

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

**DRAFT**

ORDER NO. R5-2020-00XX

WASTE DISCHARGE REQUIREMENTS

FOR

GLENN SPRINGS HOLDING COMPANY

FORMER OCCIDENTAL CHEMICAL COMPANY

GROUNDWATER REMEDIATION PROJECT

LATHROP FACILITY

SAN JOAQUIN COUNTY

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

**INTRODUCTION**

1. Occidental Chemical Company (OCC) retains the liability for implementing remedial actions at the Former Best Fertilizers Company site located at 16777 Howland Road in Lathrop, San Joaquin County, California (Site). Attachments A and B show the "Site location" and "Site plan", respectively, and are part of this order. OCC is managing remediation activities at the Site through Glenn Springs Holdings, Inc. (GSHI), a wholly-owned subsidiary of Occidental Petroleum Corporation. OCC and GSHI are hereafter collectively referred to as Discharger.
2. Contaminants of concern (COCs) associated with the Discharger's past operations at the Site include the pesticides 1,2-dibromo-3-chloropropane (DBCP) and ethylene dibromide (EDB), as well as the solvent 2,3,4,5-tetrahydrothiophene-1,1-dioxide, commonly known as sulfolane, which was used for cleaning process equipment at the Site. 1,2-3-trichloropropane (TCP), which is typically associated with facilities involved in DBCP production, has also been detected in groundwater beneath the Site. Groundwater beneath the Site and its vicinity is also contaminated with sulfate, nitrate, chloride, lindane, and isomers of benzene hexachloride (BHC).
3. On 7 May 2019, the Discharger submitted a Report of Waste Discharge (ROWD), supplemented with a report titled *Waste Discharge Requirements and Monitoring and Reporting Program Modification Request*. The ROWD proposes modifications and updates to the Waste Discharge Requirements (WDRs) for the Site's remediation project, which are currently specified in the WDR Order No. R5-2012-0106 and the associated Revised Monitoring and Reporting Program (MRP). The ROWD reflects the proposed and ongoing modifications of the Site's groundwater remediation project,

which includes the expansion of the groundwater extraction and treatment system (GETS), as defined in Finding Nos. 10 through 14. The Discharger submitted amendments and revisions to the ROWD, in part in response to requests from Central Valley Water Board staff, on 21 June 2019, 20 September 2019, 6 January 2020, 20 April 2020, 17 June 2020, 30 July 2020, 6 August 2020, 18 September 2020, and 23 September 2020.

### **Site Information**

4. The Site is located within the City of Lathrop, San Joaquin County, California, near the intersection of Louise Avenue and Howland Road (see figures in Attachments A and B). The Site occupies approximately 340 acres, most of which are paved or covered with buildings. The Site is underlain by relatively flat-lying unconsolidated silts, sands, and clays to a depth of approximately 270 feet bgs.
5. The Site includes Assessor's Parcel No. 198-180-01, 02, 03, 04, 05, 06, and 198-140-03, 04.
6. The surrounding land uses near the Site include agricultural, industrial, and residential.
7. The mean annual precipitation at the Site is 14 inches. Mean annual pan evapotranspiration at the nearby Tracy pumping plant is 97 inches.
8. The City of Lathrop operates a municipal water system with wells located approximately 2,000 feet east and northeast of the Site, and approximately 3,000 feet to the south. These municipal public water supply wells are sampled monthly by the Discharger and analyzed for Site COCs. Due to detections of sulfolane in Site monitoring wells located between the Site and the City water supply well LWD-10 in August 2018, the municipal water supply wells were temporarily turned off. The City has resumed water supply wells operation starting in May 2020.

### **Project Layout and Operation**

9. The Site has been owned and occupied by the J.R. Simplot Company (J.R. Simplot) since 1 January 1983. J.R. Simplot currently owns all the land comprising the Site and all improvements to that land except the groundwater remediation system (including the treatment plant, aerated moving bed bioreactor (MBBR), monitoring wells, extraction wells, injection wells, and associated infrastructure) that were or will be installed by the Discharger. The Discharger is responsible for mitigation, cleanup, and abatement of any contamination of groundwater attributable to operations at the Site that occurred prior to 1 January 1983.
10. The groundwater remedial system at the Site has operated since 1982. In recent years, in addition to routine operation and maintenance of the system, the Discharger has reconditioned the treatment system and optimized pumping from the extraction well

network; installed additional extraction wells, injection wells, and air-sparge wells; investigated a suspected source area of sulfolane with high sulfolane soil concentrations; and added additional groundwater monitoring wells to define the lateral and vertical extent of COCs at the Site and its vicinity. The Discharger also modified the original bioreactor/Granular Activated Carbon (GAC) treatment flow configuration from up-flow in parallel to down-flow in series, added an oxygen delivery system to increase the dissolved oxygen concentration before the GAC treatment to improve the aerobic biodegradation of sulfolane. With these modifications, each GAC vessel can be separately adjusted to improve the aerobic biological treatment of sulfolane in the lead vessel and sorption of EDB and DBCP in the lag vessel.

11. The current GETS is comprised of two GAC treatment trains, with each train containing two vessels operating in series. The original treatment train (Train #1) has been online in various configurations since the inception of the GETS in 1982. The first vessel (GAC-1) contains 26,000 pounds of GAC and the second vessel (GAC-2) contains 30,000 pounds of GAC. The GAC-1 vessel acts as a submerged fixed-film biological reactor using GAC as the media to support biological growth and sulfolane is biodegraded within this vessel. The GAC-2 vessel acts primarily as GAC adsorber to remove the fumigants. Oxygen is added prior to each vessel for the aerobic biological reactions; however, most of the biological reactions occur in GAC-1. The second train (Train#2) includes carbon vessels GAC-3 and GAC-4 installed in a similar configuration as Train#1. The only difference between Train#1 and Train#2 is that the lead and lag vessels in Train#2 each contain only 20,000 pounds of GAC. As part of the system expansion, the Discharger is also adding a MBBR for increasing GETS treatment capacity.
12. The current remedial system extracts groundwater from up to twenty two (22) extraction wells (EW-01, EW-02, EW-05, EW-06, EW-07, EW-8A, EW-8B, EW-09, EW-10, EW-11, EW-12A, EW-12B, EW-13, EW-14A, EW-14B, EW-15A, EW-15B, EW-17, EW-18A, EW-18BR and EW-19). Treated groundwater is disposed of by injection into three deep injection wells IW-1, IW-2, and IW-3R that are completed in the confined aquifer beneath a thick confining layer of blue clay, the Corcoran Clay, located approximately 270 to 305 feet below ground surface (bgs). A fourth injection well IW-4 is planned to be installed in 2020. In July 2020, a pilot injection test was conducted for INJ-13, which is screened in the aquifer above the Corcoran Clay. Depending upon the injection capacity of INJ-13, and the existing deep injection wells screened beneath the Corcoran Clay, additional treated water injection wells screened below, and above the Corcoran Clay may also be installed in the future, with Central Valley Water Board staff concurrence.
13. Since the adoption of previous waste discharge requirements, Order R5-2012-0106(2012 WDR Order), extraction well EW-03 has been converted to an injection well (INJ-13); extraction well EW-04 and EW-04A were destroyed to accommodate off-Site property development in accordance with the property owner access agreement; extraction well EW-17 was not brought on-line due to poor well performance; injection

well INJ-13 is has not been in service due to limited injection capacity noted between 2013 and 2014; injection well INJ-14 was destroyed in February 2018 to accommodate off-Site property development in accordance with the property owner access agreement; a new injection well IW-3, screened beneath the Corcoran Clay was installed in June 2019; however, due to a leak observed from IW-3, the well was decommissioned, and a replacement well IW-3R was installed in November 2019.

14. The J.R. Simplot's existing backup water supply well (BSW) operations are limited to emergency situations and compliance sampling events; however, the Discharger has also utilized the BSW as an extraction well and has installed a wellhead treatment system to remove sulfolane from BSW, enhancing the overall sulfolane remediation. The 2012 WDR Order allows for the injection of the treated BSW water to be injected in zones, both above and below the Corcoran Clay. The average flowrate from the backup supply well is approximately 250 gallons per minute (gpm), and the maximum flow rate is 700 gpm.

