

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2019-0010

WASTE DISCHARGE REQUIREMENTS
FOR
J.R. SIMPLOT COMPANY
LATHROP FACILITY
CLASS II SURFACE IMPOUNDMENTS
OPERATION, MAINTENANCE, CLOSURE, POST-CLOSURE MAINTENANCE, AND
CORRECTIVE ACTION
SAN JOAQUIN COUNTY

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

1. J.R. Simplot Company (hereinafter Discharger) owns and operates three lined Class II surface impoundments (SIs or ponds) and an unlined stormwater SI located at 16777 Howland Road in the City of Lathrop (facility), in central San Joaquin County, in Section 35, T1S, R6E, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order by reference. The facility's Class II SIs are regulated under authority given in Water Code section 13000 et seq.; California Code of Regulations, title 27 ("Title 27"), section 20005 et seq. The facility was previously regulated by Waste Discharger Requirements (WDRs) Order No. 97-229.
2. These WDRs regulate the existing Class II SIs, and WDRs have been prepared to prescribe the operation, maintenance, closure and post-closure maintenance requirements of the Class II SIs. In addition, these WDRs require the Discharger to continue implementing corrective action monitoring program for groundwater remediation in the vicinity of the Class II SIs.
3. The operation of the unlined stormwater SI and reclamation of stormwater for land irrigation are exempted from Title 27 requirements pursuant to Title 27 section 20090. These WDRs do not regulate the unlined stormwater SI which was regulated by Order No. 97-229. The Discharger shall obtain a Non-Subchapter 15 permit for discharges of waste to land that do not require full containment, for the operation of unlined stormwater SI and reclamation of stormwater for land application, see Discharge Specification B.3.
4. The following documents are attached to this Order and hereby incorporated into and made a part of this Order by reference:
 - Attachment A – Site Location Map
 - Attachment B – Site Plan and Monitoring Network

- Information Sheet
 - April 2016 – Standard Provisions and Reporting Requirements for Industrial Facilities Regulated by Title 27 (Industrial SPRRs)
5. The facility is on a 341-acre property (site) at 16777 Howland Road, Lathrop, California 95333. The existing lined Class II SIs area is approximately 9.5 acres, shown in Attachment B. The facility is comprised of Assessor's Parcel Numbers (APN) 198-180-08 and 198-180-09.
6. The Discharger's fertilizer manufacturing facility in city of Lathrop was previously owned by Occidental Chemical Company (Occidental) who manufactured and formulated both fertilizers and pesticides at this facility. In the late 1970's, prior to transfer of the facility to the Discharger, groundwater at this site was found to be contaminated with organic pesticides (primarily dibromochloropropane and ethylene dibromide). Under terms and conditions of the Stipulation and Judgement Approving Settlement (No. CIV S-79-898 MLS) for investigation and cleanup of the site, approved by the U.S. District Court on 9 February 1981, Occidental is responsible for investigation and remediation of the site. Under terms and conditions of the Stipulation and Order (hereafter Stipulation) approved by the Court on 21 December 1982, the State of California consented to the transfer from Occidental to the Discharger of the Lathrop facility property and assets provided that Occidental expressly retains full responsibility for compliance with all obligations imposed by the Stipulation, and that the Discharger assumes responsibility for the proper handling, storage, and disposal of liquid and solid wastes and storm water runoff in accordance with the Stipulation. Occidental is currently operating a groundwater extraction system in the western portion of the Discharger's fertilizer manufacturing facility at the site.
7. The Discharger submitted *Technical Report for Report of Waste Discharge (ROWD)* on 22 February 2018 and *Addendum to ROWD* on 18 June 2018, proposing construction of two new Class II SIs to replace the existing west pond. In subsequent correspondence dated 14 December 2018, the Discharger informed the Central Valley Water Board that the new Class II SIs are no longer intended to be constructed. The information in the ROWD and *Addendum to ROWD* which contain the applicable information required in Title 27, has been used in revising these WDRs. The ROWD and supporting documents contain information related to this revision of the WDRs including:
- Documenting current site conditions and changes since WDR Order No. 97-229
 - Updating the operation and maintenance requirements for the existing Class II SIs
 - Requirements for the Class II SI primary liner performance and LCRS performance and functionality tests
 - Documenting soil and groundwater contamination at the facility and status of corrective action
 - Providing status and requirements for monitoring programs
 - Updating the requirements for financial assurances

