10 µg/L	Primary Maximum Contaminant Level
1,2-dichloroethane	0.5 µg/L	Primary Maximum Contaminant Level
1,1-dichloroethene	6 µg/L	Primary Maximum Contaminant Level
1,1-dichloroethane	5 µg/L	California Public Health Goal
1,2,3-trichloropropane	0.0007µg/L	California Public Health Goal
1,2-dichloropropane	5 µg/L	Primary Maximum Contaminant Level
1-chloropropane	280 µg/L	IRIS
propene	28 µg/L	Taste and Odor
iron	300 µg/L	Secondary Maximum Contaminant Level
ethane	7500 µg/L	Taste and Odor
manganese	50 µg/L	Secondary Maximum Contaminant Level
hexavalent chromium	10 µg/L	Primary Maximum Contaminant Level
total chromium	50 µg/L	Primary Maximum Contaminant Level
total dissolved solids	500 mg/L	Secondary Maximum Contaminant Level

sulfate	250 mg/L	Secondary Maximum Contaminant Level
bromate	10 µg/L	Primary Maximum Contaminant Level
chloride	250 mg/L	Secondary Maximum Contaminant Level

22. The action to adopt these Waste Discharge Requirements is exempt from the provisions of the California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.) because it: (1) authorizes activity that will result in a minor modification to land (Cal. Code Regs., tit. 14, §15304); (2) consists of an action by a regulatory agency authorizing actions for the protection of the environment (Cal. Code Regs., tit. 14, §15308); and (3) authorizes a small or medium action costing \$1 million or less that is taken to prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release of a hazardous waste or substance (Cal. Code Regs., tit. 14, §15330).

23. The discharge is exempt from the requirements of *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, set forth in the Title 27 of the California Code of Regulations (hereafter "Title 27") pursuant to Subsections 20090(b) and 20090(d) of Title 27.

The discharge authorized by these WDRs is exempt from Title 27 pursuant to Subsection 20090(b) because:

- a. The Central Valley Water Board is issuing these waste discharge requirements;
- b. The discharge is in compliance with the applicable Basin Plan; and
- c. The wastewater does not need to be managed as a hazardous waste, as defined by California Code of Regulations, title 22, sections 66261.1 et seq.

The discharge authorized by these WDRs is exempt from Title 27 pursuant to Subsection 20090(d) because:

- a. The application of amendments to groundwater is at the direction of the Regional Water Board to cleanup and abate conditions of pollution or nuisance resulting from the unauthorized discharge of waste.
- b. Wastes removed from the immediate place of release must be discharged according to the Title 27 regulations; and
- c. The cleanup actions intended to contain wastes at the place of release shall implement the Title 27 regulations to the extent feasible.

24. Water Code section 13267(b) provides that:

"In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge within its region ... shall furnish under penalty of perjury, technical or monitoring program reports which the Regional Board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring these reports, the Regional Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."

The technical reports required by this Order and the attached Monitoring and Reporting Program are necessary to assure compliance with this Order.

25. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells, as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards implemented by the Regional Water Board or adopted by the local county where the Site is located pursuant to Water Code section 13801 apply to all monitoring and injection wells.
26. Section 3020(b)(2) of the Resource Conservation and Recovery Act (RCRA) states that, prior to injection into or above an underground source of drinking water, contaminated groundwater shall be "...treated to substantially reduce hazardous constituents prior to such injection." In a letter dated 10 December 1999, the United States Environmental Protection Agency, Office of Solid Waste and Emergency Response (OSWER) states, "if extracted groundwater is amended at the surface (i.e., "treated") before reinjection, and the subsequent in-situ bioremediation achieves a substantial reduction of hazardous constituents the remedy would satisfy section 3020(b)(2)." The injection of groundwater within the treatment zone in compliance with this Order, with or without the treatment for the constituents of concern, complies with section 3020(2)(b) of RCRA.
27. Water Code section 13307.5 prescribes specific public participation requirements that the Board must follow when the Board approves a cleanup proposal submitted by a primary or active discharger who has been issued an order pursuant to Water Code section 13304. Although these WDRs do not exactly constitute such a cleanup proposal, the Board's process for issuing WDRs substantively complies with the requirements of Water Code section 13307.5 because these WDRs will be circulated to affected or potentially affected property owners, local government entities will be apprised of the Board's intention to issue these WDRs, a comment period of at least 30 days will be provided, and the Board will approve these WDRs in a public meeting after considering all relevant comments.

### **Antidegradation Analysis**

28. State Water Board Resolution 68-16 requires the Board, in regulating discharges, to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and potential beneficial uses, and will not result in water quality less than that described in plans and policies (e.g., quality that exceeds WQOs). The Central Valley Water Board finds that these WDRs authorize limited temporal groundwater degradation, but that such degradation is consistent with Resolution 68-16 since: (1) the purpose of the discharge is to accelerate and enhance remediation of the existing groundwater pollution, and such remediation is consistent with the maximum benefit to the people of California; (2) the degradation is limited in scope and duration; (3) this Order requires use of best practicable treatment or control of the wastes to be discharged, including adequate monitoring and contingency plans to assure protection of water quality; and (4) this Order does not allow discharges of waste to exceed water quality objectives, other than the temporary exceedances that will occur as a result of the treatment process. If the monitoring conducted pursuant to the MRP shows that the discharge causes or threatens to cause degradation of water quality (other than those temporarily permitted by these WDRs), then the Discharger will be required to cease the discharge, implement source control, change the method of discharge, or take other action. A slight residual increase in salts may occur, but will be limited to a maximum 20 percent increase over background and less than the WQO/Limit listed above in Finding 21.

### **General Findings**

29. Pursuant to Water Code section 13263(g), the discharge of waste is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.
30. All the above and the supplemental data and information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.
31. The Discharger and interested agencies and persons were notified of the Board's intent to prescribe waste discharge requirements for this discharge and were provided with an opportunity for a public hearing and an opportunity to submit written comments.
32. In a public meeting, all comments pertaining to this Order were heard and considered.

**IT IS HEREBY ORDERED** that pursuant to Water Code sections 13263 and 13267, Univar USA Inc. and its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted thereunder, shall comply with the following:

#### **A. Prohibitions**

1. Discharge of waste or pollutants to surface waters or surface water drainage courses is prohibited.
2. Discharge of amendments or other materials at locations or in manner different from that described in this order is prohibited.
3. Discharge of waste classified as 'hazardous', as defined in California Code of Regulations, title 22, sections 66261.1 et seq., is prohibited. Discharge of waste classified as 'designated', as defined in Water Code section 13173, in a manner that causes violation of groundwater limitations, is prohibited.
4. Neither the treatment nor the discharge shall cause a nuisance or a condition of pollution, as defined by Water Code section 13050, outside of the treatment and transition zones.

#### **B. Discharge Specifications**

1. Monitoring wells MW-5, MW-5D, MW-6, MW-7, MW-8, MW-9, MW-10, MW-14S, MW-14D, MW-15S, MW-15D, MW-15D1, MW-16D, MW-17S, MW-17D, MW-18S, MW-18D, MW-19S, MW-19D, MW-20S, MW-20D, MW-20D1, and T01-01 shall comprise the compliance monitoring well network.
2. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations in groundwater outside of the treatment and transition zones.
3. Groundwater shall not be amended with materials other than those listed in Findings 11 through 13.

### C. Groundwater Limitations

1. The release, injection, discharge or addition of constituents from the remediation system shall not cause the groundwater at the compliance wells listed in B.1 to contain concentrations of constituents added as amendments, or by-products of the in-situ treatment process, in amounts that exceed the Water Quality Objectives listed in Finding 21, or above background concentrations.
2. The release, injection, discharge or addition of constituents from a remediation system shall not cause the groundwater at the compliance wells to contain concentrations of metals, total dissolved solids, or electrical conductivity that are more than 20% greater than their respective background concentrations, as established by the Monitoring and Reporting Program.
3. The discharge shall not cause the pH of the groundwater at the compliance points to be less than 6.5 or greater than 8.5.
4. The release, injection, discharge or addition of constituents from the remediation system shall not cause the groundwater to contain taste or odor producing substances that cause nuisance or adversely affect beneficial uses at the compliance wells.

### H. Provisions

1. The Discharger shall comply with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991 (Standard Provisions), which are part of this Order.
2. The Discharger shall comply with MRP R5-2015-0136, which is part of this Order, and any revisions thereto as adopted by the Central Valley Water Board or approved by the Executive Officer. The submittal date of Discharger self-monitoring reports shall be no later than submittal dates specified in the MRP.
3. The Discharger may be required to submit technical reports pursuant to CWC section 13267, as directed by the Executive Officer. The technical reports required by this Order are necessary to assure compliance with this Order.
4. A report needs to be submitted proposing any needed changes in injectants or the location of wells, and justification for the changes. Changes to the proposed remediation system, as described in the above findings, shall not be made until approved by the Executive Officer.
5. All technical reports and work plans required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. As required by these laws, completed technical reports and work plans must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work. All reports required herein are required pursuant to CWC section 13267.

6. A copy of this Order shall be maintained at the project site and be available at all times to operating personnel.
7. Provisions of this Order are severable. If any provision of these requirements is found invalid, the remainder of this Order shall not be affected.
8. The Discharger shall maintain in good working order and operate as efficiently as possible any facility or control system installed by the Discharger to achieve compliance with this Order.
9. In the event of a violation of the order, or any material change in the character, location, or volume of the discharge, or if the Discharger is unable to comply with any of the conditions of this Order due to:
  - a. breakdown of any facility or control system or monitoring equipment installed by the Discharger to achieve compliance with this Order;
  - b. migration or application of amendments, pollutants or byproducts outside the specified treatment area;
  - c. accidents caused by human error or negligence; or
  - d. other causes such as acts of nature;

The Discharger shall notify the Central Valley Water Board by telephone with 24 hours after it or its agents have knowledge of the incident and confirm this notification in writing within two weeks of the telephone notification. The written notification shall include pertinent information explaining reasons for the noncompliance and shall indicate the steps taken to correct the problem from recurring. The reporting of migration or application of amendments, waste constituents or byproducts outside the specified treatment area shall include an assessment of and schedule for implementation of contingency plans required to bring the discharge into compliance with the Order.

10. The Discharger shall report within 48 hours to the Central Valley Water Board any violation of this Order, and any material change in the character, location, or volume of the discharge.
11. In the event of any change in control or ownership of land or waste treatment and storage facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.
12. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the address and telephone number of the persons responsible for contact with the Central Valley Water Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and shall state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request may be considered a discharge without requirements, a violation of the Water Code. If the request is tentatively approved by

the Executive Officer, the Central Valley Water Board will complete the transfer by issuing a name-change Order at one of its regularly scheduled meetings.

13. 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, nor protect the discharger from his liability under Federal, State, or Local laws, nor create a vested right for the discharger to continue the waste discharge.
14. Chemical, bacteriological, and bioassay analyses must be conducted at a laboratory certified for such analyses by the State Water Resources Control Board Division of Drinking Water. For specialized analysis where no certification exists, the laboratory and analytical method must be approved by the Executive Officer.
15. All reports or other documents required by this Order, and other information requested by the Central Valley Water Board, shall be signed by a person described below or by a duly authorized representative of that person.
  - a. For a corporation: by a responsible corporate officer such as (a) a president, secretary, treasurer, or vice president of the corporation in charge of principal business function; (b) any other person who performs similar policy or decision making functions for the corporation; or (c) the manager of one or more manufacturing, production, or operating facilities if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
  - b. Reports required by this Order and other information requested by the Central Valley Water Board may be signed by a duly authorized representative provided:
    - i. the authorization is made in writing by a person described in paragraph (a) of this provision;
    - ii. the authorization specifies either an individual or a position having responsibility for the overall operation for the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company; and
    - iii. written authorization is submitted to the Central Valley Water Board prior to or together with any reports, information, or applications signed by the authorized representative.
  - c. Any person signing a document under paragraph (a) or (b) of this provision shall make the following certification: "I certify 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 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 fine and imprisonment for knowing violations.

16. The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan amendment that will establish a salt and nitrate management plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objectives are to be interpreted for the protection of agricultural use. If new information or evidence indicates that groundwater limitations different than those prescribed herein are appropriate, this Order will be reopened to incorporate such limits.
17. The Central Valley Water Board may review this Order periodically and may revise requirements when necessary. In addition, the discharger shall file a report of waste discharge with the Executive Officer at least 120 days before making any material change or proposed change in the character, location, or volume of the discharge.
18. This Order is in effect until terminated by the Central Valley Water Board.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order or with the WDRs may result in the imposition of administrative civil liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

[http://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality](http://www.waterboards.ca.gov/public_notices/petitions/water_quality)

or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 11 December 2015.

*Original signed by:*

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PAMELA C. CREEDON, Executive Officer

Order Attachments:

Attachment A - Project Site Plan

Monitoring and Reporting Program R5-2015-0136

Information Sheet

Standard Provisions (1 March 1991) (separate attachment to Discharger only)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2015-0136  
FOR  
UNIVAR USA INC.  
IN-SITU CHEMICAL OXIDATION GROUNDWATER REMEDIATION PROJECT  
1152 G STREET, FRESNO  
FRESNO COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring an in-situ groundwater treatment system. 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 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's chain of custody form.

### GROUNDWATER MONITORING

Existing and proposed wells for the site are shown on Attachment A. The groundwater monitoring program for these wells and any wells installed subsequent to the issuance of this MRP shall follow the schedule in Table 1. The volume of injected and/or extracted groundwater, if applicable, shall be provided in quarterly monitoring reports. Sample collection and analysis shall follow standard EPA protocol.

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.

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

<b>Well Number<sup>1</sup></b>	<b>Constituent<sup>2</sup></b>	<b>Frequency<sup>3</sup></b>	<b>Monitoring Objective</b>
IW-1 through IW-8, MW-14S, MW-14D, MW-21S, MW-23	Suite A, Suite C	Quarterly	Treatment Zone <sup>4</sup>
	Suite B	Semi-Annually	
	Suite D	Monthly	
VW-01B, VW-03B, VW-04B, VW-5, VW-6, VW-7	Suite A, Suite C	Quarterly	Transition Zone <sup>5</sup>
	Suite B	Semi-Annually	
	Suite D	Monthly	
MW-5, MW-6, MW-18S, MW-18D, VW-02B, IW-9, IW-10, IW-11	Suite A, Suite C	Quarterly	Compliance Group A
	Suite B	Semi-Annually	
	Suite D	Monthly	

MW-01D, MW-05D, MW-07, MW-08, MW-09, MW-11, MW-12, MW-13, MW-15S, MW-15D, MW-15D1, MW-16D, MW-17S, MW-17D, MW-19S, MW-19D, MW-20S, MW-20D, MW-21D, T01-01, T01-02, T01-03, T02-01, T02-02-D, T02-03, TT03-01, OB-07, OB-08	Suite A	Semi-Annually	Compliance Group B
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- <sup>1</sup> Well numbers and locations as shown on Attachment A (except for wells T02-02-D, T02-03, and TT03-01).  
<sup>2</sup> Constituent analytical methods are listed in Table 2.  
<sup>3</sup> Semi-annual sampling occurs 2<sup>nd</sup> and 4<sup>th</sup> quarters.  
<sup>4</sup> Wells sampled to evaluate in-situ remediation progress inside the treatment zone.  
<sup>5</sup> Wells sampled to evaluate migration of pollutants within the treatment zone.

**Table 2: Analytical Methods**

Suite	Constituent	Method <sup>1</sup>	Maximum Practical Quantitation Limit (µg/L) <sup>2</sup>
Suite A	Volatile Organic Compounds	EPA 8260B	0.5
Suite B	Chloride	EPA 300	1,000
	Nitrate	EPA 353.2	1,000
	Sodium	EPA 200.7	1,000
	Potassium	EPA Method 300	1,000
	Total Alkalinity	EPA 310.1	1,000
	Total Dissolved Solids	EPA 160.1	10,000
Suite C	Hexavalent Chromium	EPA 7199	1
	Metals, Total and Dissolved <sup>3</sup>	EPA 200.7, 200.8	Various
Suite D	Potassium Permanganate	Colorimetric	

- <sup>1</sup> Or an equivalent EPA Method that achieves the maximum Practical Quantitation Limit.  
<sup>2</sup> All concentrations between the Method Detection Limit and the Practical Quantitation Limit shall be reported as an estimated value.  
<sup>3</sup> Metals include aluminum, arsenic, barium, cadmium, calcium, total chromium, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, sodium, and zinc.

**FIELD SAMPLING**

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

**Table 3: Field Sampling Requirements**

Parameters	Units	Type of Sample
Groundwater Elevation	Feet, Mean Sea Level	Measurement
Oxidation-Reduction Potential	Millivolts	Grab
Electrical Conductivity	uhmos/cm	Grab
Dissolved Oxygen	mg/L	Grab

Temperature	Degrees C	Grab
pH	pH Units (to 0.1 units)	Grab

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.

### 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 Volume	gallons per event	Measured
Amendment(s) Added	kilograms per event	Measured

### AMENDMENT ANALYSIS

Prior to use, amendments shall be analyzed for the constituents listed in Table 4. The analysis should be done on the pure amendment (if possible) and on a mixture of the amendment and deionized water at the estimated concentration that would be injected during the project.

**Table 4: Amendment Analytical Requirements**

Constituent	Method <sup>1</sup>	Maximum Practical Quantitation Limit (µg/L) <sup>2</sup>
Volatile Organic Compounds	EPA 8260B	0.5
General Minerals <sup>3</sup>		
Metals, Total and Dissolved <sup>4</sup>	EPA 200.7, 200.8	Various
Hexavalent Chromium	EPA 218.6	0.5
pH	meter	NA
Electrical Conductivity	meter	NA

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

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

<sup>3</sup> Alkalinity, bicarbonate, sodium, calcium, magnesium, potassium, chloride, sulfate, total hardness, nitrate, nitrite, ammonia, total dissolved solids.

<sup>4</sup> Metals include arsenic, barium, cadmium, total chromium, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium and silica.

## ESTABLISHMENT OF BACKGROUND CONCENTRATION VALUES

The Discharger shall develop background values for concentrations of general minerals, metals, and electrical conductivity in groundwater following the procedures found in California Code of Regulations section 20415(e)(10). The Discharger shall sample each compliance well and analyze the samples for the constituents above a minimum of two times prior to startup of the injection system.

## 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/injection 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 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** 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), reference elevation, screened interval, depth of seal, depth of well;
- (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, which may be submitted in an electronic format with the report;
- (i) 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, analytical results of sampling, and any field notes pertaining to the operation and maintenance of the system;
- (j) a table showing the dates on which potassium permanganate was injected, and the location and amount of potassium permanganate injected at each location; and
- (k) 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.

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 investigation and remediation, and may be substituted for the fourth quarter 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, graphs showing trends of constituents of concern, 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 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 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: Original signed by:  
PAMELA C. CREEDON, Executive Officer  
11 December 2015  
(Date)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS  
FOR  
WASTE DISCHARGE REQUIREMENTS

1 March 1991

**A. General Provisions:**

1. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, or protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.
2. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.
3. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
  - a. Violation of any term or condition contained in this Order;
  - b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;
  - c. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge;
  - d. A material change in the character, location, or volume of discharge.
4. Before making a material change in the character, location, or volume of discharge, the discharger shall file a new Report of Waste Discharge with the Regional Board. A material change includes, but is not limited to, the following:
  - a. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements.
  - b. A significant change in disposal method, location or volume, e.g., change from land disposal to land treatment.
  - c. The addition of a major industrial, municipal or domestic waste discharge facility.
  - d. The 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.

## Waste Discharge to Land

5. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Board. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.
6. The discharger shall take all reasonable steps to minimize any adverse impact to the waters of the state resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature and impact of the noncompliance.
7. The discharger shall maintain in good working order and operate as efficiently as possible any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.
8. The discharger shall permit representatives of the Regional Board (hereafter Board) and the State Water Resources Control Board, upon presentations of credentials, to:
  - a. Enter premises where wastes are treated, stored, or disposed of and facilities in which any records are kept,
  - b. Copy any records required to be kept under terms and conditions of this Order,
  - c. Inspect at reasonable hours, monitoring equipment required by this Order, and
  - d. Sample, photograph and video tape any discharge, waste, waste management unit, or monitoring device.
9. For any electrically operated equipment at the site, the failure of which would cause loss of control or containment of waste materials, or violation of this Order, the discharger shall employ safeguards to prevent loss of control over wastes. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means.
10. The fact that it would have been necessary to halt or reduce the permitted activity in Order to maintain compliance with this Order shall not be a defense for the discharger's violations of the Order.
11. Neither the treatment nor the discharge shall create a condition of nuisance or pollution as defined by the California Water Code, Section 13050.
12. The discharge shall remain within the designated disposal area at all times.

**B. General Reporting Requirements:**

1. In the event the discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the discharger shall notify the Board by telephone at **(916) 464-3291** [*Note: Current phone numbers for all three Regional Board offices may be found on the internet at [http://www.swrcb.ca.gov/rwqcb5/contact\\_us](http://www.swrcb.ca.gov/rwqcb5/contact_us).*] as soon as it or its agents

## Waste Discharge to Land

have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing within **two weeks**. The written notification shall state the nature, time and cause of noncompliance, and shall include a timetable for corrective actions.

2. The discharger shall have a plan for preventing and controlling accidental discharges, and for minimizing the effect of such events.

This plan shall:

- a. Identify the possible sources of accidental loss or leakage of wastes from each waste management, treatment, or disposal facility.
- b. Evaluate the effectiveness of present waste management/treatment units and operational procedures, and identify needed changes of contingency plans.
- c. Predict the effectiveness of the proposed changes in waste management/treatment facilities and procedures and provide an implementation schedule containing interim and final dates when changes will be implemented.

The Board, after review of the plan, may establish conditions that it deems necessary to control leakages and minimize their effects.

3. All reports shall be signed by persons identified below:
  - a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
  - b. For a partnership or sole proprietorship: by a general partner or the proprietor.
  - c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.
  - d. A duly authorized representative of a person designated in 3a, 3b or 3c of this requirement if;
    - (1) the authorization is made in writing by a person described in 3a, 3b or 3c of this provision;
    - (2) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a waste management unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
    - (3) the written authorization is submitted to the Board

## Waste Discharge to Land

Any person signing a document under this Section shall make the following certification:

“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 the 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.”

4. Technical and monitoring reports specified in this Order are requested pursuant to Section 13267 of the Water Code. Failing to furnish the reports by the specified deadlines and falsifying information in the reports, are misdemeanors that may result in assessment of civil liabilities against the discharger.
5. The discharger shall mail a copy of each monitoring report and any other reports required by this Order to:

California Regional Water Quality Control Board  
Central Valley Region  
11020 Sun Center Drive, #200  
Rancho Cordova, CA 95670-6114

*Note: Current addresses for all three Regional Board offices may be found on the internet at [http://www.swrcb.ca.gov/rwqcb5/contact\\_us](http://www.swrcb.ca.gov/rwqcb5/contact_us).*

or the current address if the office relocates.

### C. Provisions for Monitoring:

1. All analyses shall be made in accordance with the latest edition of: (1) *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA 600 Series) and (2) *Test Methods for Evaluating Solid Waste* (SW 846-latest edition). The test method may be modified subject to application and approval of alternate test procedures under the Code of Federal Regulations (40 CFR 136).
2. Chemical, bacteriological, and bioassay analysis shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. In the event a certified laboratory is not available to the discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Board staff. The Quality Assurance-Quality Control Program must conform to EPA guidelines or to procedures approved by the Board.

Unless otherwise specified, all metals shall be reported as Total Metals.

3. The discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to

## Waste Discharge to Land

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.

Record of monitoring information shall include:

- a. the date, exact place, and time of sampling or measurements,
  - b. the individual(s) who performed the sampling of the measurements,
  - c. the date(s) analyses were performed,
  - d. the individual(s) who performed the analyses,
  - e. the laboratory which performed the analysis,
  - f. the analytical techniques or methods used, and
  - g. the results of such analyses.
4. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated at least yearly to ensure their continued accuracy.
  5. The discharger shall maintain a written sampling program sufficient to assure compliance with the terms of this Order. Anyone performing sampling on behalf of the discharger shall be familiar with the sampling plan.
  6. The discharger shall construct all monitoring wells to meet or exceed the standards stated in the State Department of Water Resources *Bulletin 74-81* and subsequent revisions, and shall comply with the reporting provisions for wells required by Water Code Sections 13750 through 13755.22

**D. Standard Conditions for Facilities Subject to California Code of Regulations, Title 23, Division 3, Chapter 15 (Chapter 15)**

1. All classified waste management units shall be designed under the direct supervision of a California registered civil engineer or a California certified engineering geologist. Designs shall include a Construction Quality Assurance Plan, the purpose of which is to:
  - a. demonstrate that the waste management unit has been constructed according to the specifications and plans as approved by the Board.
  - b. provide quality control on the materials and construction practices used to construct the waste management unit and prevent the use of inferior products and/or materials which do not meet the approved design plans or specifications.
2. Prior to the discharge of waste to any classified waste management unit, a California registered civil engineer or a California certified engineering geologist must certify that the waste management unit meets the construction or prescriptive standards and performance goals in Chapter 15, unless an engineered alternative has been approved by the Board. In the case of an engineered alternative, the registered civil engineer or a certified engineering geologist must

## Waste Discharge to Land

certify that the waste management unit has been constructed in accordance with Board-approved plans and specifications.

3. Materials used to construct liners shall have appropriate physical and chemical properties to ensure containment of discharged wastes over the operating life, closure, and post-closure maintenance period of the waste management units.
4. Closure of each waste management unit shall be performed under the direct supervision of a California registered civil engineer or a California certified engineering geologist.

**E. Conditions Applicable to Discharge Facilities Exempted from Chapter 15 Under Section 2511**

1. If the discharger's wastewater treatment plant is publicly owned or regulated by the Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to California Code of Regulations, Title 23, Division 4, Chapter 14.
2. By-pass (the intentional diversion of waste streams from any portion of a treatment facility, except diversions designed to meet variable effluent limits) is prohibited. The Board may take enforcement action against the discharger for by-pass unless:
  - a. (1) By-pass was unavoidable to prevent loss of life, personal injury, or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a by-pass. Severe property damage does not mean economic loss caused by delays in production); and
    - (2) There were no feasible alternatives to by-pass, such as the use of auxiliary treatment facilities or retention of untreated waste. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a by-pass that would otherwise occur during normal periods of equipment downtime or preventive maintenance; or
  - b. (1) by-pass is required for essential maintenance to assure efficient operation; and
    - (2) neither effluent nor receiving water limitations are exceeded; and
    - (3) the discharger notifies the Board ten days in advance.

The permittee shall submit notice of an unanticipated by-pass as required in paragraph B.1. above.

3. A discharger that wishes to establish the affirmative defense of an upset (see definition in E.6 below) in an action brought for noncompliance shall demonstrate, through properly signed, contemporaneous operating logs, or other evidence, that:

## Waste Discharge to Land

- a. an upset occurred and the cause(s) can be identified;
- b. the permitted facility was being properly operated at the time of the upset;
- c. the discharger submitted notice of the upset as required in paragraph B.1. above; and
- d. the discharger complied with any remedial measures required by waste discharge requirements.

In any enforcement proceeding, the discharger seeking to establish the occurrence of an upset has the burden of proof.

4. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Board by **31 January**.
5. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to disposal. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.
6. Definitions
  - a. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper action.
  - b. The monthly average discharge is the total discharge by volume during a calendar month divided by the number of days in the month that the facility was discharging. This number is to be reported in gallons per day or million gallons per day.

Where less than daily sampling is required by this Order, the monthly average shall be determined by the summation of all the measured discharges by the number of days during the month when the measurements were made.

- c. The monthly average concentration is the arithmetic mean of measurements made during the month.
- d. The "daily maximum" **discharge** is the total discharge by volume during any day.

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- e. The “daily maximum” **concentration** is the highest measurement made on any single discrete sample or composite sample.
- f. A “grab” sample is any sample collected in less than 15 minutes.
- g. Unless otherwise specified, a composite sample is a combination of individual samples collected over the specified sampling period;
  - (1) at equal time intervals, with a maximum interval of one hour
  - (2) at varying time intervals (average interval one hour or less) so that each sample represents an equal portion of the cumulative flow.

The duration of the sampling period shall be specified in the Monitoring and Reporting Program. The method of compositing shall be reported with the results.

#### 7. Annual Pretreatment Report Requirements:

Applies to dischargers required to have a Pretreatment Program as stated in waste discharge requirements.)

The annual report shall be submitted **by 28 February** and include, but not be limited to, the following items:

- a. A summary of analytical results from representative, flow-proportioned, 24-hour composite sampling of the influent and effluent for those pollutants EPA has identified under Section 307(a) of the Clean Water Act which are known or suspected to be discharged by industrial users.

The discharger is not required to sample and analyze for asbestos until EPA promulgates an applicable analytical technique under 40 CFR (Code of Federal Regulations) Part 136. Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as the influent and effluent sampling analysis. The sludge analyzed shall be a composite sample of a minimum of 12 discrete samples taken at equal time intervals over the 24-hour period. Wastewater and sludge sampling and analysis shall be performed at least annually. The discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants which may be causing or contributing to Interference, Pass Through or adversely impacting sludge quality. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto.

- b. A discussion of Upset, Interference, or Pass Through incidents, if any, at the treatment plant which the discharger knows or suspects were caused by industrial users of the system. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of the industrial user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any

## Waste Discharge to Land

additional limitations, or changes to existing requirements, may be necessary to prevent Pass Through, Interference, or noncompliance with sludge disposal requirements.

- c. The cumulative number of industrial users that the discharger has notified regarding Baseline Monitoring Reports and the cumulative number of industrial user responses.
- d. An updated list of the discharger's industrial users including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The discharger shall provide a brief explanation for each deletion. The list shall identify the industrial users subject to federal categorical standards by specifying which set(s) of standards are applicable. The list shall indicate which categorical industries, or specific pollutants from each industry, are subject to local limitations that are more stringent than the federal categorical standards. The discharger shall also list the noncategorical industrial users that are subject only to local discharge limitations. The discharger shall characterize the compliance status through the year of record of each industrial user by employing the following descriptions:
  - (1) Complied with baseline monitoring report requirements (where applicable);
  - (2) Consistently achieved compliance;
  - (3) Inconsistently achieved compliance;
  - (4) Significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);
  - (5) Complied with schedule to achieve compliance (include the date final compliance is required);
  - (6) Did not achieve compliance and not on a compliance schedule;
  - (7) Compliance status unknown.

A report describing the compliance status of any industrial user characterized by the descriptions in items (d)(3) through (d)(7) above shall be **submitted quarterly from the annual report date** to EPA and the Board. The report shall identify the specific compliance status of each such industrial user. This quarterly reporting requirement shall commence upon issuance of this Order.

- e. A summary of the inspection and sampling activities conducted by the discharger during the past year to gather information and data regarding the industrial users. The summary shall include but not be limited to, a tabulation of categories of dischargers that were inspected and sampled; how many and how often; and incidents of noncompliance detected.

## Waste Discharge to Land

- f. A summary of the compliance and enforcement activities during the past year. The summary shall include the names and addresses of the industrial users affected by the following actions:
- (1) Warning letters or notices of violation regarding the industrial user's apparent noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the apparent violation concerned the federal categorical standards or local discharge limitations;
  - (2) Administrative Orders regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations;
  - (3) Civil actions regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations;
  - (4) Criminal actions regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
  - (5) Assessment of monetary penalties. For each industrial user identify the amount of the penalties;
  - (6) Restriction of flow to the treatment plant; or
  - (7) Disconnection from discharge to the treatment plant.
- g. A description of any significant changes in operating the pretreatment program which differ from the discharger's approved Pretreatment Program, including, but not limited to, changes concerning: the program's administrative structure; local industrial discharge limitations; monitoring program or monitoring frequencies; legal authority of enforcement policy; funding mechanisms; resource requirements; and staffing levels.
- h. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases.
- i. A summary of public participation activities to involve and inform the public.
- j. A description of any changes in sludge disposal methods and a discussion of any concerns not described elsewhere in the report.

Duplicate signed copies of these reports shall be submitted to the Board and:

Regional Administrator  
U.S. Environmental Protection Agency W-5  
75 Hawthorne Street  
San Francisco, CA 94105

and

State Water Resource Control Board  
Division of Water Quality  
P.O. Box 100  
Sacramento, CA 95812

Revised January 2004 to update addresses and phone numbers

## INFORMATION SHEET

ORDER R5-2015-0136  
UNIVAR USA INC.  
IN-SITU CHEMICAL OXIDATION GROUNDWATER REMEDIATION PROJECT  
1152 G STREET, FRESNO  
FRESNO COUNTY

Univar USA Inc. (Univar) is proposing in-situ chemical oxidation remediation for groundwater impacted by tetrachloroethene and its breakdown products. Oxidizing agents will be injected into groundwater to break carbon bonds in tetrachloroethene resulting in the creation of carbon dioxide gas and chloride.

### **Background**

Univar leased property at 1152 G Street, Fresno from 1965 to 1986. An aboveground storage tank (AST) was located in the northeast corner and was used to store tetrachloroethene (PCE). The AST has since been removed. PCE was initially detected in soil samples during a 1994 assessment. Numerous assessments of soil, soil gas, and groundwater have been conducted since that time to delineate the extent of PCE in soil and groundwater.

PCE impacted groundwater forms a plume extending approximately 1,500 feet to the north and 1,800 feet to the northwest, toward City of Fresno well 22A. PCE has been detected at depths up to 250 below ground surface in the vicinity of City well 22A. Concentrations of PCE detected in City well 22A are well below State of California drinking water standards.

Univar's clean-up remedy is to inject potassium permanganate into a series of injection wells located in the area of highest concentrations of tetrachloroethene in groundwater. The potassium permanganate will break the carbon to carbon bonds and dechlorinate tetrachloroethene in groundwater. The reaction will create carbon dioxide gas and release chloride and potassium ions into groundwater. The potassium permanganate will migrate with the flow of groundwater and be consumed in reactions with volatile organic compounds and other organic compounds in the aquifer. It is anticipated that all or most of the potassium permanganate will be consumed by the time it reaches the transition zone.

A test evaluation was conducted to assess the effectiveness of using potassium permanganate at the site. Three representative formation samples were collected at depth from the site for the evaluation. The amount of potassium permanganate that was consumed by organic materials in the samples was determined during the test. The results of the evaluation indicate that potassium permanganate injection will work well at the site. Data collected during the evaluation allows the consultant to estimate the amount of potassium permanganate required.

### **Groundwater Conditions**

Groundwater monitoring has been ongoing since at least 1996. Groundwater occurs at a depth of approximately 100 to 110 feet below ground surface. More than 45 monitoring wells are currently gauged and sampled semi-annually. The monitoring and reporting program requires sampling of the existing wells on a quarterly, semi-annual, or annual basis, depending on the specific well. Groundwater samples will be analyzed for general mineral, metal, and volatile organic constituents, along with constituents associated with the amendments to be injected.

Twenty monitoring wells outside of the treatment and transition zones or on the outside edges of the transition zone have been selected as compliance wells. Several of the compliance wells are located upgradient of Fresno City well 22A to ensure that the remediation systems do not cause impacts to that well. The compliance wells will be monitored to ensure that injected materials do not affect the beneficial uses of groundwater outside of the treatment and transition zones.

### **Basin Plan, Beneficial Uses, and Regulatory Considerations**

The Water Quality Control Plan for the Tulare Lake Basin (second edition) (the "Basin Plan") designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the basin. The receiving water is groundwater. Beneficial uses include municipal and domestic water supply, agricultural supply, industrial service supply, industrial process supply, and water contact and non-contact water recreation. Discharges shall not cause groundwater at the compliance points to exceed drinking water primary or secondary standards unless background concentrations already exceed the primary or secondary standards. Discharges shall not cause concentrations of metals, total dissolved solids, or electrical conductivity to increase more than 20% over their background concentrations.

### **Antidegradation**

State Water Resources Control Board Resolution 68-16 (hereafter Resolution 68-16) requires the Regional Water Board to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with the maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in State and Regional Water Board policies (e.g., quality that exceeds water quality objectives).

The Central Valley Water Board finds that these WDRs authorize limited temporal groundwater degradation, but that such degradation is consistent with Resolution 68-16 since: (1) the purpose of the discharge is to accelerate and enhance remediation of the existing groundwater pollution, and such remediation is consistent with the maximum benefit to the people of California; (2) the degradation is limited in scope and duration; (3) this Order requires use of best practicable treatment or control of the wastes to be discharged, including adequate monitoring and contingency plans to assure protection of water quality; and (4) this Order does not allow discharges of waste to exceed water quality objectives, other than the temporary exceedances that will occur as a result of the treatment process. If the monitoring conducted pursuant to the MRP shows that the discharge causes or threatens to cause degradation of water quality (other than those temporarily permitted by these WDRs), then the Discharger will be required to cease the discharge, implement source control, change the method of discharge, or take other action. A slight residual increase in salts may occur, but will be limited to a maximum 20 percent increase over background and will not be permitted to impact beneficial uses.

### **Proposed Order Terms and Conditions**

#### **Discharge Prohibitions, Discharge Specifications, and Provisions**

The proposed Order would prohibit discharge to surface waters and water drainage courses.

Injection of substances other than those specifically allowed in the Order is prohibited.

Neither the treatment nor the discharge shall cause a nuisance or condition of pollution as defined by Water Code section 13050, outside of the treatment and transition zones.

The release, injection, discharge or addition of constituents from the remediation system shall not cause the groundwater at the compliance wells listed in B.1 to contain concentrations of constituents added as amendments, and by-products of the in-situ treatment process, in amounts that exceed the limits specified in the WDRs.

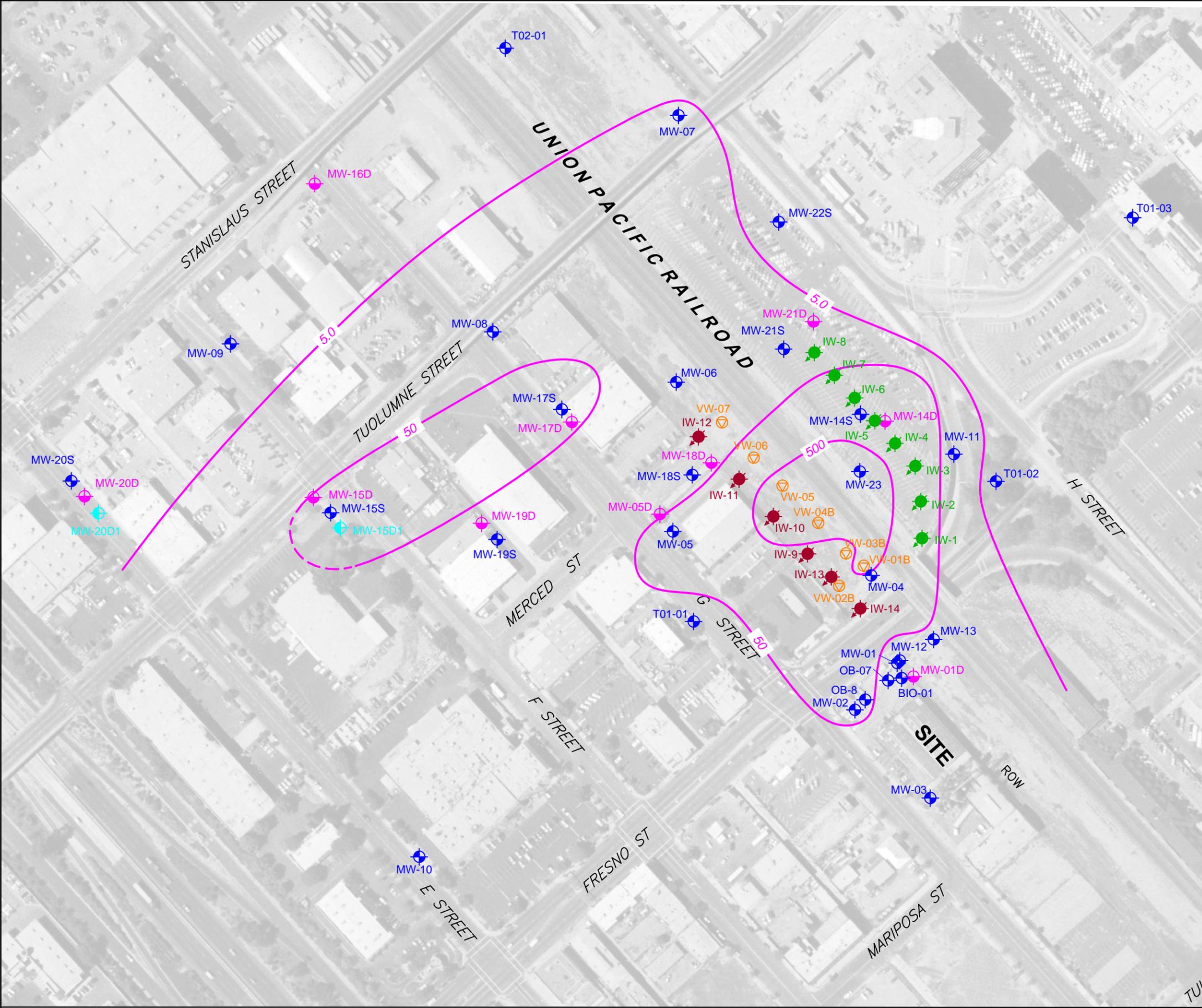
The release, injection, discharge or addition of constituents from a remediation system shall not cause the groundwater at the compliance wells to contain concentrations of metals, total dissolved solids, or

electrical conductivity that are more than 20% greater than their respective background concentrations, as established by the Monitoring and Reporting Program.

**Monitoring Requirements**

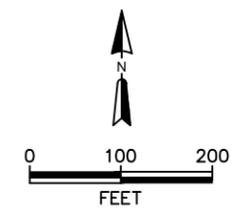
Water Code section 13267 authorizes the Central Valley Water Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the State. Water Code section 13268 authorizes assessment of civil administrative liability where appropriate.

The proposed Order includes discharge and groundwater monitoring. The monitoring is necessary to ensure that any potential degradation from the discharge is minimized.



**LEGEND**

- Shallow Groundwater Monitoring Well
- Deep Groundwater Monitoring Well
- D1 Deep Groundwater Monitoring Well
- Vapor Extraction Well
- ISCO Injection Locations
- Proposed ISCO Injection Locations
- PCE Concentration Contour in Shallow Groundwater ( $\mu\text{g/L}$ ); Dashed Where Inferred. Sampled in May 2014.



Attachment A  
 Former VW&R Inc. Facility  
 1152 G Street  
 Fresno, California