#### **Contaminants of Concern**

15. In 2019, concentrations of sulfolane, DBCP, and EDB in groundwater in the combined influent to the treatment system were in the ranges of 900 to 2,300 micrograms per liter ( $\mu\text{g/L}$ ), 0.051 to 0.27  $\mu\text{g/L}$ , and less than the laboratory reporting limit of 0.01  $\mu\text{g/L}$ , respectively. To date, the system has removed approximately 25,060 pounds (lbs) of sulfolane, 4,004 lbs of DBCP, and 220 lbs of EDB.
16. Concentrations of EDB and DBCP have not been detected in the monitoring wells installed in the injection zone below the Corcoran Clay since at least 1996.
17. Based on the most recent data, concentrations of sulfolane are present in injection zone monitoring wells PW09-338 (29  $\mu\text{g/L}$ ; August 2017), PW12-315 (240  $\mu\text{g/L}$ ; August 2019), PW20-500 (31  $\mu\text{g/L}$ ; August 2019), and PW16-329 (12  $\mu\text{g/L}$ ; August 2019). There was no treatment goal for sulfolane until 1992, so concentrations of sulfolane in the injection zone reflect the injection of treated water with residual sulfolane from 1982 to 1992. This also reflects the concentrations in the injected water that were below the historical discharge limit of 57  $\mu\text{g/L}$ , which was established after 1992 and enforced until 2012, when it was lowered to 16  $\mu\text{g/L}$  based on the EPA tap water screening level. In this Order, the discharge limit for sulfolane has been increased to 20  $\mu\text{g/L}$  to reflect the updated EPA tap water screening level.
18. Concentrations of total dissolved solids (TDS) in the injection zone below the Corcoran Clay averages 2,535 milligrams per liter (mg/L) with a maximum concentration of 4,940 mg/L, which was measured in the groundwater monitoring well PW20-500 located west of the Site, where groundwater quality is most affected by saline water from the San Francisco Bay-Delta. Chloride accounts for the majority of TDS in PW20-500.

19. Current TDS concentration in the treatment system effluent averages 2,367 mg/L with a maximum concentration of 3,150 mg/L. This concentration range reflects the TDS concentrations in the extraction zone, which is located above the Corcoran Clay layer, and is the source of the water going through the treatment system. Sulfate accounts for the majority of TDS in the treatment system effluent. TDS concentrations in the treatment system effluent are expected to stay within the range of approximately 1,500 mg/L to 3,000 mg/L after the proposed additional extraction wells begin operation, and the additional groundwater water is treated in the system.
20. Based on Site and regional groundwater data, naturally occurring elevated chloride concentrations are detected in groundwater below the Corcoran Clay. Site monitoring well PW20-500 has chloride levels up to 2,650 mg/L and is representative of background conditions. The average chloride concentration in the injected effluent is approximately 256 mg/L, which is lower than the background levels found below the Corcoran Clay. Chloride is found in all other Site monitoring wells below the Corcoran Clay at levels which exceed the agricultural use standard for chloride of 106 mg/L, the WQO listed in Finding No. 47 of this Order. These wells also have elevated levels of sulfate (up to 1,400 mg/L) and are the result of the mixing of injected water with naturally occurring waters.
21. In 2018, TCP was detected above the Practical Quantitation Limit (PQL) of 0.005 µg/L in six monitoring wells and three Waterloo® System (WS) multi-level sample ports at concentrations ranging from 0.0057 µg/L to 0.057 µg/L. For TCP, the best currently approved method has a detection level of 0.003 µg/L and a PQL of 0.005 µg/L, which is also the maximum contamination level (MCL) for TCP in groundwater. TCP was detected above the laboratory reporting limits at a concentration of 0.066 µg/L in groundwater samples collected from one of 15 new monitoring wells installed at the site in 2019. This Order lists TCP as one of the Site's COCs. Monitoring requirements for TCP are specified in the attached MRP No.R5-2020-0XX.

#### **Revisions in this Order**

22. On 17 and 20 March 2020, Central Valley Water Board staff requested that the Discharger prepare a background study for TDS in accordance with procedures outlined in California Code Regulations Section 20415(e)(e)(10) for establishing a treated groundwater effluent discharge limit in this Order. On 20 April 2020, Geosyntec submitted the *Background Concentration and Proposed Discharge Limit for Total Dissolved Solids below Corcoran Clay* and proposed to set the TDS treated groundwater effluent discharge at 3,640 milligrams per liter (mg/L).
23. On 15 May 2020, in a telephone conference, Central Valley Water Board proposed, and the Discharger concurred with, an average annual TDS concentration of 2,960 mg/L as an effluent limitation.

24. On 11 June 2020, Central Valley Water Board staff issued a memo titled *Rationale for the Waste Discharge Requirement Total Dissolved Solids Concentration Limit for Injection of Water Below Corcoran Clay* in support of the 2,960 mg/L TDS effluent limitation. The US Environmental Protection Agency (EPA) software ProUCL version 5.1 was used to calculate the background statistics, and the upper prediction limit (UPL) was calculated on the annual average TDS concentrations.
25. In a future hypothetical agricultural scenario, the groundwater from the lower aquifer below the Corcoran Clay would need to be treated before use in order to meet agricultural use standards as referenced in Finding no. 47 of this Order. A greater level of treatment would be needed for potable use. Treatment options for chloride are limited and include reverse osmosis (RO), distillation and deionization, of which, RO is the least expensive and the only technically feasible option for treating large volumes of water. Current RO technology treats TDS as a whole and is not selective between components of TDS including chloride, sulfate, nitrate, phosphate, and other salts. Therefore, as long as TDS levels do not increase as a result of the injections, the overall cost to treat high TDS water with chloride would be the same as treating high TDS water with chloride and sulfate. The established TDS background value and discharge limit (2,960 mg/L) will ensure TDS does not increase during operation of the treatment system and there would be no net decrease in the potential beneficial use of this water. Hence, effluent limits for chloride and sulfate are not established or enforced in this Order.
26. On 17 June 2020, the Discharger submitted a ROWD addendum request to increase the maximum discharge flow rate of treated water below the Corcoran Clay from the combined GETS and proposed aerated MBBR from 1,200 gpm to 1,350 gpm.
27. Nitrate is found in groundwater above the Corcoran Clay in Site monitoring wells at concentrations up to 1,880 mg/L (in LP-9) since 2014, and historically up to 1,990 mg/L (in PW10-138). Nitrate concentrations in operating extraction wells ranges from 0.35 mg/l to 104 mg/L (in EW-08A). Nitrate has been found in the GETS effluent at up to 114 mg/L (on 19 May 2019) with an average concentration of 29 mg/L. Nitrate concentrations in the GETS effluent are expected to stay within the historical range detected in the GETS effluent.
28. On 23 September 2020 the Discharger proposed an UPL of 47.08 mg/L calculated on the annual average nitrate concentration in the extraction wells. This UPL value will be used for compliance purposes. The maximum nitrate detected below the Corcoran Clay is 1.60 mg/L (PW09-338), which is below the primary MCL of 10 mg/L. As found in all groundwater monitor wells screened below the Corcoran Clay in vicinity of the project, the groundwater below the Corcoran Clay has a negative oxygen-reduction potential (ORP) and very low dissolved oxygen (DO) readings (all less than 1 mg/L). This indicates that the aquifer below the Corcoran Clay is capable of denitrification. This is further supported by the nearly 40 years of injection of high-nitrate bearing water by the Discharger and the aquifer in and around the injection zone remaining nearly nitrate-free.