8. On 24 October 1997, the Central Valley Water Board issued Order 97-229 in which the waste management units (WMUs) at the facility were classified as Class II units for the discharge of designated waste. This Order continues to classify the WMUs as Class II units in accordance with Title 27.
9. The existing WMUs authorized by this Order are described as follows:

<u>Unit</u>	<u>Area</u>	<u>Liner/LCRS¹ Components²</u>	<u>WMU Classification & Status</u>
North SI	2.8 acres	Engineered alternative liner: 80 mil HDPE ³ primary liner, LCRS and Hypalon secondary liner	Class II, constructed in 1981, retrofitted to meet Title 27 performance goal in 1996, active
South SI	3.2 acres	Engineered alternative liner: 45 mil Hypalon an primary liner, LCRS and Hypalon secondary liner	Class II, constructed in 1981, retrofitted to meet Title 27 performance goal in 1996, active
West SI	3.5 acres	Engineered alternative liner: 45 mil Hypalon primary liner, LCRS and 40 mil PVC ⁴ secondary liner over existing asphalt liner	Class II, constructed in 1975, retrofitted to meet Title 27 performance goal in 1994, active

¹ LCRS – Leachate collection and removal system

² All liner systems are composite liner systems unless otherwise noted, and the liner components are listed from top to bottom (Note any that are not if applicable)

³ HDPE - High density polyethylene

⁴ PVC – Polyvinylchloride

10. On-site facilities at the site, east of Howland Road, include: three active Class II SIs, one inactive SI, process water pump station, Class II SI pump stations and LCRS sumps, one stormwater SI, crop land for land application of stormwater, a small packaged water treatment plant, a groundwater backup supply well and groundwater monitoring wells.
11. This Order implements the applicable regulations for discharges of waste to land through Prohibitions, Specifications, Provisions, and monitoring and reporting requirements. Prohibitions, Specifications, and Provisions are listed in Sections A through I of these WDRs below, and in the Industrial SPRRs dated April 2016 which are part of this Order. Monitoring and reporting requirements are included in the Monitoring and Reporting Program (MRP) R5-2019-0010 and in the SPRRs. In general, requirements that are either in regulation or otherwise apply to all facilities regulated under Title 27 are considered to be “standard” and are therefore in the Industrial SPRRs. Any site-specific changes to a requirement in the SPRRs are included in the applicable section (A through I) of these

WDRs, and the requirement in the WDRs supersedes the requirement in the Industrial SPRRs.

WASTE CLASSIFICATION AND UNIT CLASSIFICATION

12. The Discharger proposes to continue to discharge designated waste to lined Class II SIs at the facility. These classified wastes may be discharged only in accordance with Title 27.
13. Water Code section 13173 defines "Designated Waste" as either of the following:
 - a. Hazardous waste that has been granted a variance from hazardous waste management requirements pursuant to Health and Safety Code section 25143.
 - b. Nonhazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a WMU, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan.
14. Designated waste can be discharged only at Class I WMUs, or at Class II WMUs which comply with Title 27 and have been approved by the regional board for containment of the particular kind of waste to be discharged.
15. The following liquids are currently approved for discharge to the Class II SIs:
 - a. Process water,
 - b. Storm water from the fertilizer manufacturing area,
 - c. Zeolite softener backwash, and
 - d. Leachate collected and removed from the LCRS
16. Average discharge flowrate to the Class II SIs is 0.05 million gallon per day (mgd) and this flowrate has been consistent for last 20 years based on the information provided in the ROWD.
17. In the ROWD, the Discharger provided analytical data for samples collected from the Class II SIs during the second semiannual 2017 sampling event, as shown in the table below. The analytical data shows that the SI water quality varies since the Discharger discharges process water into the Class II SIs for storage and reuse in plant processes. Further, the process water flow and quality depend on the product that the fertilizer manufacturing facility manufactures based on seasonal demands. The table also includes the California primary maximum contaminant level (primary MCL), the lowest applicable water quality objective (WQO) for groundwater for protection of drinking water beneficial use for domestic and municipal supply wells, and the background groundwater quality at the site.

<u>Constituent</u>	<u>Concentration (mg/L)</u> ^{1, 2, 3}	<u>CA Primary MCL</u>	<u>Lowest Application WQO</u>	<u>Background Groundwater Data (from groundwater background well LP-7)</u> ^{1,4}
Monitoring Parameters				
Ammonia as N	35,670	-	30 mg/L ^a	-
Chloride	1,070	-	250 mg/L ^b	93 mg/L
Nitrate as N	1,810	10 mg/L	-	19.2 mg/L
Sulfate	102,630	-	250 mg/L ^b	114 mg/L
TDS	139,670	-	500 mg/L ^b	850 mg/L
Metals				
Aluminum	28.11	1 mg/L	0.2 mg/L ^b	-
Arsenic	0.066	0.01 mg/L	0 mg/L ^c	-
Barium	0.098	1 mg/L	0.7 mg/L ^a	-
Boron	0.305	-	0.7 mg/L ^d	-
Cadmium	0.128	5 µg/L	0.0023 µg/L ^e	-
Chromium	0.584	0.05 mg/L	0.002 mg/L ^f	-
Cobalt	0.030	-	0.05 mg/L ^d	-
Copper	0.246	1.30 mg/L	0.003 mg/L ^f	-
Iron	8.387	-	0.3 mg/L ^b	-
Magnesium	52.00	-	-	-
Manganese	9.32	-	0.05 mg/L ^b	-
Molybdenum	0.011	-	0.01 mg/L ^d	-
Nickel	0.684	0.1 mg/L	0.005 mg/L ^f	-
Selenium	0.013	0.05 mg/L	0.0015 mg/L ^g	-
Thallium	0.001	-	-	-
Vanadium	0.706	-	0.050 mg/L ^h	-
Zinc	2.237	-	0.02 mg/L ^f	-

1 Second semiannual 2017 sampling event analytical results for monitoring parameters.

2 Annual 2017 sampling event analytical results for metals

3 Average of north, south and west SIs sample analytical results

4 Although this well is considered background, it sometimes exhibits concentrations of constituents of concern (COCs) at levels exceeding concentration limits and therefore may be impacted by release(s) from the Class II SIs.

a EPA Drinking Water Health Advisory

b CA Secondary MCL for taste and odor

c EPA MCL goal

d Agricultural Water Quality Goals, Food and Agriculture Organization of the United Nations.

e Cal/EPA Cancer Potency Factor

f 6-month Median for Marine Aquatic Life Protection, California Ocean Plan

g Continuous concentration, Freshwater Aquatic Life Protection, National Recommended Water Quality Criteria

h California Notification Levels

18. The Class II SIs analytical data indicate that the concentrations of constituents, except for barium, boron and cobalt, exceed the primary MCL or lowest applicable WQO. The data

indicate that the discharge consists of or contains pollutants that, under ambient environmental conditions at a WMU, could be released in concentrations exceeding applicable WQOs or that could reasonably be expected to affect beneficial uses of the waters of the state. Therefore, the discharge is a 'designated waste' and as such must be discharged to a Class II WMU as required by Title 27.

19. The leachate collected in the Class II SI LCRS is pumped and returned to the SI from where it was originated.

SITE DESCRIPTION

20. The site is topographically flat, and the site elevation varies between 10 to 15 feet (ft) above mean sea level (MSL). The site slopes at approximately 5 ft per mile from east to west. The site generally drains in the direction of the San Joaquin River to the west.
21. Land uses within one mile of the facility include industrial to the north, east and west, and agricultural to the south.
22. There are 15 municipal, domestic, industrial, or agricultural groundwater supply wells within one mile of the facility.
23. The facility is south of the city of Lathrop in the San Joaquin Valley. The site is underlain by a complex sequence of interbedded sand, silt and clay characteristics of the Laguna Formation and overlying Victor Formation. The Corcoran Clay has been identified beneath the site and depth to the top of the unit varies from 205 to 255 ft below ground surface (bgs).
24. The measured hydraulic conductivity of the native soils underlying the Class II SIs ranges between 2.7×10^{-5} and 0.002 centimeters per second (cm/s) as provided in *Extraction Well Pumping and Groundwater Model Report*, dated 22 April 2013.
25. Based on a site-specific seismic analysis, the controlling maximum credible earthquake (MCE) for the site is a mean moment of magnitude 6.22 event located about 16 kilometers from the site. It is estimated in the *Stability Analysis Proposed Process Water Ponds* report, dated 27 February 2018, that a MCE event would produce a peak ground acceleration of 0.427 g at the site with a return period of 2,475 years, using the US Geological Survey-Earthquake Hazards Program Unified Hazard Tool (ASCE 7-10). The closest active fault is Greenville-March Creek-Clayton fault at a closest rupture distance of 37 kilometers from the site.
26. The facility receives an average of 14.08 inches of precipitation per year as measured at the Stockton Station (Department of Water Resources Station Number B00 8558 00). The annual mean pan evaporation is approximately 65 inches per year as measured at the Stockton Mowry Bridge Station.

27. The 100-year, 24-hour precipitation event for the facility is estimated to be 3.35 inches, based on National Oceanic and Atmospheric Administration (NOAA), Point Precipitation Frequency Estimates for California, Atlas 14, Volume 6, Version 2. The 100-year wet season is estimated to be 25.24 inches of rain.
28. The 1,000-year, 24-hour precipitation event for the facility is estimated to be 4.65 inches, based on NOAA, Point Precipitation Frequency Estimates for California, Atlas 14, Volume 6, Version 2.
29. The facility is not within a 100-year flood plain based on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, Community-Panel Number 060738-0620-F.
30. The stormwater SI is located north of the existing West SI as shown on Attachment B. The Discharger discharges stormwater runoff from a portion of the fertilizer manufacturing facility area west of Howland Road to the stormwater SI which will be regulated by a separate permit (Discharger Specification B.4). Stormwater from the processing area located within the fertilizer manufacturing facility is discharged to the Class II SIs. Surface runoff from the area surrounding the Class II SIs is not contained or monitored.

SURFACE WATER AND GROUNDWATER CONDITIONS

31. The *Water Quality Control Plan for Sacramento and San Joaquin River Basins, fifth Edition* (hereafter Basin Plan), designates beneficial uses, WQOs, and contains implementation plans and policies for all waters of the Basin.
32. General direction of surface water drainage from the site is to San Joaquin River.
33. The designated beneficial uses of San Joaquin River, as specified in the Basin Plan, are municipal and domestic supply (MUN) ; agriculture (AGR); industrial service (IND); industrial process (PROC); navigation (NAV); water contact recreation (REC-1); non-contact water recreation (REC-2); warm fresh water habitat (WARM); cold freshwater habitat (COLD); wildlife habitat (WILD); cold and warm migration (MIGR) of aquatic organisms; warm spawning (SPWN); and commercial and sport fishing (COMM).
34. The first encountered groundwater ranges from about 8 ft to 17 ft below the native ground surface. Groundwater elevations range from about 5.35 ft MSL to 7.33 ft MSL during first semiannual 2018 sampling event.
35. Four groundwater zones have been identified beneath the facility to a depth of 338 ft bgs. Approximate depth of each zone is provided below:
 - Water table zone – 10 to 27 ft bgs
 - Shallow groundwater zone – 31 to 83 ft bgs
 - Intermediate groundwater zone – 83 to 150 ft bgs

- Deep groundwater zone – 151 to 338 ft bgs.

36. Monitoring data indicate background groundwater quality for first encountered groundwater has electrical conductivity (EC) ranging between 1,281 and 2,118 micromhos/cm, with total dissolved solids (TDS) ranging between 740 and 1,210 milligrams per liter (mg/L). Although monitoring well LP-7 is considered background, it sometimes exhibits concentrations of COCs exceeding concentration limits and therefore may be impacted by release(s) from the Class II SIs.
37. The direction of groundwater flow is generally from east to west. The direction of groundwater flow varies seasonally and periodically between north-northwest and south-southwest. The estimated average groundwater gradient is approximately 0.0007 ft per ft.
38. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal water supply (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial process supply (PROC).

GROUNDWATER, UNSATURATED ZONE, LCRS AND SURFACE WATER MONITORING

39. The Discharger monitors water table and shallow water zone in the vicinity of the Class II SIs. Occidental monitors four water zones at the site, as part of the Occidental groundwater constituents of concern (COCs) remediation system located in the far western portion of the Simplot fertilizer manufacturing facility.
40. The existing groundwater monitoring network for the Class II SIs consists of background monitoring well LP-7, detection monitoring wells LP-4 through LP-11 except LP-7 for water table zone monitoring, and LP-1, LP-2, LP-3 and PW-1-48 for shallow zone monitoring. The table below provides groundwater monitoring well depth, screen interval and WMU being monitored.

<u>Groundwater Monitoring Well</u>	<u>Top of Casing (MSL)</u>	<u>Total Depth (ft)</u>	<u>Screen Interval from Top of Casing (ft)</u>	<u>Water Zone being Monitored</u>	<u>WMU being Monitored</u>	<u>Type</u>
LP-1	20.30	51.3	45 - 50	Shallow	West	Detection
LP-2	18.05	65.3	59 - 64	Shallow	North	Detection
LP-3	21.73	45	39 - 44	Shallow	South	Detection
LP-4	17.05	25	10 - 25	Water Table	West	Detection
LP-5B	16.73	25	10 - 25	Water Table	North	Detection
LP-6	20.71	25	10 - 25	Water Table	South	Detection
LP-7	20.62	25	10 - 25	Water Table	-	Background
LP-8	19.82	27	12 - 27	Water Table	-	Detection

<u>Groundwater Monitoring Well</u>	<u>Top of Casing (MSL)</u>	<u>Total Depth (ft)</u>	<u>Screen Interval from Top of Casing (ft)</u>	<u>Water Zone being Monitored</u>	<u>WMU being Monitored</u>	<u>Type</u>
LP-9	18.50	27	12 - 27	Water Table	-	Detection
LP-10	22.30	30.5	10.5 - 19.7	Water Table	North	Detection
LP-11	17.17	17.0	7.1 – 16.6	Water Table	North Pond	Detection
PW1-48	27.10	48	40 - 45	Shallow	-	Detection

41. At the time this Order was adopted, the Discharger’s detection monitoring program (DMP) for groundwater at the facility satisfied the requirements contained in Title 27. Additional downgradient monitoring wells may be required if analytical data indicate a release in the existing downgradient monitoring wells during the subsequent monitoring events or a correction action program (CAP) is implemented.
42. The unsaturated zone monitoring system for the existing Class II SIs consisted of two suction lysimeters for each SI at the time of retrofitting. The north pond’s north lysimeter and south pond’s west lysimeter were decommissioned in 2010. The north pond’s south lysimeter was out of service during the second semiannual 2017 sampling event. Amec Foster Wheeler, on behalf of the Discharger, contacted the Central Valley Water Board in July 2017 with an inquiry as to whether the non-functioning lysimeter could be replaced by a water table groundwater monitoring well LP-11. In a 19 July 2017 email, the Central Valley Water Board indicated that the replacement request was under review. Since the groundwater is approximately 8 ft bgs (Finding 34) and the groundwater was already impacted (Finding 47), establishing a reliable unsaturated zone monitoring for the existing ponds is not feasible with suction lysimeters. The Discharger’s DMP for the unsaturated zone does not satisfy the requirements contained in Title 27 for the existing ponds. However, release from the existing ponds to groundwater shall be minimized to the extent possible by ensuring ponds’ primary liner performance and LCRSs functionality.
43. Title 27 section 20340(c) and (d) state that the LCRS shall be designed and operated to ensure that there is no buildup of hydraulic head on the liner and to function without clogging through the scheduled closure of the WMU and during the post-closure maintenance period. The existing ponds were built with a geonet drainage layer serving as the LCRS. The existing north and south ponds have one LCRS sump each, and the west pond has two LCRS sumps, one at the northwest corner and the other one at southeast corner. The Discharger currently performs video inspection of the existing ponds’ LCRS sumps on alternate years to determine the condition of the liner and inlet pipes to the LCRS sumps and submits the results and findings in annual monitoring reports. The video inspection of the LCRS sumps is not adequate to evaluate the LCRS clogging which could generate hydraulic head buildup on the secondary liner. Therefore, the Discharger shall submit a workplan to test the LCRS of each existing Class II SI to demonstrate its proper operation pursuant to Title 27 section 20340(C) and (d), as described in Provision I.7.H.

44. Title 27 section 20310(a) requires the Class II WMUs, including its containment and ancillary features to be designed and constructed to prevent migration of wastes from the units to adjacent geologic materials, groundwater or surface water, during disposal operations, closure and post-closure maintenance period. A portion of the surface runoff from the fertilizer manufacturing facility, west of Howland Road, is discharged to the existing unlined stormwater SI. The surface runoff from the Class II SIs surrounding area, east of Howland Road, is not being currently regulated or monitored under current WDRs Order No. 97-229 or a general industrial stormwater permit. The Discharger shall establish a surface water monitoring system pursuant to Title 27 section 20415(c) and section 20420, as part of the WQPS and as described in Provision I.7.E. Additionally, the Discharger shall obtain a general industrial stormwater permit for stormwater discharges associated with industrial activities in the vicinity of the Class II SIs (Discharge Specification B.4). Further, during the site inspection by Water Board staff on 24 August 2018, white deposits (sulfate as described by the Discharger) was observed on side slope liners of the existing Class II SIs and exposed process water conveyance pipe joints and connections especially on the process water recirculation pipe for evaporation. The Discharger washes the deposits on pipe joints/connections and side slope liners into the respective ponds as part of ponds' routine maintenance activities. This maintenance activity may cause discharge of waste outside the containment structure. Procedures for washing these deposits should be included in the Surface Impoundment Operation and Maintenance Plan as described in Provision I.7.J.
45. For a naturally occurring COCs, Title 27 requires concentration limits for each COC be determined as follows:
- By calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or
 - By an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).
46. The Discharger submitted an April 2003 *Water Quality Protection Standard Report* proposing combination of parametric statistical data analysis for constituents with sufficient analytical data and non-statistical methods for constituents with insufficient analytical data at that time, to calculate concentration limits for each monitored constituent in accordance with Title 27. The WQPS report proposed to use Interwell data analysis to calculate prediction limits for the monitored constituents. In *Corrective Action Work Plan* (June 2005) the Discharger revised the concentration limits for inorganic compounds based on an upper confidence interval calculated by parametric analysis and proposed historical maximum concentration in background monitoring well LP-7 or laboratory practical quantitation limits based on the analyses performed in 2005 for dissolved metals. The concentration limits provided in MRP R5-2008-0838 and phosphate concentration limit established using analytical data from 2009 through 2015 were continuously used in the monitoring reports to determine evidence of release from the existing Class II SIs. Since concentration limits were not updated since 2005 and background monitoring well

LP-7 is likely being impacted, the Discharger shall submit an updated WQPS, as described in Provision I.7.E. The updated WQPS shall include proposed corrective action monitoring program in conjunction with the detection monitoring program.

GROUNDWATER DEGRADATION AND CORRECTIVE ACTION

47. Historical groundwater monitoring results indicate a release to groundwater. The Central Valley Water Board requested the Discharger to submit a Corrective Action Program (CAP) to clean up groundwater in a letter dated 11 February 2005. The Discharger submitted *June 2005 Corrective Action Work Plan* which included phases to conduct the corrective action for the remediation of the site: an evaluation monitoring work plan, engineering feasibility study (EFS) evaluation, DMP and CAP; and presented a preliminary time schedule for implementation of above-mentioned phases. A summary of historical activities conducted by the Discharger is described in Findings 48 through 52.
48. *June 2006 Evaluation Monitoring Program (EMP) Interim Report* submitted by Geomatrix, on behalf of the Discharger, provided additional characterization of groundwater downgradient of the DMP wells and assessed the nature and extent of the release to design a CAP to clean up groundwater to levels that restore beneficial uses. The report found that based on analytical data from the Discharger's groundwater monitoring wells and from the depth-discrete samples collected during the EMP, groundwater affected by a release from the Class II SIs has characteristically high ammonia and sulfate concentrations, with TDS concentrations as high as 25,000 mg/L in the water table zone; and concentration of these characteristic salts in groundwater decrease with depth and distance from the Class II SIs. The report identified the nature and extent of the release as described below.
- The nature of the release was characterized with primary COCs: TDS, sulfate and ammonium. The report stated that the high TDS concentrations in monitoring well LP-1 since the initial sample indicate that a release to groundwater occurred prior to 1982, and the continued high TDS concentrations in monitoring wells LP-1 and LP-4 compared to the low concentration in LP-3 and LP-7 suggest that the release of TDS to the water table may be ongoing. The report also stated that the source of the release appears to be process water moving into the water table in the vicinity of the lined Class II SIs based on the differences in COC concentrations and the patterns of the Stiff diagrams. Further, volatile organic carbons (VOCs) non-detects in samples from groundwater monitoring network indicates no ongoing release of VOCs from the Class II SIs.
 - In the water table, the release was delineated as laterally extending north of the stormwater SI, east of the north pond, south of existing southwest pond (to monitoring well LP-6) and west to monitoring well LP-9. The report suggested that the release did not move north, east and south of the Class II SIs but laterally extended to the approximate location of monitoring well LP-9 based on the stiff diagrams presented in the report. Additionally, it was mentioned in the report that the Occidental groundwater extraction wells hydraulic control of the intermediate zone should limit the lateral extent

of the release in the intermediate zone. The vertical extent of the release was delineated as the release-affected groundwater may be migrating into the deep zone groundwater in response to the vertical hydraulic gradient created by pumping of the Occidental extraction wells but would be limited to the intake level of each of the extraction wells. The *June 2006 Evaluation Monitoring Program* report recommended additional investigation to understand the nature of the source(s) of the release.

49. *June 2007 Evaluation Monitoring Program Addendum Source Area Investigation Report*, prepared by Geomatrix on behalf of the Discharger, presented the results from the additional site investigation which was conducted through collecting soil and groundwater samples from exploratory borings in Phase III of the EMP implementation. The findings of the report summarized that soils near the northwest corner of the west pond may be a source area for the release based on significantly elevated concentrations of inorganic chemicals found in soil and groundwater particularly in the vicinity of the northwest corner of the west pond. However, other less concentrated source areas are also present in the vicinity of the ponds based on lower, but still elevated concentration of inorganic chemicals present in soil and groundwater at several boring locations.
50. In 2008, the Discharger assessed soil and groundwater impacts from the historical releases near the ponds and from three unrelated releases at the facility and presented the results and findings in *Combined Assessment Report* submitted on 3 February 2009. The report concluded that the process water ponds have been a source of ammonium and sulfate releases to the water table zone based on recent and historical groundwater monitoring data. Additionally, the report concluded that in general, COCs at the facility appear to be captured by the Occidental extraction system and the concentrations of COCs in groundwater further west of the Occidental's extraction wells are at or near background concentrations.
51. The existence of a measurably significant evidence of a release from the ponds was determined in the *Feasibility Study for Corrective Action Report*, dated 24 July 2009 and prepared by Amec on behalf of the Discharger. The report evaluated potential cost-effective corrective action methods for cleanup of inorganic COCs in groundwater and soils. The Discharger found that the extraction and reuse of groundwater was the most cost-effective solution to control the source of inorganic COCs to groundwater among the four alternatives evaluated for groundwater remediation. Active soil remediation was not proposed in the *Feasibility Study for Corrective Action Report*, as none of the active soil remediation alternatives were found to be effective in achieve the corrective action goals or to be cost-effective. The Discharger also proposed a conceptual corrective action plan to implement the Extraction and Reuse alternative for groundwater remediation and as a pilot test spanning for two years. *Addendum to Feasibility Study for Corrective Action* was submitted, in response to the Central Valley Water Board's review letter dated 17 September 2009, on 23 October 2009. In the addendum to FS report, additional evaluation of remedial methods concluded that the in-situ soil and groundwater remedial methods are infeasible because the methods are unlikely to achieve remedial goals, too

costly, and/or unlikely to meet with regulatory approval; and the selected alternatives in the *Feasibility Study for Corrective Action Report* remained unchanged.

52. The Discharger submitted *Extraction Well Pumping and Groundwater Model Report*, dated 22 April 2013 and prepared by Amec on behalf of the Discharger, in accordance with the 10 September 2010 *Extraction Well Pumping Test Work Plan* which was approved by the Central Valley Water Board. The report summarized the procedures followed to install an extraction well (EP-1), two piezometers (P-1 and P-2) and a monitoring well (LP-11), decommission two lysimeters and implementation of a pumping test to calculate aquifer parameters in the vicinity of the process water ponds. The aquifer parameters obtained from the pumping test were used to develop a groundwater model which simulation results indicated that three shallow extraction wells west of the existing west pond could effectively contain and remediate COCs in shallow groundwater beneath the facility.
53. Historical analytical results of samples from groundwater monitoring wells show concentration limit exceedance for monitoring parameters sulfate, nitrate, ammonia, chloride and TDS. The analytical results from first semiannual 2018 sampling event are summarized in table below.

<u>Groundwater Monitoring Well</u>	<u>Sulfate (mg/L)</u>	<u>Nitrate as N (mg/L)</u>	<u>Chloride (mg/L)</u>	<u>Ammonia as N (mg/L)</u>	<u>TDS (mg/L)</u>
Concentration Limits	250	23.6	109	1.0	1,070
LP-1	2,050	ND	240	570	2,540
LP-2	428	18.6	76	ND	1,210
LP-3	147	21	122	ND	1,100
LP-4	3,070	283	33	650	5,260
LP-5B	592	56	15	0.3	1,550
LP-6	130	32	87	23.2	760
LP-7	96.9	19	87	ND	780
LP-8	339	22	7.0	14.2	750
LP-9	1,640	356	48	191	4,020
LP-10	373	449	68	700	5,450
LP-11	183	21	7.0	0.6	920
PW1-48	604	10.9	205	6.2	1,440

Notes:

Concentration limit exceedances are shown in bold.

The water table and shallow zone groundwater is impacted in the vicinity of the existing Class II SIs. Review of past monitoring data is summarized below:

- Based on COCs concentration limits exceedance at the groundwater monitoring wells immediately around and down gradient to the existing west pond, a release to groundwater may be present in the west pond area. Time series plot of TDS, sulfate and ammonia concentration at groundwater monitoring wells LP-1 and LP-4, shows a decreasing concentration trend from 2004 to 2012, increasing trend from 2013 to 2016, and stable or decreasing trend since 2016. The time series plot of COC concentrations and groundwater level show that the COC concentration trends inversely varied with groundwater level at groundwater monitoring wells LP-1 and LP-4.
- The stable trend of sulfate and TDS concentrations in soil pore liquid at lysimeter W Pond W Lys may indicate an ongoing release and/or a release from historically affected geologic materials underlying the Class II SIs.
- Increasing trends of sulfate and TDS concentrations at monitoring wells LP-3, LP-5B, LP-6, LP-7, LP-9 and PW-1-48, side and downgradient to the existing north and south ponds, indicate that there are new and/or ongoing release(s), and/or a release from historically affected geologic materials underlying the Class II SIs, in the vicinity of the existing north and south ponds.
- Background well LP-7 may be impacted by release from the Class II SIs based on the concentration increasing trends shown in time series plot for chloride, sulfate and TDS concentration in groundwater.
- The analytical results of the south pond east lysimeter samples from first semiannual 2013 through second semiannual 2016 sampling events, presented in *First Semiannual 2018 Monitoring Report*, show concentration limit exceedance for COC monitoring parameters compared to groundwater concentration limits. Additionally, average pH value of the liquid collected from the lysimeter is 4.15 based on past five years monitoring data.
- The primary liners of the existing Class II SIs may be leaking at certain freeboard levels: north pond between 3.0 ft and 1.8 ft, south pond between 2.5 ft and 2.1 ft, and west pond around 3.0 ft, based on the information provided in Appendix B of First Semiannual 2018 Monitoring Report.

The analytical results of groundwater and unsaturated zone monitoring indicates that release(s) to groundwater from the existing Class II SIs is ongoing. The Discharger shall perform primary liner leak location detection tests and LCRS testing (Finding 43) to all existing Class II SIs as a source control measure pursuant to Title 27 section 20430(c), as described in Provision I.7.G and H, respectively. Additionally, the Discharger shall evaluate the cause for background well LP-7 impacts as described in Provision I.7.F.

54. Based on the discussions in Findings 48 through 53, release(s) from the existing Class II SIs to groundwater is ongoing. The Discharger has performed some corrective action to delineate the lateral and vertical extent of releases and to determine aquifer parameters through groundwater extraction well testing. During a conference call discussion with the Discharger on 5 November 2018, the Discharger indicated that implementing a separate

groundwater extraction system as a corrective action to capture COCs in the Class II SIs' area would influence the hydraulic control of Occidental's groundwater remediation system which already captures the COCs present in the groundwater in the vicinity of the Class II SIs. Occidental's groundwater remediation system is shut down for periodic maintenance and system improvements. The Discharger shall monitor and report on the effectiveness of Occidental's groundwater remediation system in removing COCs present in the groundwater in the vicinity of the Class II SIs, in lieu of operating their own corrective action and as described in Provision I.7.I and MRP R5-2019-0010 section Corrective Action Monitoring A.8. The Discharger shall propose a corrective action monitoring program (Title 27 section 20415(b)(1)(D) and section 20430) in the updated WQPS as described in Provision I.7. E, and implement the corrective action monitoring program upon Central Valley Water Board's approval. