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[TENTATIVE] WASTE DISCHARGE REQUIREMENTS ORDER
R5-2021-####



ORDER INFORMATION

Order Type(s): Waste Discharge Requirements (WDRs)
Status: TENTATIVE
Program: Private Site Cleanup
Region 5 Office: Sacramento (Rancho Cordova)
Discharger(s): Glenn Springs Holdings Inc.
Occidental Petroleum Corp.
Facility: Groundwater Remediation Project—Lathrop Facility
Address: Louise Avenue and Howland Road, City of Lathrop
County: San Joaquin County
Parcel Nos.: 198-180-01; 198-180-02; 198-180-03; 198-180-04;
198-180-05; 198-180-06; 198-140-03; 198-140-04
WDID: 5B392008001
GeoTracker ID: [SLT5S0033055](#)
Related Order(s): WDRs Order R5-2012-0106
MRP R5-2015-0810

CERTIFICATION

I, PATRICK PULUPA, Executive Officer, hereby certify that the following is a full, true, and correct copy of the order adopted by the California Regional Water Quality Control Board, Central Valley Region, on XX February 2021.

PATRICK PULUPA,
Executive Officer

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GLOSSARY

AGR	Agricultural Water Supply
APNs	Assessor Parcel Numbers
BGS	Below Ground Surface
BHC	.....	Benzene hexachloride
BSW	.....	Backup Supply Well
CEQA	.....	California Environment Quality Act
COCs	.....	Contaminants of concern
CWC	.....	California Water Code
DBCP	.....	1,2-dibromo-3-chloropropane
DWR	.....	Department of Water Resources
EDB	.....	Ethylene dibromide
EPA	.....	Environmental Protection Agency
GAC	.....	Granular Activated Carbon
GETS	.....	Groundwater Extraction and Treatment System
GPM	.....	Gallons per Minute
GSHI	.....	Glenn Springs Holdings, Inc.
IND	.....	Industrial Service Supply
J.R. Simplot	.....	J.R. Simplot Company
lbs.	.....	Pounds
MBBR	.....	Moving Bed Bioreactor
MCL	.....	Maximum Contamination Limit

Mg/L	Milligrams per Liter
MRP	Monitoring and Reporting Program
MUN	Municipal and Domestic Water Supply
OCC	Occidental Chemical Company
ORP	Oxidation Potential Reduction
OSWER	Office of Solid Waste and Energy Response
PQL	Practical Quantitation Limit
PRO	Industrial Process Supply
psi	Pounds per Square Inch
RCRA	Resource and Recovery Act
RO	Reverse Osmosis
ROWD	Report of Waste Discharge
Sulfolane	2,3,4,5-tetrahydrothiophene-1,1-dioxide
TCP	1,2,3-Trichloropropane
TDS	Total Dissolved Solids
µg/L	Micrograms per Liter
UPL	Upper Prediction Limit
VOCs	Volatile Organic Compounds
WDRs	Waste Discharge Requirements
WQOs	Water Quality Objectives

(findings begin on next page)

FINDINGS

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) hereby finds as follows:

Introduction

1. This Order prescribes revised Waste Discharge Requirements (WDRs) for the injection (discharge) of extracted and treated groundwater and non-waste amendments in connection with an ongoing groundwater remediation project, as described below. These discharges were previously regulated under WDRs Order R5-2012-0106 (2012 WDRs Order).
2. Occidental Chemical Company (OCC) retains the liability¹ for implementing remedial actions at the Former Best Fertilizers Company site (Site), which is located at 16777 Howland Road in Lathrop, San Joaquin County, California. Maps depicting the Site's location and layout are included in **Attachments A-B**. OCC is managing remediation activities at the Site through Glenn Springs Holdings, Inc. (GSHI), a subsidiary of Occidental Petroleum Corp. For the purposes of this Order, OCC and GSHI are collectively referred to as "Dischargers."
3. The Dischargers are currently treating groundwater to remove the following Constituents of Concern (COCs), which are associated with the Dischargers' past operations at the Site:
 - a. 1,2-dibromo-3-chloropropane (DBCP), a pesticide;
 - b. Ethylene dibromide (EDB), another pesticide;
 - c. 2,3,4,5-tetrahydrothiophene-1,1-dioxide (Sulfolane), a solvent used for cleaning process equipment at the Site.
 - d. 1,2-3-trichloropropane (TCP) has also been detected in groundwater beneath the Site. Source of TCP has not been determined and is currently evaluated under Site remediation program.

¹ The Dischargers are responsible for mitigation, cleanup, and abatement of any contamination of groundwater attributable to operations at the Site that occurred prior to 1 January 1983.

4. Groundwater beneath the Site (and the vicinity) also contains relatively high concentrations of sulfate, nitrate, chloride, lindane and benzene hexachloride (BHC) isomers.²
5. On 7 May 2019, the Dischargers 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 2012 WDRs, and the associated Revised Monitoring and Reporting Program (Revised 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). Partly in response to requests from Central Valley Water Board staff, the Dischargers submitted numerous ROWD amendments and revisions 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

6. The Site is located within the City of Lathrop, near the intersection of Louise Avenue and Howland Road. See Attachments A-B. The Site has been owned and occupied by the J.R. Simplot Company (J.R. Simplot) since 1 January 1983.
7. 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 below ground surface (bgs).
8. The Site is comprised of the following San Joaquin County Assessor's Parcel Numbers (APNs):

Table 1—Assessor Parcel Numbers

Parcels	Parcels	Parcels	Parcels
198-180-1	198-180-04	198-180-05	198-140-03
198-180-2	198-180-3	198-180-06	198-140-04

² Some of these additional constituents (e.g., chloride) are non-anthropogenic, and are not the result of any releases.