29. The 2012 WDR Order was adopted on 4 October 2012 and included the specifications to regulate discharges from the GETS remedial system using (GAC) and a bioreactor. Under that Order, discharge of treated water is permitted at a maximum rate of approximately 750 gallons per minute (gpm) beneath the Corcoran Clay and 1,250 gpm above the Corcoran Clay.
30. This Order updates the discharge specifications of the treated groundwater, modifies the effluent limits based on the best available technology for treatment, and allows for additional injection (of treated water) below the Corcoran Clay. This Order also covers the modifications made to the GETS, as described in previous findings. A treatment process flow diagram is shown in Attachment C.
31. As part of the GETS expansion, the Discharger has installed three (3) additional extraction wells: EW-18A, EW-18BR, and EW-19 in the eastern portion of the Site to accelerate the groundwater cleanup. If needed, additional extraction wells may also be added in the future under subsequent phases of work with written approval from the Central Valley Water Board staff.
32. To accommodate the injection of treated water, the Discharger proposes to add injection wells in the future that are screened below or above the Corcoran Clay. Workplans for the installation of future injection wells will be submitted to the Central Valley Water Board staff for approval. Flow limits for injection of treated water beneath and above the Corcoran Clay are specified in the discharge specifications B.5 of this Order.
33. The Discharger will be incorporating an aerated MBBR consisting of aeration tanks into the GETS to treat sulfolane in the groundwater extracted from the wells EW-18A, EW-18BR, and EW-19, located in the eastern portion of the Site. The maximum combined design volume of the aeration tanks is approximately 250,000 gallons with a design flow rate of 600 gpm. Extracted groundwater will be conveyed to the MBBR and aerated by blowers and a submerged coarse bubble diffuser system to keep the water in the tanks in a completely mixed state and to supply dissolved oxygen to the sulfolane degrading microorganisms. The extracted groundwater may also be amended with the sulfolane-degrading biomass collected from the GETS GAC units and low concentrations of nutrients containing nitrogen and phosphorus for microbial growth and degradation of sulfolane, as necessary. The nutrient amendments for the aerated MBBR are anticipated to be accomplished by batch additions of commercially available nutrient formulations containing nitrogen and phosphorus. Examples of such formulations include TersOx™- Microbe marketed by Tersus Environmental, LLC, and containing diammonium phosphate specifically for aerobic bioremediation applications. In solution, the nutrient formulation will consist generally of a nitrate and phosphate mixture. The nutrient formulations will be added to the MBBR reactors such that concentrations of nitrate in the reactor are approximately 1 mg/L, and phosphate is approximately 0.1 mg/L, following the generally accepted 10:1 nitrogen/phosphorus rule for bioreactors. These low nutrient concentrations are expected to be consumed and sufficient to sustain the biomass-based on nutrient consumption evaluated during the MBBR pilot

testing. Treated effluent from the aerated MBBR will be filtered and discharged to the existing injection well network either by connections at the wellheads or to existing conveyance lines from the GETS GAC units. A process flow diagram of the GETS GAC units and aerated MBBR is shown in Attachment C of this Order.

34. The Discharger has proposed to increase the total extraction rate to an average flow of 1,200 gpm with a maximum extraction rate of up to 1,350 gpm. Extracted water will be split and treated separately by the GETS GAC units and aerated MBBR, and the effluent will then be disposed of in the injection wells. The allowed disposal of the treated groundwater below the Corcoran Clay under the 2012 WDR Order is limited to 750 gpm. The allowable discharge has been increased under this Order to is 1,350 gpm beneath the Corcoran Clay. The increased injection rate is made to accommodate the additional groundwater extraction necessary to maintain hydraulic control of the sulfolane plume above the Corcoran Clay. The treatment systems have been designed and built to treat the increase in allowed flow. The new disposal will utilize deep injection wells IW-1, IW-2, IW-3R, IW-4, and any new deep injection wells if needed. The 2012 WDR Order also allowed the Discharger to dispose up to 1,250 gpm of treated groundwater above the Corcoran Clay, which will remain unchanged in this Order. The permitted extraction and injection flow rates do not exceed the demonstrated treatment system capacities of 750 gpm for GAC units and 600 gpm for aeration tanks, including the remediation system to treat additional water collected from J.R. Simplot's backup supply well.
35. These WDRs also require maintaining a maximum injecting pressure limit of 97 pounds per square inch (psi) in the injection wells. Injection pressure may sometimes increase partially due to injection screen fouling, which may be attributed to iron bacteria and manganese. Therefore, the Discharger will chemically rehabilitate each injection well, which is typically done at the Site by injecting a solution of 500 gallons of hydrochloric acid, 50 gallons of Pipe and Well renew and 50 pounds of ammonium hydrogen fluoride, and then removing the fouling deposits via air-lifting, bailing or pumping. The discharge specification for chemical rehabilitation of injection wells is specified in B.2 of this Order.

### **SURFACE AND GROUND WATER CONDITIONS**

36. The first water-bearing zone (Water Table zone) beneath the Site occurs at a depth of 10 to 19 bgs. A Shallow water-bearing zone occurs at depths of approximately 50 to 100 feet bgs. An Intermediate water-bearing zone occurs at depths of 100 to 150 feet bgs, and a deep aquifer is present at depths of 150 to the top of the Corcoran Clay, approximately 270 feet bgs. The deep water-bearing zone has been subdivided into a Deep 1 zone, at depths of 150 feet bgs to 220 feet bgs and Deep 2 zone, occurring off-Site to the east, at depths of 220 feet bgs to the top of the Corcoran. Water level measurements across the Site indicate that there is a hydraulic connection between the water-bearing zones above the Corcoran Clay.

## GROUNDWATER MONITORING

37. In addition to the groundwater monitoring required by this Order, the Discharger monitors the groundwater remediation efforts pursuant to MRP Order No. R5-2015-0810 Under that order the groundwater is monitored for sulfolane, DBCP, EDB, BHC isomers, nitrate, chloride, and sulfate. Subsets of monitoring wells are sampled quarterly, semi-annually, and annually; groundwater elevations are measured every quarter. Under this Order, groundwater monitoring of the injection zones above and below the Corcoran Clay is conducted. Data collected for Order No. R5-2015-0810 can also be used to fulfill some of the monitoring requirements of this Order if submitted according to the MRP of this Order. If duplicative sampling is ordered between the two monitoring programs, a single sample will suffice for both reporting objectives. Duplication of monitoring efforts is not intended.

## BASIN PLAN, BENEFICIAL USES, AND REGULATORY CONSIDERATIONS

38. *The Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives (WQOs), contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Resources Control Board (State Board). Pursuant to Section 13263(a) of the California Water Code (CWC), waste discharge requirements must implement the Basin Plan.
39. The designated beneficial uses of underlying groundwater include:
- a. Municipal and domestic water supply (MUN);
  - b. Agricultural water supply (AGR);
  - c. Industrial service supply (IND); and
  - d. Industrial process supply (PRO).
40. The Basin Plan establishes numerical and narrative WQOs for surface and groundwater within the basin and it recognizes that WQOs are achieved primarily through the Central Valley Water Board's adoption of waste discharge requirements and enforcement orders. Where numerical WQOs are listed, these are limits necessary for the reasonable protection of beneficial uses of the water. Where compliance with narrative WQOs is required, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in orders, which will implement the narrative objectives to protect beneficial uses of the waters of the state. Finding no. 47 lists those numerical limits for compliance with the narrative objective of this Order.
41. The Basin Plan identifies numerical WQOs for waters designated as municipal supply. These are the MCLs specified in the following provisions of Title 22, 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 Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

42. The Basin Plan contains narrative WQOs 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.
43. Section 13241 of the Water Code requires each Regional Board to consider various factors, including economic considerations, when adopting WQOs into its Basin Plan. Water Code Section 13263 requires each Regional Board to address the factors in Section 13241 in adopting waste discharge requirements. The State Board, however, has held that a Regional Board need not specifically address the Section 13241 factors when implementing existing WQOs in waste discharge requirements because the factors were already considered in adopting WQOs. These waste discharge requirements implement adopted WQOs.
44. State Board Resolution No. 92-49 (hereafter Resolution No. 92-49) requires each Regional Board to require actions for cleanup and abatement of discharges that cause or threaten to cause pollution or nuisance to conform to the provisions of State Board Resolution No. 6816 (hereafter Resolution No. 68-16) and the Basin Plan. Pursuant to Resolution No. 92-49, the Regional Board shall ensure that dischargers are required to clean up and abate the effects of discharges in a manner that promotes the attainment of either background water quality, or if background levels of water quality cannot be restored, the best water quality which is reasonable and which complies with the Basin Plan including applicable WQOs.
45. Resolution No. 68-16 requires the Regional 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., the quality that exceeds WQOs). See Groundwater Limitations E.1-3.
46. These Waste Discharge Requirements pertain to the water quality discharged from treatment systems. The discharge limit for the J.R. Simplot backup supply well wellhead

treatment system has been established at WQOs for sulfolane, DBCP, EDB, and TCP. Discharge limits for the Site treatment system(s) have been established at the WQOs for sulfolane, DBCP, EDB, and TCP. Discharge limits for the Site treatment system(s) have been established for TDS and nitrate based on background levels, as presented in Findings 24, 26, and 27 in this Order. For DBCP, and TCP where the effluent limit is set below the concentration level that can be measured, compliance is demonstrated by not measuring concentrations above their respective method detection limits, when using the methods listed in the MRP. If new methods are approved that improve the detection level, the WDRs will be revised. The discharge from the treatment system(s) and the backup supply well wellhead treatment system will be monitored and compared with the established background/baseline conditions prior to injecting in the zones, both above and below the Corcoran Clay. Monitoring will be conducted in accordance with the attached MRP No. R5-2020-0XX.

47. The applicable WQOs are the narrative toxicity objective, Primary and Secondary MCLs, and the narrative taste and odor objective, as found in the Basin Plan. Numerical limits in this Order implement those WQOs.

The following are the numerical WQOs for the COCs and potential COCs at the Site:

<b>Constituent</b>	<b>WQO</b>	<b>Reference</b>
DBCP	0.0017 µg/L	California Public Health Goal
EDB	0.01 µg/L	California Public Health Goal
Sulfolane	20 µg/L	EPA Tap Water Screening Level
1,2,3-TCP	0.0007 µg/L	California Public Health Goal
Nitrate	10 mg/L	California Maximum Contaminant Level
Sulfate	250 mg/L	California Secondary Maximum Contaminant Level
Chloride	106 mg/L	Agricultural Water Quality Goal-Food and Ag
Phosphorus	0.14 µg/L	USEPA IRIS Reference Dose
Total dissolved solids (TDS)	450 mg/L	Food and Agricultural Organization-Sensitive Crop Protection
Alpha-BHC	0.015 µg/L	California Notification Level
Beta-BHC	0.025 µg/L	California Notification Level
Gamma-BHC (Lindane)	0.032 µg/L	California Public Health Goal

48. The action to adopt these Waste Discharge Requirements for the Site is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.) (CEQA) because it: (1) authorizes activity that will result in a minor modification to land pursuant to Title 14, California Code of Regulations, Section 15304; (2) consists of an action by a regulatory agency authorizing actions for the protection of the environment pursuant to Title 14, California Code of Regulations, Section 15308; and (3) authorizes minor cleanup actions costing \$1.5 million or less that are taken to prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release of a hazardous waste or substance pursuant to Title 14, California Code of Regulations, Section 15330.
49. Section 13267(b) of the California Water Code 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, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state 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 it shall identify the evidence that supports requiring that person to provide the reports.”
- The technical reports required by this Order and the attached MRP No. R5-2020-0XX are necessary to assure compliance with these WDRs. The Discharger operates the facility that discharges the waste subject to this Order.
50. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells, as described in *California Well Standards Bulletin No. 74-90* (June 1991) and *Water Well Standards: State of California Bulletin No. 94-81* (December 1981). These standards, and any more stringent standards implemented by the Regional Water Board or adopted by San Joaquin County pursuant to California Water Code Section 13801 apply to all monitoring, extraction and injection wells.
51. 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).” Therefore, the injection of groundwater within the treatment zone at this site, with or without the treatment for VOCs, complies with Section 3020(2) (b) of RCRA.

52. 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, California Code of Regulations (CCR), section 20005 *et seq.* (hereafter Title 27), which allows a conditional exemption from some or all of the provisions of Title 27. The exemption, pursuant to Title 27 CCR Section 20090(b), is based on the following:

- a. The Regional Water Board is issuing Waste Discharge Requirements.
- b. The discharge is in compliance with the applicable Basin Plan.
- c. The wastewater does not need to be managed according to Title 22CCR, Division 4.5 and Chapter 11 as a hazardous waste.

Section 20090(d) allows exemption for a project to cleanup a condition of pollution that resulted from an unauthorized release of waste based on the following:

- d. 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.
- e. Wastes removed from the immediate place of release will be discharged according to the Title 27 regulations; and
- f. The cleanup actions intended to contain wastes at the place of release shall implement the Title 27 regulations to the extent feasible.

53. Section 13304.1(b) of the California Water Code requires that the Regional Board shall consult with the affected groundwater management entity, if any, affected public water systems, and the State Department of Public Health prior to setting applicable water quality standards to be achieved at groundwater cleanup sites that are associated with an aquifer that is used as a drinking water source. Prior to issuing this Order, the Regional Board will consult with the City of Lathrop, and other appropriate interested agencies.

54. Pursuant to California Water Code Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

### **Public Notice**

55. 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.

56. The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to revise the waste discharge requirements for this facility and it has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
57. Prohibitions, conditions, definitions, and some methods of determining compliance other than those included in this Order are contained in the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated March 1991, a part of this Order.
58. In a public meeting, all comments pertaining to these Waste Discharge Requirements were heard and considered.

**IT IS HEREBY ORDERED** that Order No. R5-2012-0106 be rescinded and pursuant to sections 13263 and 13267 of the California Water Code, OCC and GSHI, their agents, successors, and assigns, in order to meet provisions of Division 7 of the Water Code and the regulations adopted thereunder, shall comply with the following:

**A. DISCHARGE PROHIBITIONS:**

1. The discharge of any waste, amendment, or other materials not specifically regulated by this Order, is prohibited.
2. Discharge of wastes or amendments to surface waters or to surface water drainage courses is prohibited.
3. Creation of pollution, contamination, or nuisance, as defined by Section 13050 of the California Water Code (CWC) is prohibited.
4. Treatment system bypass of untreated or partially treated waste is prohibited, except as allowed by Standard provisions E.2 of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*.
5. Discharge of wastes or amendments to property that is not under the control of the Discharger is prohibited. The "area under control" of the Discharger is considered to be at the horizontal borders of the application area and owned by the Discharger and/or where the Discharger holds an agreement with the property owner for the purpose of investigation and remediation.
6. Discharge of waste to land or groundwater in areas other than that proposed for remediation or at a location in a manner different from that described in the Findings, is prohibited.
7. Discharge of waste classified as 'hazardous' under Section 2521, Chapter 15 of Title 23 or 'designated', as defined in Section 13173 of California Water Code, is prohibited.

**B. DISCHARGE SPECIFICATIONS:**

1. The allowed nutrient amendment containing low concentrations of nitrogen and phosphorous for the aerated MBBR is a commercial formulation called TersOx™ - Microbe marketed by Tersus Environmental, LLC, containing diammonium phosphate specifically for aerobic bioremediation applications. The nutrient formulation shall be added to the MBBR reactors such that concentrations of nitrate in the reactor are approximately 1 milligram per liter (mg/L), and phosphate is approximately 0.1 mg/L, following the generally accepted 10:1 nitrogen/phosphorus rule for bioreactors. If TersOx is commercially unavailable, the Discharger may use other commercial products provided that the chemical and nutrient formulations of

the alternate produce are comparable with the TersOx formulation and have received Central Valley Water Board staff concurrence.

2. The allowed amendments for chemical rehabilitation of each injection well include hydrochloric acid (maximum 500 gallons), commercially available Pipe and Well Renew (maximum 50 gallons), and ammonium hydrogen fluoride (maximum 50 pounds) in each injection well. Commercial formulation other than Pipe and Well renew, with similar chemical composition, may be used with Central Valley Water Board staff concurrence. The Discharger shall minimize the amount of amendments injected for biofouling to the extent practical and ensure that the added chemicals are completely extracted from the wells as much as possible after the rehabilitation activities are completed.
3. The discharges from the GETS GAC units, aerated MBBR, and combined discharge from the treatment system shall only be to the groundwater injection zones, as shown on Attachment B, a part of this Order.
4. The Discharger shall not cause degradation or nuisance of any water supply as defined by the California Water Code.
5. The disposal of the treated groundwater into the injection wells screened below the Corcoran Clay shall not exceed 1,350 gpm. The disposal of the treated groundwater above the Corcoran Clay shall not exceed 1,250 gpm.
6. Treatment plant flow limits and injection flow rates shall not exceed the demonstrated treatment system capacities of 750 gpm for the GETS GAC units and 600 gpm for the aerated MBBR.
7. For DBCP, the best currently approved analytical methods have detection levels of 0.001 µg/L and PQL of 0.01 µg/L. Since the effluent limit for DBCP has been established below the PQL, but above the method detection level (MDL) compliance for DBCP is demonstrated by not measuring the concentrations above the PQL of 0.01 µg/L. If new methods are approved that sufficiently improve on the PQL, the WDRs will be revised, as appropriate.
8. For TCP, where the effluent limit is established below the MDL, compliance is demonstrated by not measuring TCP concentrations above the MDL, which is currently equal to 0.003 µg/L. If new methods are approved that sufficiently improve on the MDL, the WDRs will be revised, as appropriate.
9. The discharge from the Site treatment system(s) to the injection wells below and above the Corcoran Clay shall not contain concentrations of COCs exceeding the following effluent limits subject to the compliance determinations listed in Table 1 below. Except for nitrate and TDS, if concentrations in the discharge exceed effluent limits in Table 1 below, the discharge will be re-sampled, and the systems will be temporarily shut down pending receipt of the confirmation sample results.

For nitrate and TDS, if flow-weighted annual rolling average concentration exceeds the effluent limits in Table 1 below, the discharge will be re-sampled, and the system will be temporarily shut down pending receipt of the confirmation samples results.

10. The groundwater shall not be amended with materials other than those listed in Specifications B.1 and B.2 above, unless previously approved by the Central Valley Water Board staff.
11. In the case of injection of extracted and treated groundwater from the J.R. Simplot's backup supply well, the discharge to the injection wells below the Corcoran Clay shall not contain concentrations of Site COCs in excess of those in Table 1. For constituents that are not the responsibility of the Discharger (i.e. TDS and nitrate), the concentrations in the effluent and compliance monitoring wells screened below the Corcoran Clay shall not exceed the background values listed in Table 1.

**Table 1: Effluent Limits for discharge below ground surface:**

Constituent	Effluent Limit
DBCP <sup>1,2</sup>	0.0017 µg/L
EDB <sup>1</sup>	0.01 µg/L
Sulfolane <sup>1</sup>	20 µg/L
1,2,3-TCP <sup>1,3</sup>	0.0007 µg/L
Phosphate <sup>1,4</sup>	0.1 mg/L
Nitrate <sup>5,6,7</sup>	47 mg/L
TDS <sup>5,8</sup>	2,960 mg/L

**Table Notes:**

- <sup>1</sup> For compliance, this concentration limit is enforceable for all individual discharges from every effluent port of the remediation system(s), which will be injected into the ground. Combined calculated concentrations shall not be considered for compliance.
- <sup>2</sup> Compliance is demonstrated by not measuring DBCP concentration above the PQL, which is currently equal to 0.01 µg/L, when using methods specified in the attached MRP.

- 3 Compliance is demonstrated by not measuring TCP at concentration above the MDL, which is currently equal to 0.003 µg/L, when using methods specified in the attached MRP.
- 4 Based on the proposed amendment formulation TersOx™.
- 5 For compliance, this limit shall be compared with the calculated combined flow-weighted annual rolling average concentration. This calculated concentration combines concentrations and flows on a flow-weighted basis from each of the treatment systems prior to injecting in the groundwater, both above and below the Corcoran Clay. The calculated concentration for that month is averaged with the value from the previous eleven months to get the annual average for comparison with the effluent limit. This statistical method is not applicable for individual discharges from the system(s) injected into the ground.
- 6 For groundwater compliance well monitoring, individual baseline/background value must be established for each compliance monitoring well using methods explained in Groundwater Limitation section C.4 below.
- 7 This limit was developed by Central Valley Water Board staff in the study “WDR Statistics Memo,” submitted by the Discharger on 23 September 2020.
- 8 This limit is developed in the Central Valley Water Board staff memo “Rationale for the Waste Discharge Requirement Total Dissolved Concentration Limit for Injection of Water below Corcoran Clay,” dated 19 May 2020, and issued on 11 June 2020.

### **C. GROUNDWATER LIMITATIONS**

1. The discharge shall not cause concentrations of nitrate in groundwater above the Corcoran Clay to exceed by 20% of the background/baseline conditions established for each of the compliance points outside the treatment zones as designated by MRP No.R5-2020-0XX or the WQO specification listed in Table 1, whichever is lesser. If background is greater than the WQO, then discharge shall not cause an increase above the background. If the background is less than the WQO, then the discharge shall not cause a 20% increase over the background value, but not exceeding the WQO. If exceedances are present in compliance points above the Corcoran Clay, the well shall be re-sampled, and, if confirmed, information regarding other factors including, but not limited to local and regional conditions, statistical factors, hydrological/geochemical, etc., shall be submitted within 45 days of the confirmation to the Central Valley Water Board staff. If exceedances are determined to be the result of the discharge, the discharger shall cease injections above the Corcoran Clay until a restart is approved by the Central Valley Water Board staff. A corrective action plan may be required and requested by Central Valley Water Board staff. Additional corrective measures may be required to be implemented in order to restart the injection.

2. The discharge shall not cause concentrations of sulfolane, DBCP, EDB, and TCP in groundwater in the injection zone above the Corcoran Clay to exceed the WQOs listed in Table 1 and under Finding No.47. If exceedances in sulfolane, DBCP, EDB, and TCP are present in compliance zone monitoring wells above the Corcoran Clay, the well shall be re-sampled, and, if confirmed, information regarding other factors including, but not limited to local and regional conditions, statistical evaluations of the groundwater chemistry, hydrological/geochemical factors, etc., shall be submitted to the Central Valley Water Board staff for review within 45 days following receipt of the confirmation. If exceedances are determined to be the result of the discharge, a corrective action plan may be required by Central Valley Water Board staff to be submitted and these WDRs revised, as appropriate.
3. The discharge shall not cause concentrations of nitrate and TDS in groundwater in the injection zone below the Corcoran Clay to exceed the background values listed in Table 1 of discharge specifications B.11. If exceedances are present in compliance points (designated by MRP No. R5-2020-)XX) below the Corcoran Clay, the well shall be re-sampled, and, if confirmed, information regarding other factors including, but not limited to local and regional conditions, statistical factors, hydrological/geochemical, etc., shall be submitted within 45 days of the confirmation to the Central Valley Water Board staff. If exceedances are determined to be the result of the discharge, the discharger shall cease injections below the Corcoran Clay until a restart is approved by the Central Valley Water Board staff. A corrective action plan may be required and requested by Central Valley Water Board staff. Additional corrective measures may be required to be implemented in order to restart the injection.
4. The discharge shall not cause the groundwater to contain taste and odor-producing substances that cause nuisance or adversely affect beneficial uses at the compliance monitoring points outside the treatment zone, designated in Table 2 of MRP No. R5-2020-00XX.

#### **D. PROVISIONS**

1. The Discharger shall comply with all applicable Standard Provisions and Reporting Requirements for Waste Discharge Requirements, dated 1 March 1991, which are attached hereto and by reference are a part of this Order. This attachment and its individual paragraphs are commonly referenced as Standard Provisions.
2. The Discharger may be required to submit technical reports pursuant to California Water Code Section 13267 as directed by the executive Officer. The technical reports required by this Order are necessary to assure compliance with this Order.
3. All technical reports required herein that involve planning, investigation, evaluation, or design or other work requiring interpretation or 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. To demonstrate compliance with Title 16, CCR, Sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports 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.

4. The Discharger shall develop background/baseline conditions for nitrate above the Corcoran Clay each of the groundwater compliance points located outside the treatment zone. The treatment zone is shown in Attachment C. Compliance points are designated in Table 2 of the MRP No R5-2020-XXX. The Discharger shall develop background/baseline conditions for the compliance wells following the procedures found in CCR Section 20415(e)(10). The Discharger shall submit a proposal to update the background concentrations **no later than 45 days prior to commencement of injection system operation above the Corcoran Clay**. The Discharger shall submit a report summarizing the development of the background/baseline concentrations and a list of the proposed background/baseline values **no later than 30 days prior to commencement of operation of the new injection wells screened above the Corcoran Clay**.
5. At least 15 days prior to the commencement of injection system operation above the Corcoran clay, the Discharger shall submit an Operation and Maintenance (O&M) Plan for the groundwater treatment facilities. The O&M Plan shall instruct field personnel on how to manage the day-to-day discharge operations to comply with the terms and conditions of this Order and how to make field adjustments, as necessary. A copy of the O&M Plan shall be kept at the facility for reference by operating personnel. Key personnel shall be familiar with its contents. The O&M plan shall be modified as needed to respond to changes in system operations.
6. The Discharger shall comply with the MRP No. R5-2020-00XX, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
7. A copy of this Order shall be maintained at the project site and be available at all times to operating personnel.
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 these Waste Discharge Requirements.
9. The Discharger shall promptly report to the Central Valley Water Board any violation of this Order, material change in the character or volume of the discharge. The location of any discharge within the treatment zone (Attachment C) may be

changed if needed with written agreement from the Central Valley Water Board staff.

10. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the following items by letter, in advance of the transfer of ownership or control, and a copy of the notice must be forwarded to the Central Valley Water Board:
  - a. Existence of this Order; and
  - b. The status of the Discharger's annual fee account.
11. 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.
12. Chemical, bacteriological, and bioassay analyses of the biomass collected as a byproduct from the aeration tanks must be conducted at a laboratory certified for such analyses by the State Department of Health Services.
13. All reports, or other documents required by these WDRs, and other information requested by the Central Valley 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 a 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 of 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. the 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.

14. The Discharger shall permit authorized staff of the Central Valley Water Board:

- a. Entry to the project site covered by these Waste Discharge Requirements or in which any required records are kept;
- b. Access to copy any records required to be kept under terms and conditions of this Order;
- c. Inspection of monitoring equipment or records; and
- d. Sampling of any discharge.

15. In the event 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 substances, 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 within 24 hours as soon as he or his 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 and the dates thereof, and the steps being taken to prevent the problem from recurring.

16. In the event of any change in control or ownership or responsibility for operation, monitoring, and maintenance of the Lathrop facility, 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. Notification shall be given 180 days prior to the effective date of the change and shall be accompanied by an amended Report of Waste discharge and technical documents that are needed to demonstrate continued compliance with this Order.
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 or volume of the discharge. The location of any discharge within the treatment zone (Attachment C) can be changed if needed with written agreement from the Central Valley Water Board.
18. Project coverage under these Waste Discharge Requirements may be terminated, by the Executive Officer at any time upon giving reasonable notice to the Discharger.
19. The Discharger shall maintain a copy of this Order at the Site and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.

#### **E. Special Provisions**

The Central Valley Water Board adopted Basin Plan amendments incorporating new programs for addressing ongoing salt and nitrate accumulation in the Central Valley at its 31 May 2018 Board Meeting. These programs, once effective, could change how the Central Valley Water Board permits discharges of salt and nitrate. For nitrate, dischargers that are unable to comply with stringent nitrate requirements will be required to take on alternate compliance approaches that involve providing replacement drinking water to persons whose drinking water is affected by nitrates. Dischargers could comply with the new nitrate program either individually or collectively with other dischargers. For salinity, dischargers that are unable to comply with stringent salinity requirements would instead need to meet performance-based requirements and participate in a basin-wide effort to develop a long-term salinity strategy for the Central Valley. This Order may be amended or modified to incorporate any newly applicable requirements. More information regarding these amendments can be found on the Central Valley Salinity Alternatives for Long-Term Sustainability ([CV-SALTS](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)) [web page](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/): ([https://www.waterboards.ca.gov/centralvalley/water\\_issues/salinity/](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)).

Sludge/Biomass Discharge Specifications: Collected residual sludge, biomass and other solid removed from the treatment system, including the aeration tanks shall be disposed of in a manner approved by the Central Valley Water Board staff, and consistent with Consolidated Regulations for Treatment, Storage, processing, or Disposal of Solid Waste, as set forth in

Title 27, CCR, division 2, subdivision 1, section 20005 , et seq. Removal for further treatment, storage, disposal, or reuse at sites (e.g., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy these specifications.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Resources Control Board to review the action in accordance with CWC section 13320 and California Code of Regulations, Title 23, Sections 2050 and following. The State Water Resources Control 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: [waterboards petition](#) or will be provided upon request.

I, Patrick Pulupa, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Central Valley Water Quality Control Board, Central Valley Region, on 10 December 2020.

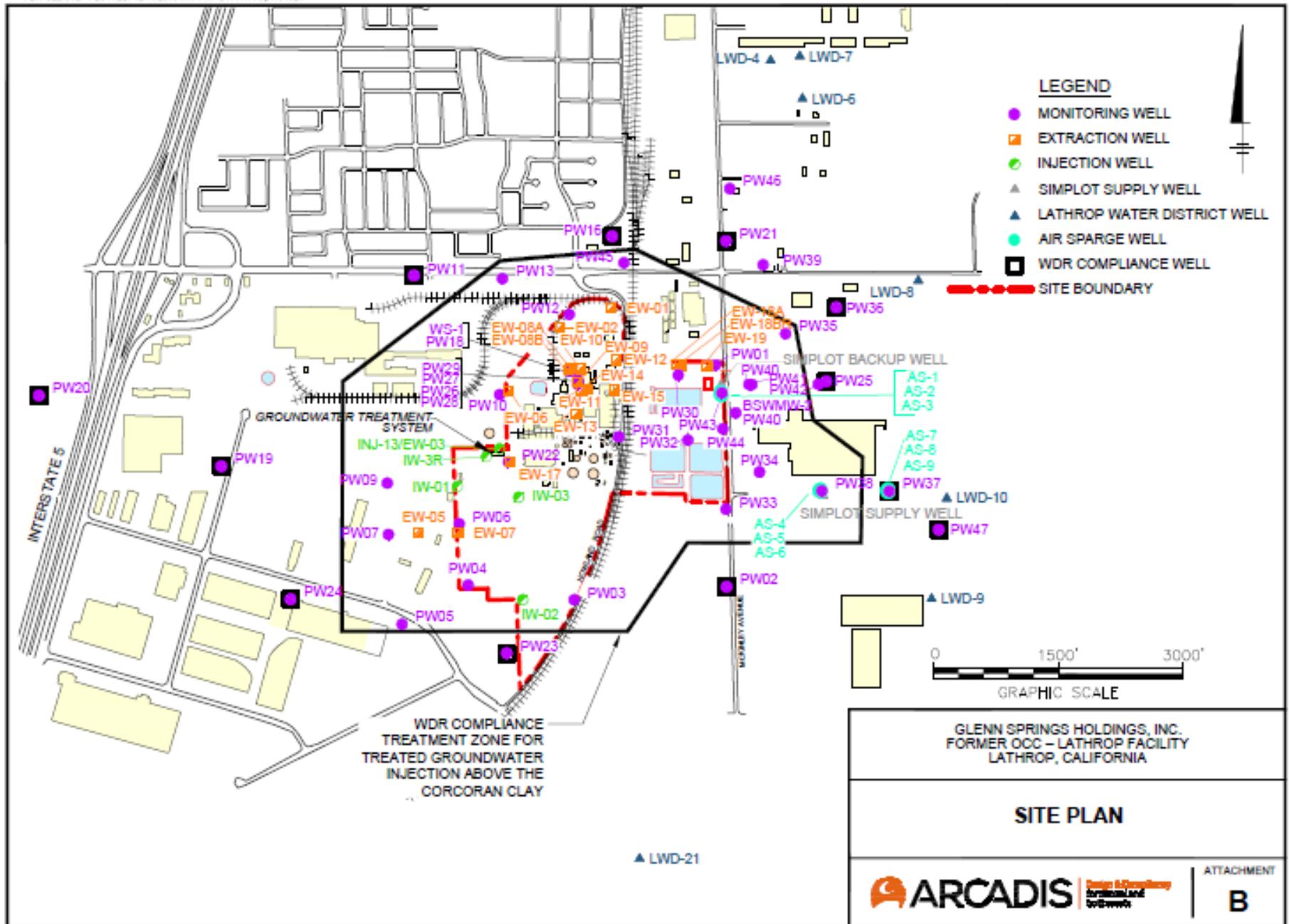
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PATRICK PULUPA, Executive Officer

10/27/2020 SS

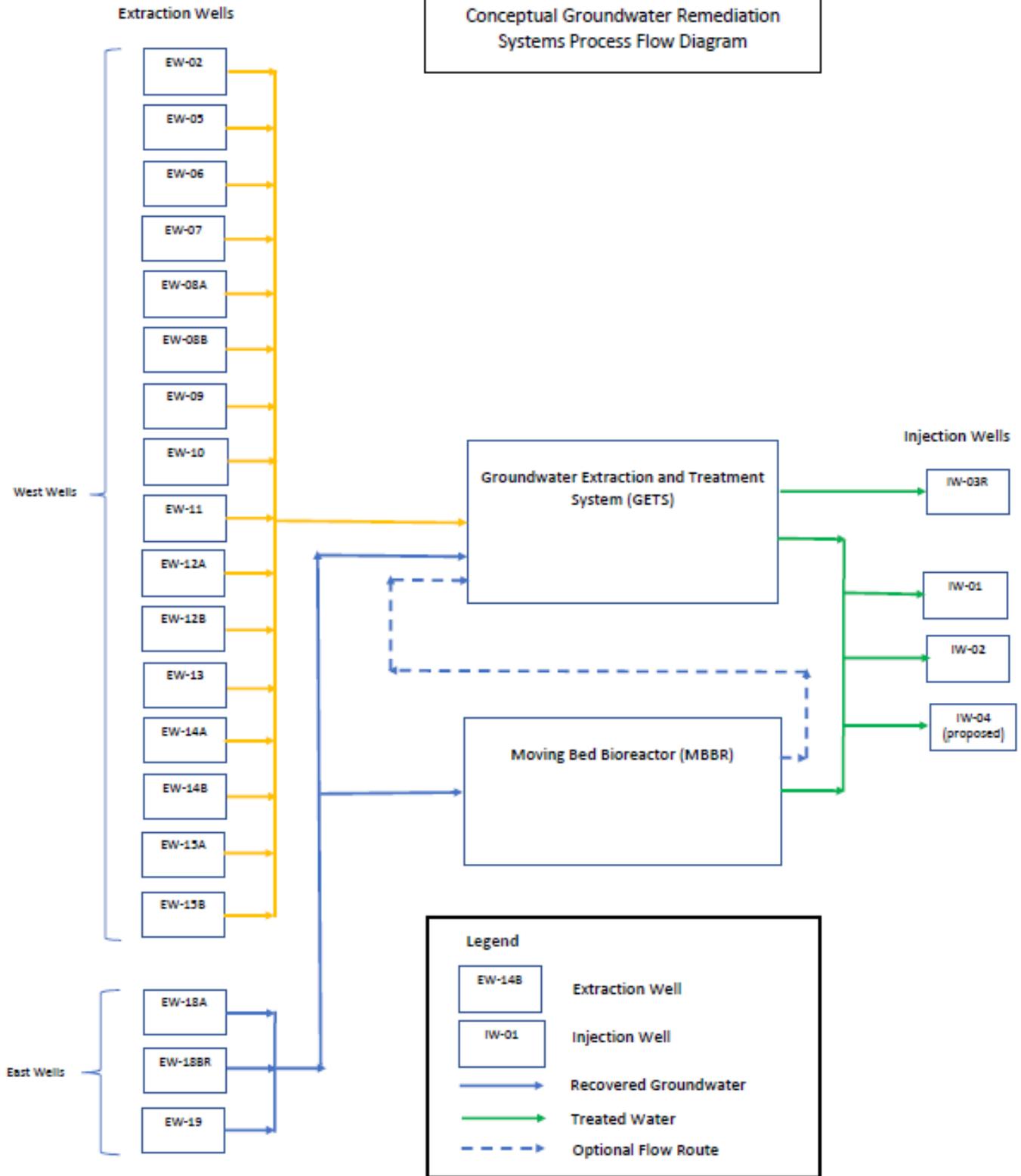


**ATTACHMENT B**



# ATTACHMENT C

Attachment C.  
Conceptual Groundwater Remediation  
Systems Process Flow Diagram



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 Central Valley Waterboards' website ([http://www.waterboards.ca.gov/centralvalley/about\\_us/contact\\_us/](http://www.waterboards.ca.gov/centralvalley/about_us/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 Central Valley Waterboard website ([http://www.waterboards.ca.gov/centralvalley/about\\_us/contact\\_us](http://www.waterboards.ca.gov/centralvalley/about_us/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.

## Waste Discharge to Land

- 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

TENTATIVE WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2020-0XX  
GLENN SPRINGS HOLDINGS, INC  
FORMER OCCIDENTAL CHEMICAL COMPANY, LATHROP FACILITY  
GROUNDWATER REMEDIATION PROJECT  
SAN JOAQUIN COUNTY

### Background

Occidental Chemical Company (OCC) retains the liability for implementing remedial actions at the Former Best Fertilizers Company site located at 16777 Howland Road in Lathrop, San Joaquin County, California (Site). OCC is managing remediation activities at the Site through Glenn Springs Holdings, Inc. (GSHI), a wholly-owned subsidiary of Occidental Petroleum Corporation. OCC and GSHI are hereafter collectively referred to as Discharger. The Site occupies approximately 340 acres, most of which are paved or covered with buildings. The Site has been owned and occupied by the J.R. Simplot Company (J.R. Simplot) since 1 January 1983. The Site is underlain by relatively flat-lying unconsolidated silts, sands, and clays to a depth of approximately 230 feet below ground surface (bgs).

Contaminants of concern (COCs) associated with the Discharger's past operations include the pesticides 1,2-dibromo-3-chloropropane (DBCP) and ethylene dibromide (EDB) as well as 2,3,4,5-tetrahydrothiophene-1,1-dioxide, commonly known as sulfolane, which was used as a solvent for cleaning process equipment. 1,2,3-trichloropropane (TCP), which is typically associated with facilities involved in DBCP production, has also been detected in groundwater beneath the Site. Groundwater beneath and in the vicinity of the Site is also contaminated with sulfate, nitrate, chloride, lindane and other isomers of benzene hexachloride (BHC).

The Discharger, as directed by the Central Valley Regional Water Quality Control Board (Central Valley Water Board), has been performing the cleanup of groundwater beneath the Site. The current groundwater extraction and treatment system (GETS) extracts groundwater from up to twenty-two (22) extraction wells screened above a thick layer of blue clay known as the Corcoran Clay. The extracted groundwater is treated using a bioreactor and granular activated carbon (GAC), and then disposed of by injection into three deep injection wells IW-01, IW-02, and IW-3R that are completed below the Corcoran Clay, located approximately 270 to 305 feet bgs. A fourth injection well IW-04, is planned to be installed in 2020. In July 2020, a pilot injection test was conducted for INJ-13, which is screened in the aquifer above the Corcoran Clay. Depending upon the injection capacity of INJ-13, and the existing deep injection wells screened beneath the Corcoran Clay, additional treated water injection wells screened below and above the Corcoran Clay may also be installed in the future, with Central Valley Water Board staff concurrence.

The J.R. Simplot's existing backup water supply well (BSW) operations are limited to emergency situations and compliance sampling events; however, the Discharger has

GLENN SPRINGS HOLDING, INC.  
FORMER OCCIDENTAL CHEMICAL COMPANY LATHROP FACILITY  
SAN JOAQUIN COUNTY

also utilized the BSW as an extraction well and has installed a wellhead treatment system to remove sulfolane from the BSW, enhancing the overall sulfolane remediation at the Site. As part of the GETS expansion, the Discharger will also be incorporating an aerated moving bed bioreactor (MBBR) consisting of aeration tanks into the GETS to treat sulfolane in the groundwater extracted from the wells located in the eastern portion of the Site.

### **Groundwater Remediation Project**

The groundwater remedial system has operated since 1982. Groundwater extraction and treatment has reduced the concentrations and extent of sulfolane, DBCP, and EDB in the groundwater at the Site. In 2019, concentrations of sulfolane, DBCP, and EDB in groundwater in the combined influent to the treatment system were in the ranges of 900 to 2,300 micrograms per liter ( $\mu\text{g/L}$ ), 0.051 to 0.27  $\mu\text{g/L}$ , and less than the laboratory reporting limit of 0.01  $\mu\text{g/L}$ , respectively. As of October 2020, the system has removed approximately 25,060 pounds (lbs) of sulfolane, 4,004 lbs of DBCP, and 220 lbs of EDB.

In recent years, in addition to routine operation and maintenance of the system, the Discharger has reconditioned the treatment system and optimized pumping from the extraction well network; installed additional extraction wells; investigated a suspected source area of sulfolane with high sulfolane soil concentrations; and, added additional groundwater monitoring wells to define the extent of COCs' plumes. The Discharger also modified the bioreactor/GAC treatment flow configuration from up-flow in parallel to down-flow in series and increased the dissolved oxygen concentration added prior to GAC treatment by using an oxygen delivery system in order to improve the aerobic biodegradation of sulfolane. With these modifications, each GAC vessel can be separately adjusted to improve the aerobic biological treatment of sulfolane in the lead vessel and sorption of EDB and DBCP in the lag vessel.

The current GETS is comprised of two GAC treatment trains, with each train containing two vessels operating in series. The original treatment train (Train #1) has been online in various configurations since the inception of the GETS in 1982. The first vessel (GAC-1) contains 26,000 pounds of GAC, and the second vessel (GAC-2) contains 30,000 pounds of GAC. The GAC-1 vessel acts as a submerged fixed-film biological reactor using GAC as the media to support biological growth and sulfolane is biodegraded within this vessel. The GAC-2 vessel acts primarily as GAC adsorber to remove the fumigants. Oxygen is added prior to each vessel for the aerobic biological reactions; however, most of the biological reactions occur in GAC-1. The second train (Train#2) includes carbon vessels GAC-3 and GAC-4 installed in a similar configuration as Train#1. The only difference between Train#1 and Train#2 is that the lead and lag vessels in Train#2 each contain only 20,000 pounds of GAC. As part of the system expansion, the Discharger is adding a MBBR for increasing GETS treatment capacity.

GLENN SPRINGS HOLDING, INC.  
FORMER OCCIDENTAL CHEMICAL COMPANY LATHROP FACILITY  
SAN JOAQUIN COUNTY

The Discharger has proposed to increase the total extraction rate to an average flow of 1,200 gpm with a maximum extraction rate of up to 1,350 gpm. Extracted water will be split and treated separately by the GETS GAC units and aerated MBBR, and the effluent will then be disposed of in the injection wells. The allowed disposal of the treated groundwater below the Corcoran Clay under the previous WDRs Order (issued in 2012) is limited to 750 gpm. The allowable discharge has been increased under this Order to 1,350 gpm beneath the Corcoran Clay. The increased injection rate is made to accommodate the additional groundwater extraction necessary to maintain hydraulic control of the sulfolane plume above the Corcoran Clay. The treatment systems have been designed and built to treat the increase in allowed flow. The new disposal will utilize deep injection wells IW-01, IW-02, IW-3R, IW-04, and any new deep injection wells that are needed to handle the increase inflow. The previous WDRs Order allowed the Discharger to dispose up to 1,250 gpm of treated groundwater above the Corcoran Clay, which remains unchanged in this Order. The permitted extraction and injection flow rates do not exceed the demonstrated treatment system capacities of 750 gpm for the GAC units and 600 gpm for the aeration tanks, including the remediation system to treat additional water collected from J.R. Simplot's BSW.

This Order updates the discharge specifications of the treated groundwater; modifies the effluent limits of COCs; allows for additional injection (of treated water) below the Corcoran Clay; includes effluent limits for TCP, nitrate, total dissolved solids (TDS), and phosphate, which were not part of the previous WDRs. This Order also covers the updated monitoring requirements due to the modifications made to the GETS.

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

The *Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region, Fourth Edition* (Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. Beneficial uses often determine the water quality objectives that apply to a water body. For example, waters designated as municipal and domestic supply must meet the maximum contaminant levels (MCLs) for drinking waters. The Basin Plan sets forth the applicable beneficial uses (industrial, agricultural, and domestic supply in this instance) of groundwater, procedure for application of water quality objectives, and the process for and factors to consider in allocating waste assimilation capacity.

### **Antidegradation**

The antidegradation directives of Section 13000 of the California Water Code require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Waters can be of high quality for some constituents or beneficial uses and not others. Policies and procedures for complying with this directive are set forth in the Basin Plan (including by reference State Water Board Resolution No. 68-16, "Statement

GLENN SPRINGS HOLDING, INC.  
FORMER OCCIDENTAL CHEMICAL COMPANY LATHROP FACILITY  
SAN JOAQUIN COUNTY

of Policy With Respect to Maintaining High Quality Waters in California,” or “Antidegradation” Policy).

Resolution 68-16 is applied on a case-by-case, constituent-by-constituent basis in determining whether a certain degree of degradation can be justified. It is incumbent upon the Discharger to provide technical information for the Board to evaluate that fully characterizes:

- All waste constituents to be discharged;
- The background quality of the uppermost layer of the uppermost aquifer;
- The background quality of other waters that may be affected;
- The underlying hydrogeologic conditions;
- Waste treatment and control measures;
- How treatment and control measures are justified as best practicable treatment and control;
- The extent the discharge will impact the quality of each aquifer; and
- The expected degradation to water quality objectives.

In allowing a discharge, the Board must comply with CWC section 13263 in setting appropriate conditions. The Board is required, relative to the groundwater that may be affected by the discharge, to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential for that purpose. The Board need not authorize the full utilization of the waste assimilation capacity of the groundwater (CWC 13263(b)) and must consider other waste discharges and factors that affect that capacity.

As stated above, groundwater will be extracted, treated and recharged into both above and below the Corcoran Clay. Groundwater quality will be monitored to assess the impacts due to the project. The groundwater flowing from the project area will be captured by the extraction system installed by the Discharger. No degradation should occur as a result of the discharge.

## **Title 27**

Title 27, CCR, section 20380 et seq. (“Title 27”), contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for containment of classified waste, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent is

GLENN SPRINGS HOLDING, INC.  
FORMER OCCIDENTAL CHEMICAL COMPANY LATHROP FACILITY  
SAN JOAQUIN COUNTY

acceptable. The proposed discharge will not degrade groundwater quality. The discharge is exempt from the Title 27 requirements.

## **New Order Terms and Conditions**

### **Discharge Prohibitions and Specifications**

The proposed Order establishes a discharge flow limit of 1250 gallons per minute (gpm) above the Corcoran Clay, and 1350 gpm below the Corcoran Clay. Injection flow rates shall not exceed the demonstrated treatment system capacities.

### **Monitoring Requirements**

Section 13267 of the CWC authorizes the Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. In recent years there has been increased emphasis on obtaining all necessary information, assuring the information is timely as well as representative and accurate, and thereby improving accountability of any discharger for meeting the conditions of discharge. Section 13268 of the CWC authorizes assessment of civil administrative liability where appropriate.

This Order requires effluent and groundwater monitoring requirements, including flow rates. In order to adequately characterize its discharge, the Discharger is required to monitor for sulfolane, DBCP, EDB, nitrate, 1,2,3-TCP, TDS, and phosphate.

SS:11/2/20