9. Each of the injection wells regulated under this Order are located within the above-listed Site parcels.
10. Surrounding land uses include agricultural, industrial and residential.
11. Mean annual precipitation at the Site is 14 inches. Mean annual pan evapotranspiration at the nearby Tracy pumping plant is 97 inches.
12. 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 Dischargers 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 LWD-9 and LWD-10 were temporarily turned off in August 2018, and the wells LWD-6 and LWD-7 were shut down in January 2019. The City has resumed water supply wells operation starting in May 2020.

Project Layout and Operation

13. As noted above, J.R. Simplot currently owns the Site and physical improvements thereon—apart from the Groundwater Extraction and Treatment System (GETS), which is owned by the Dischargers. For the purposes of this Order, the “GETS” refers to the entire groundwater remediation and injection infrastructure, including the treatment plant, aerated moving bed bioreactor (MBBR), monitoring wells, extraction wells, injection wells and associated infrastructure; the GETS also encompasses additional equipment and infrastructure that will be installed or operated by the Dischargers.
14. The GETS has operated since 1982. In recent years, in addition to routine operation and maintenance of the system, the Dischargers have 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 Dischargers 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.

15. The GETS is currently 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.
16. As part of the system expansion, the Dischargers are also adding an aerated MBBR for increasing GETS treatment capacity. 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**.
17. The GETS currently extracts groundwater from up to 22 extraction wells. These wells are listed in **Table 2** below.
18. After treatment for DBCP, EDB, Sulfolane and TCP, extracted groundwater is discharged via injection wells into aquifers above (via INJ-13³) and below (via IW-1, IW-2, IW-3R and IW-4) the Corcoran Clay, a thick confining blue clay layer

³ EW-03 (now re-designated as INJ-13) was the subject of a July 2020 pilot test for conversion from extraction well to injection well.

situated approximately 270 to 305 feet bgs. These injection wells are also summarized in **Table 2** below.

19. Depending upon the injection capacities of existing injection wells, additional injection wells may also be installed in the future, with Central Valley Water Board staff written concurrence. **Section D.1** of this Order (Provisions) specifies the procedures for obtaining such authorization.
20. For the purposes of this Order, the “**Injection Zone**” shall refer to the subsurface area into which the Dischargers are authorized to discharge effluent (i.e., treated groundwater and remediation-related amendments). As depicted on **Attachment B**, the Injection Zone encompasses each of the existing injection wells described above.

Table 2—Remediation Well Network

Wells	Type	Zone	Status
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 EW-19	Extraction	Unconfined Aquifer	Active

Wells	Type	Zone	Status
IW-1 IW-2 IW-3R IW-4	Injection	Confined Aquifer below Corcoran Clay (approx. 270-305 ft. bgs)	Active
INJ-13	Injection	Unconfined Aquifer above Corcoran Clay	Active

21. Since adoption of the 2012 WDRs Order, the following changes have occurred:
- a. Extraction well EW-03 has been converted to an injection well (INJ-13);
 - b. Extraction wells EW-04 and EW-04A were destroyed to accommodate off-Site property development in accordance with the property owner access agreement;
 - c. Extraction well EW-17 was not brought on-line due to poor well performance;
 - d. Injection well INJ-14 was destroyed in February 2018 to accommodate off-Site property development in accordance with the property owner access agreement; and
 - e. 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).
 - f. A new injection well IW-4, screened beneath the Corcoran Clay was installed in December 2020.
22. The J.R. Simplot's existing backup water supply well (BSW) operations are limited to emergency situations and compliance sampling events; however, the Dischargers have 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 WDRs Order allows for the injection of the treated BSW water to be injected into zones above and below the Corcoran Clay. The average flowrate from the BSW is approximately 250 gallons per minute (gpm), and the maximum flow rate is 700 gpm.

Constituents of Concern

DBCP, EDB and Sulfolane

23. In 2020, concentrations of sulfolane, DBCP, and EDB in groundwater in the combined influent to the treatment system were in the ranges of 290 to 2,000 micrograms per liter ($\mu\text{g/L}$), less than the laboratory reporting limit of 0.01 $\mu\text{g/L}$ to 0.12 $\mu\text{g/L}$, and less than the laboratory limit, respectively.
24. As of January 1, 2020, the system has removed the masses of Sulfolane, DBCP and EDB specified in the table below.

**Table 3—Cumulative Removal of Sulfolane, DBCP and EDB
(as of 1/1/21)**

Constituent	Cumulative Removal
Sulfolane	25,569 lbs.
DBCP	4,004 lbs.
EDB	220 lbs.

25. 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.
26. Based on recent data, sulfolane was present in the injection zone monitoring wells listed in the table below.

Table 4—Sulfolane Detections in Injection Zone Monitoring Wells

Well	Detection Date	Concentration ($\mu\text{g/L}$)
PW09-338	August 2017	29
PW12-315	August 2019	240
PW20-500	August 2019	31
PW16-329	August 2019	12

27. Because there were no treatment goals for sulfolane until 1992, concentrations of sulfolane in the injection zone reflected 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 µg/L, which was established after 1992 and enforced until 2012, when it was lowered to 16 µg/L based on the United States Environmental Protection Agency (USEPA) tap water screening level. In this Order, the discharge limit for sulfolane has been increased to 20 µg/L to reflect the updated USEPA tap water screening level.

Total Dissolved Solids (TDS)

28. Although dissolved solids are already present in the injection zone both above and below the Corcoran Clay, the proposed discharge will involve a redistribution of dissolved solids that may increase the overall loading of total dissolved solids (TDS) beneath the Corcoran Clay.
29. 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 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.
30. 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 (above the Corcoran Clay), 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 by the system.
31. 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. 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.

TCP

32. 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 contaminant 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 accompanying MRP.

Nitrate

33. 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.

Revisions in this Order

34. On 17 and 20 March 2020, Central Valley Water Board staff requested the Dischargers prepare a background study for TDS in accordance with procedures outlined in California Code of Regulations, title 27 (Title 27), section 20415, subdivision (e)(10)⁴. The background groundwater quality data obtained from this effort was subsequently used 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).
35. On 15 May 2020, in a telephone conference, Central Valley Water Board proposed, and the Dischargers concurred with, an average annual TDS concentration of 2,960 mg/L as an effluent limitation.

⁴ Discharger not being subject to requirements of Title 27, but using procedures in Title 27 to determine background.

36. 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. USEPA 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.
37. Groundwater from the lower aquifer below the Corcoran Clay would need to be treated before use to meet agricultural use standards. 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.
38. On 17 June 2020, the Dischargers 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.
39. On 23 September 2020 the Dischargers 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 Dischargers and the aquifer in and around the injection zone remaining nearly nitrate-free. Monitoring of the groundwater below the Corcoran Clay is continued under the monitoring and reporting program associated with this Order. If compliance monitoring wells are found to contain 3 mg/L or greater nitrate, then it may indicate that the denitrifying conditions are changing, and the Dischargers are required to conduct an anti-degradation analysis for nitrate.

40. The 2012 WDRs 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.
41. 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**.
42. As part of the GETS expansion, the Dischargers 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.
43. To accommodate the injection of treated water, the Dischargers propose 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 **Section B.5** (Discharge Specifications).
44. The Dischargers 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.
45. The Dischargers have 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. Under this Order the allowable injection below the Corcoran Clay has been

increased by 600 gpm to 1,350 gpm. 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 Dischargers 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.

46. 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 Dischargers 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 **Section B.2** of this Order.

Groundwater Conditions Above Corcoran Clay

47. The first water-bearing zone (Water Table zone) beneath the Site occurs at a depth of 10 to 19 feet bgs.
48. A Shallow water-bearing zone occurs at depths of approximately 50 to 100 feet bgs.
49. 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.
50. The deep water-bearing zone has been subdivided into a Deep 1 zone (150-220 ft. bgs), and Deep 2 zone (offsite to east, 220 ft. bgs to top of Corcoran Clay). Water level measurements across the Site indicate that there is a hydraulic connection between the water-bearing zones above the Corcoran Clay.

Groundwater Monitoring

51. In addition to the groundwater monitoring required by this Order, the Dischargers will continue to monitor groundwater remediation efforts pursuant to Site-wide MRP R5-2015-0810 (2015 MRP).⁵ Under the 2015 MRP the groundwater is monitored for sulfolane, DBCP, EDB, BHC isomers, nitrate, chloride, and sulfate. Subsets of monitoring wells are sampled quarterly, semiannually, and annually; groundwater elevations are measured every quarter. However, groundwater monitoring of the injection zones above and below the Corcoran Clay is conducted under this Order (and accompanying MRP).⁶

Basin Plan Implementation

52. In accordance with Water Code section 13263, subdivision (b), the WDRs in this Order implement the Central Valley Water Board's operative *Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin* (Basin Plan), which designates beneficial uses of surface water and groundwater, and establishes water quality objectives (WQOs) that are protective of such uses.
53. Per the Basin Plan, the designated beneficial uses of groundwater at the Site are: Municipal and Domestic Water Supply (MUN); Agricultural Water Supply (AGR); Industrial Service Supply (IND); and Industrial Process Supply (PRO).
54. 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 57** and **Table 5** list the numerical limits for compliance with the narrative objectives.

⁵ The 2015 MRP is not affected by the adoption of this Order and accompanying MRP.

⁶ Data collected for the 2015 MRP 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 required between the two monitoring programs, a single sample will suffice for both reporting objectives. Duplication of monitoring efforts is not intended.

55. For MUN-designated groundwater, the Basin Plan incorporates the Maximum Contaminant Levels (MCLs) established for drinking water under California Code of Regulations, title 22 (Title 22), sections 64431 and 64449.⁷ The applicable primary and secondary MCLs are listed in the following tables:
- a. Table 64431-A (*Inorganic Chemicals*)
 - b. Table 64431-B (*Fluoride*)
 - c. Table 64444-A (*Organic Chemicals*);
 - d. Table 64449-A (*Secondary MCLs-Consumer Acceptance Limits*)
56. 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.
57. 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.
58. The Central Valley Water Board has identified the several numerical constituent limits as supporting the narrative WQO for chemical constituents and toxicity. These limits are set forth below:

Table 5—WQOs and Additional Numerical Limits

Constituent	Limit	Numeric WQO	Reference
DBCP	0.0017 µg/L	No	California Public Health Goal

⁷ 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.

Constituent	Limit	Numeric WQO	Reference
EDB	0.01 µg/L	No	California Public Health Goal
Sulfolane	20 µg/L	No	EPA Tap Water Screening Level
1,2,3-TCP	0.005 µg/L	Yes	California Maximum Contaminant Level
Nitrate	10 mg/L	Yes	California Maximum Contaminant Level
Sulfate	250 mg/L	Yes	California Secondary Maximum Contaminant Level
Chloride	106 mg/L	No	Agricultural Water Quality Goal- Food and Ag
Phosphorus	0.14 µg/L	No	USEPA IRIS Reference Dose
Total dissolved solids (TDS)	450 mg/L	No	Food and Agricultural Organization-Sensitive Crop Protection
Alpha-BHC	0.015 µg/L	No	California Notification Level
Beta-BHC	0.025 µg/L	No	California Notification Level
Gamma-BHC (Lindane)	0.032 µg/L	No	California Public Health Goal

Compliance with Antidegradation Policy

59. In accordance with Water Code section 13263, subdivision (a), the WDRs in this Order also implement applicable plans and policies, including but not limited to the State Water Board's *Statement of Policy with Respect to Maintaining High Quality of Waters in California*, Resolution 68-16 (Antidegradation Policy).

60. The Antidegradation Policy prohibits the Central Valley Water Board from authorizing degradation of “high quality waters” unless it is shown that such degradation: (1) will be consistent with the maximum benefit to the people of California; (2) will not unreasonably affect beneficial uses, or otherwise result in water quality less than as prescribed in applicable policies; and (3) is minimized through the discharger’s best practicable treatment or control (BPTC).

Groundwater Above Corcoran Clay

61. The Dischargers propose to reinject treated groundwater extracted from the zones above the Corcoran Clay. To the extent that groundwater is being returned to its aquifer of origin (following treatment to eliminate DBCP, EDB and Sulfolane), there is no degradation occurring within the aquifer.⁸

Groundwater Below Corcoran Clay

62. As discussed in **Finding 37**, groundwater in the deep zone below the Corcoran Clay is of poor quality with respect to TDS, as it does not meet applicable WQOs (and did not meet them in 1968).
63. With respect to Nitrate, the injection of treated groundwater into the deep zone below the Corcoran Clay will not result in the degradation of groundwater due to natural conditions discussed in **Finding 39**. This Order requires continued monitoring to ensure that no Nitrate-related degradation occurs.
64. With respect to the remaining COCs, the proposed injections will not result in the degradation of deep zone groundwater. This Order also requires continued monitoring to verify that no such degradation occurs.

Compliance with CEQA

65. The issuance of this Order, which prescribes requirements and monitoring of waste discharges at an **existing facility**, with negligible or no expansion of its existing use, is exempt from the procedural requirements of the California

⁸ With respect to groundwater above the Corcoran Clay, some areas within the Injection Zone have been observed to contain higher concentrations of nitrate than others. In some instances, reinjected groundwater will contain higher concentrations of nitrate than existing groundwater in that exact location. However, on average, the overall concentration of nitrate across the Injection Zone will stay the same or decrease as a result of the proposed injections. Accordingly, individual points of increased nitrate concentration shall not be construed as degradation or the creation of a new condition of pollution or nuisance, provided that the overall nitrate concentrations within the Injection Zone remain substantially the same.

Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq., pursuant to California Code of Regulations, title 14, section 15301 (CEQA Guidelines). The discharges authorized under this Order are substantially within parameters established under prior WDRs, particularly with respect to character and volume of discharges.

66. To the extent that the construction of any new basins, ponds and/or surface impoundments are authorized under this Order, such features involve **minor alterations to land**, which are exempt from CEQA procedural requirements pursuant to CEQA Guidelines section 15304 .
67. This Order is further exempt from CEQA procedural requirements insofar as it is adopted for **protection of the environment** and does not authorize construction activities or the relaxation of standards allowing for environmental degradation, in accordance with CEQA Guidelines section 15308 .
68. This Order is further exempt from CEQA procedural requirements insofar as it is adopted for **collection of information** and does not in any major disturbances to an environmental resource, in accordance with CEQA Guidelines section 15306 .

Other Regulatory Matters

69. This Order, which authorizes the discharge of non-hazardous waste constituents to groundwater in accordance with the operative Basin Plan, is exempt from the prescriptive requirements of Title 27. (Title 27, § 20090, subd. (b).)
70. For the purposes of California Code of Regulations, title 23 (Title 23), section 2200, the Facility has a threat-complexity rating of **3-B**, where:
 - a. Threat Category “3” reflects waste discharges that could either degrade water quality without violating water quality objectives, or cause beneficial use impairments that are minor relative to Categories 1 and 2; and
 - b. Complexity Category “B” reflects any discharge not included in Category A, with either (1) physical, chemical or biological treatment systems (except for septic systems with subsurface disposal), or (2) any Class II or Class III WMUs.
71. The Department of Water Resources (DWR) 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 (Dec. 1981). These standards, and any more stringent standards implemented by the Central Valley Water Board or adopted by San Joaquin County (see Wat. Code, § 13801), shall apply to all monitoring,

extraction and injection wells constructed, operated and destroyed in connection with this Order.

72. Resource Conservation and Recovery Act (RCRA) section 3020(b)(2) requires 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 USEPA Office of Solid Waste and Emergency Response (OSWER) specified that “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 volatile organic compounds (VOCs), complies with Section 3020(2) (b) of RCRA.
73. Groundwater at the Site is part of a larger aquifer that is used as a source of drinking water. In accordance with Water Code section 13304.1, subdivision (b), the Central Valley Water Board consulted with affected groundwater management entities, public water systems (e.g., City of Lathrop) and the State Water Board prior to setting applicable water quality standards to be achieved through remediation and re-discharge of treated groundwater.
74. On 31 May 2018, the Central Valley Water Board adopted Basin Plan amendments incorporating new programs for addressing ongoing salt and nitrate accumulation in the Central Valley. 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) [web page](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity) (https://www.waterboards.ca.gov/centralvalley/water_issues/salinity).

Reporting Requirements

75. This Order is also issued in part pursuant to Water Code section 13267, subdivision (b)(1), which provides that:

[T]he regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste 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 report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

76. The technical reports required under this Order, as well as those required under the separately issued MRP, are necessary to ensure compliance with prescribed WDRs. Additionally, the burdens associated with such reports are reasonable relative to the need for their submission.

Procedural Matters

77. The Dischargers, interested agencies and interested persons were notified of the Central Valley Water Board's intent to prescribe the WDRs in this Order, and provided an opportunity to submit their written views and recommendations at a public hearing. (See Wat. Code, § 13167.5.)
78. At a public meeting, the Central Valley Water Board heard and considered all comments pertaining to the discharges regulated under this Order.

REQUIREMENTS

IT IS HEREBY ORDERED, pursuant to Water Code sections 13263 and 13267 that: Waste Discharge Requirements Order R5-2012-0106 is rescinded (except for enforcement purposes); and the Dischargers shall comply with the following requirements.

A. Discharge Prohibitions

1. Except as provided in this Order, waste, amendment, or other materials shall be discharged in any manner.
2. Waste and amendments shall not be discharged to surface waters or surface water drainage courses in any manner.
3. Discharges shall not result in the creation of a new condition of pollution, contamination or nuisance, as defined per Water Code section 13050.

4. Except as provided per Section E.2 of the Standard Provisions and Reporting Requirements for WDRs, 1 March 1991 Edition (SPRRs or Standard Provisions), treatment system bypass of untreated or partially treated waste is prohibited.
5. Wastes and amendments shall not be injected to lateral areas that are outside of the Dischargers' ownership, control or authorization. For the purposes of this prohibition, areas of "authorization" are those for which the Dischargers have obtained landowner consent of entry for the purposes investigation and remediation.
6. Discharge of waste and amendments 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. Hazardous Waste (as defined per Title 23, § 2521) and Designated Waste (as defined per Wat. Code, § 13173) shall not be discharged in any manner.

B. Discharge Specifications

1. The allowed nutrient formulation TersOx 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 not commercially available, the Dischargers 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 written Central Valley Water Board Executive Officer approval.
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 written Central Valley Water Board Executive Officer approval. The Dischargers 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 to the extent practicable 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**.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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 6** below. Except for nitrate and TDS, if concentrations in the discharge exceed effluent limits in the table below, the discharge will be re-sampled, and the treatment systems will be temporarily shut down pending receipt of the confirmation sample results. For nitrate and TDS, if the flow-weighted annual rolling average concentration exceeds the effluent limits in the table below, the discharge will be re-sampled, and the system will be temporarily shut down pending receipt of the confirmation samples results.
9. The groundwater shall not be amended with materials other than those described above in Sections B.1 and B.2.

10. In the case of injection of extracted and treated groundwater from the J.R. Simplot's backup supply well (BSW), the discharge to the injection wells above or below the Corcoran Clay shall not contain concentrations of Site COCs in excess of those in the table below. For constituents that have not been determined to be the responsibility of the Dischargers (i.e. TDS and nitrate), the concentrations in the effluent shall not exceed the background values listed in the table below.

Table 6—Effluent Limits for Discharges Below Ground Surface

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

¹ 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.

² Compliance is demonstrated by non-detection of DBCP at a concentration above the current PQL of 0.01 µg/L, when using methods specified in the attached MRP.

³ Compliance is demonstrated by non-detection of TCP at a concentration above the current MDL of 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 effluent 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.
- ⁶ This limit was developed by Central Valley Water Board staff in the study “WDR Statistics Memo,” submitted by the Dischargers on 23 September 2020.
- ⁷ 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. If the concentration of nitrate is found to exceed 3 mg/L in any compliance monitor well screened below the Corcoran Clay, then within 30 days of receiving the laboratory report finding the exceedance the Dischargers shall submit for Central Valley Water Board compliance staff review and approval a proposal and time schedule to complete an anti-degradation analysis of their discharge.
2. 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.

D. Provisions

1. Prior to the construction of any new injection wells, the Dischargers shall submit a Work Plan to Central Valley Water Board staff for written concurrence, and obtain such concurrence in the Work Plan. At minimum, the Work Plan shall contain the following information:
 - a. Location of the proposed well;
 - b. Screening interval for the proposed well; and
 - c. Any additional relevant construction details (e.g., gravel pack, grout, etc.).
2. Collected residual sludge, biomass and other solid (excluding GAC) removed from the treatment system, including the aeration tanks shall be

disposed offsite at an appropriately permitted facility for receipt of such waste.⁹ GAC shall be disposed in a manner consistent with applicable laws and regulations.

3. The Dischargers shall comply with all applicable Standard Provisions (which are incorporated herein).
4. All 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 Business and Professions Code sections 6735, 7835 and 7835.1. 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.
5. Within 45 days from the adoption of this Order, the Dischargers shall submit an updated 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. The modified plan shall be submitted to the Central Valley Water Board within 30-days after modification.
6. The Dischargers shall comply with the Monitoring and Reporting Program accompanying this Order (MRP R5-2021-####), and any revisions thereto.
7. The Dischargers shall maintain in good working order and operate as efficiently as possible any facility or control system installed by the Dischargers to achieve compliance with these WDRs.

⁹ For the purposes of this section, an “appropriately permitted facility” in California means a facility permitted with WDRs to receive solid waste under Title 27. For GAC,

8. The Dischargers shall promptly report to the Central Valley Water Board any violation of this Order, material change in the character or volume of the discharge.
9. In the event of any change in control or ownership the GETS, the Dischargers 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.

Notification shall be given 180 days prior to the effective date of the change and shall be accompanied by an amended ROWD and technical documents needed to demonstrate continued compliance with this Order.
10. 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 Water Resources Control Board.
11. The Dischargers shall permit authorized staff of the Central Valley Water Board:
 - a. Entry to the Site;
 - 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.
12. 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 Dischargers 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.

13. The Discharger shall file a ROWD with the Executive Officer at least 120 days before making any material change or proposed change in the character or volume of the discharge.
14. 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.

LIST OF ATTACHMENTS

Attachment A—Site Location Map

Attachment B—Site Plan

Attachment C—Conceptual Groundwater Remediation Systems Process Flow Diagram

Standard Provisions and Reporting Requirements

Information Sheet

Monitoring and Reporting Program R5-2021-#### (separate document)

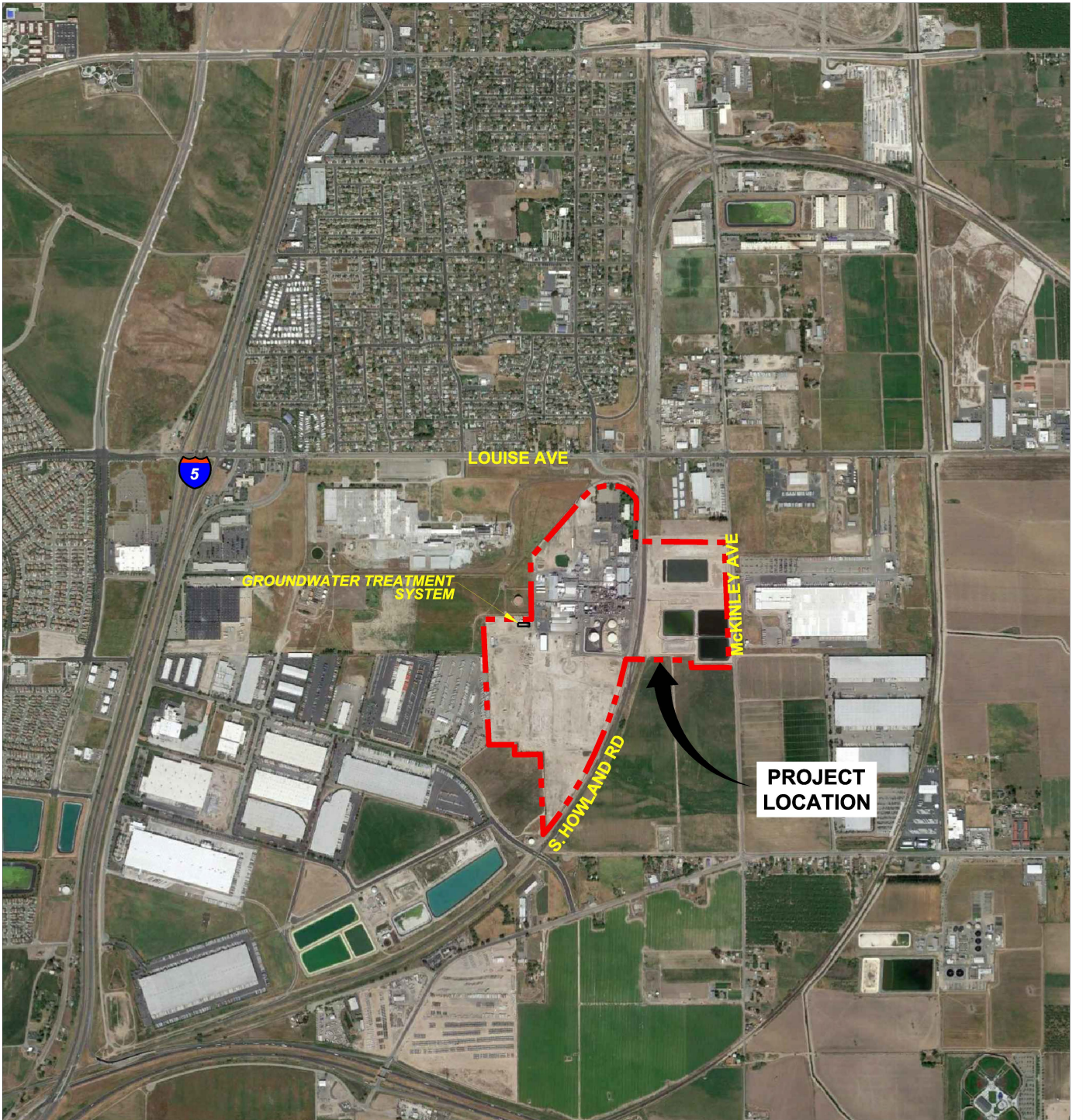
ENFORCEMENT

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

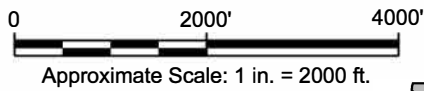
ADMINISTRATIVE REVIEW

Any person aggrieved by this Central Valley Water Board action may petition the State Water Board for review in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 et seq. To be timely, the petition must be received by the State Water Board by 5:00 pm on the 30th day after the date of this Order; if the 30th day falls on a Saturday, Sunday or state holiday, the petition must be received by the State Water Board by 5:00 pm on the next business day. The law and regulations applicable to filing petitions are available on the [State Water Board website](http://www.waterboards.ca.gov/public_notices/petitions/water_quality) (http://www.waterboards.ca.gov/public_notices/petitions/water_quality). Copies will also be provided upon request.

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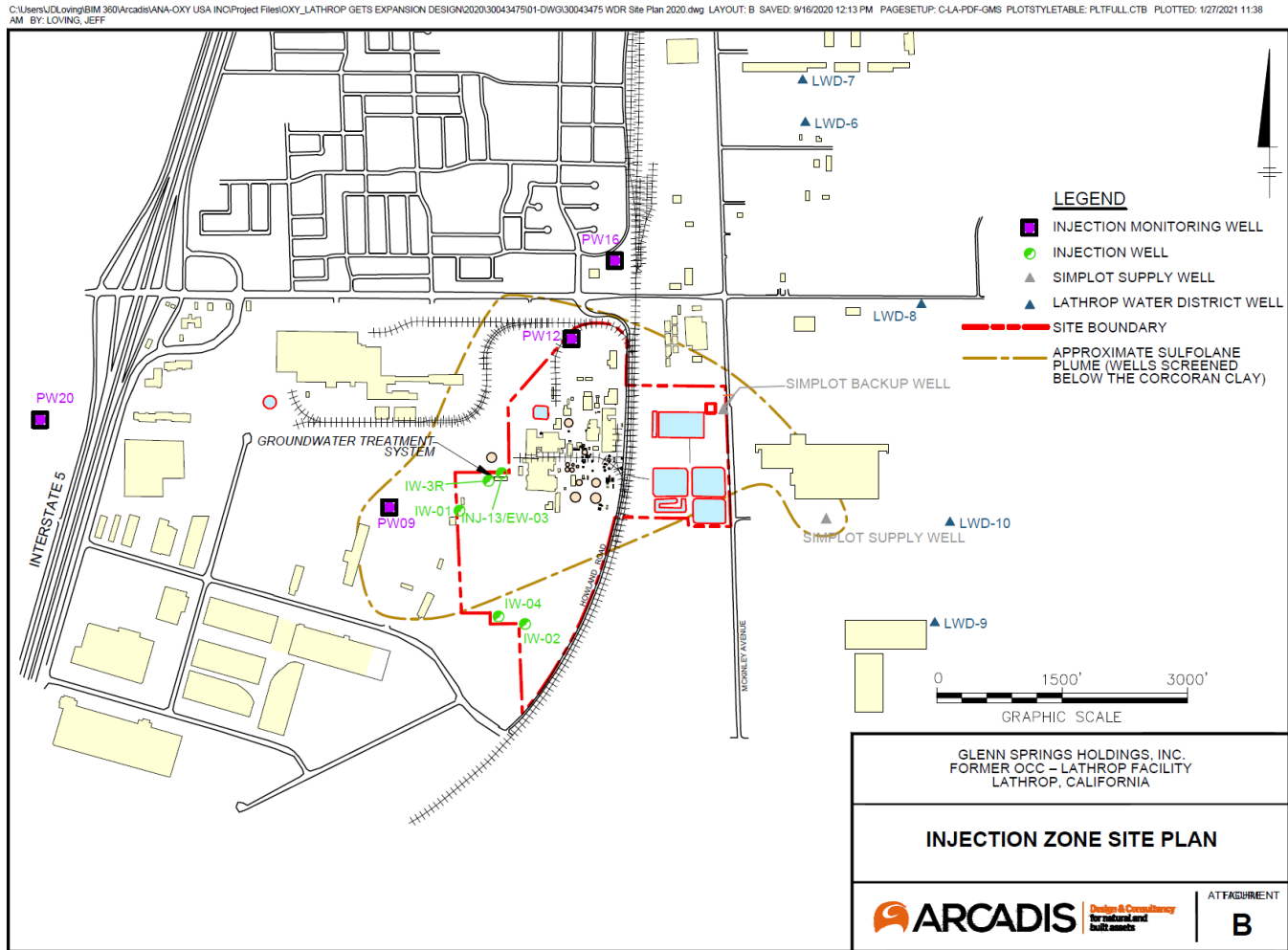


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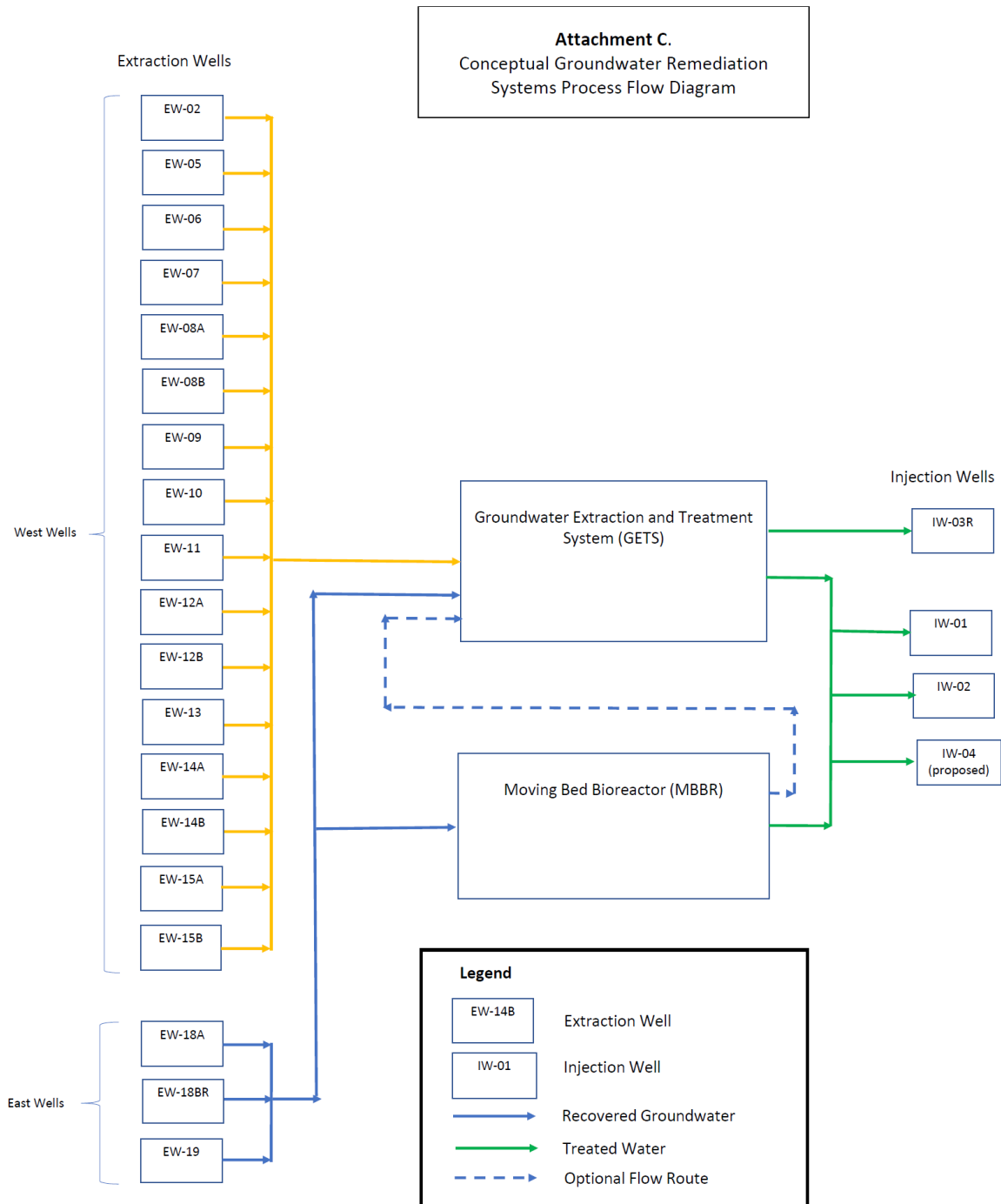


<p>GLENN SPRINGS HOLDINGS, INC. FORMER OCC - LATHROP FACILITY LATHROP, CALIFORNIA</p>	
<p>SITE LOCATION MAP</p>	
	<p>Design & Consultancy for natural and built assets</p>
<p>ATTACHMENT A</p>	

ATTACHMENT B—SITE PLAN



ATTACHMENT C—CONCEPTUAL GROUNDWATER REMEDIATION SYSTEMS PROCESS FLOW DIAGRAM



**STANDARD PROVISIONS & REPORTING REQUIREMENTS
FOR
WASTE DISCHARGE REQUIREMENTS
1 MARCH 1991 EDITION**

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.

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 as soon as it or its agents 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.¹⁰
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.

¹⁰ 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/).

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;
 - i. the authorization is made in writing by a person described in 3a, 3b or 3c 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 waste management unit, superintendent, or position of equivalent responsibility¹¹; and
 - iii. the written authorization is submitted to the Board

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

¹¹ A duly authorized representative may thus be either a named individual or any individual occupying a named position.

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 ¹²

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.

¹² Current addresses for all three Regional Board offices may be found on the Central Valley Water Board website (http://www.waterboards.ca.gov/centralvalley/about_us/contact_us) or the current address if the office relocates.

STANDARD PROVISIONS & REPORTING REQUIREMENTS

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 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 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 is prohibited.¹³ 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,¹⁴ and (2) there were no feasible alternatives to by-pass (e.g., use of auxiliary treatment facilities or retention of untreated waste)¹⁵; or
 - b. (1) by-pass is required for essential maintenance to assure efficient operation, (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:
 - 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;

¹³ The intentional diversion of waste streams from any portion of a treatment facility, except diversions designed to meet variable effluent limits.

¹⁴ 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

¹⁵ 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.

- 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.
- 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;
 - i. at equal time intervals, with a maximum interval of one hour
 - ii. 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 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:
 - i. Complied with baseline monitoring report requirements (where applicable);

- ii. Consistently achieved compliance;
- iii. Inconsistently achieved compliance;
- iv. Significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);
- v. Complied with schedule to achieve compliance (include the date final compliance is required);
- vi. Did not achieve compliance and not on a compliance schedule;
- vii. 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.
- 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:
 - i. 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;
 - ii. 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;
- iii. 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;
 - iv. 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.
 - v. Assessment of monetary penalties. For each industrial user identify the amount of the penalties;
 - vi. Restriction of flow to the treatment plant; or
 - vii. 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:

[TENTATIVE] WASTE DISCHARGE REQUIREMENTS ORDER R5-2021-####
GLENN SPRINGS HOLDINGS INC.
OCCIDENTAL PETROLEUM CORP.
GROUNDWATER REMEDIATION PROJECT—LATHROP FACILITY
SAN JOAQUIN COUNTY
STANDARD PROVISIONS & REPORTING REQUIREMENTS

44

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

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

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

[TENTATIVE] WASTE DISCHARGE REQUIREMENTS ORDER R5-2021-####
FOR
GLENN SPRINGS HOLDINGS INC.
OCCIDENTAL PETROLEUM CORP.
GROUNDWATER REMEDIATION PROJECT—LATHROP FACILITY
SAN JOAQUIN COUNTY

INFORMATION SHEET

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 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; injection wells, and air sparge wells; investigated and implemented remedial actions in 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.

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.

Compliance with Antidegradation Policy

In accordance with Water Code section 13263, subdivision (a), the WDRs in this Order also implement applicable plans and policies, including but not limited to the State Water Board's Statement of Policy with Respect to Maintaining High Quality of Waters in California, Resolution 68 16 (Antidegradation Policy).

The Antidegradation Policy prohibits the Central Valley Water Board from authorizing degradation of "high quality waters" unless it is shown that such degradation: (1) will be consistent with the maximum benefit to the people of California; (2) will not unreasonably affect beneficial uses, or otherwise result in water quality less than as prescribed in applicable policies; and (3) is minimized through the discharger's best practicable treatment or control (BPTC).

Groundwater Above Corcoran Clay

The Dischargers propose to reinject treated groundwater extracted from the zones above the Corcoran Clay. To the extent that groundwater is being returned to its aquifer of origin (following treatment to eliminate DBCP, EDB and Sulfolane), there is no degradation occurring within the aquifer.

Groundwater Below Corcoran Clay

Groundwater in the deep zone below the Corcoran Clay is of poor quality with respect to TDS, as it does not meet applicable WQOs (and did not meet them in 1968).

With respect to Nitrate, the injection of treated groundwater into the deep zone below the Corcoran Clay will not result in the degradation of groundwater due to natural conditions. This Order requires continued monitoring to ensure that no Nitrate-related degradation occurs.

With respect to the remaining COCs, the proposed injections will not result in the degradation of deep zone groundwater. This Order also requires continued monitoring to verify that no such degradation occurs.

Compliance with CEQA

The issuance of this Order, which prescribes requirements and monitoring of waste discharges at an existing facility, with negligible or no expansion of its existing use, is exempt from the procedural requirements of the California Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq., pursuant to California Code of Regulations, title 14, section 15301 (CEQA Guidelines). The discharges authorized

under this Order are substantially within parameters established under prior WDRs, particularly with respect to character and volume of discharges.

To the extent that the construction of any new basins, ponds and/or surface impoundments are authorized under this Order, such features involve minor alterations to land, which are exempt from CEQA procedural requirements pursuant to CEQA Guidelines section 15304.

This Order is further exempt from CEQA procedural requirements insofar as it is adopted for protection of the environment and does not authorize construction activities or the relaxation of standards allowing for environmental degradation, in accordance with CEQA Guidelines section 15308.

This Order is further exempt from CEQA procedural requirements insofar as it is adopted for collection of information and does not in any major disturbances to an environmental resource, in accordance with CEQA Guidelines section 15306 .

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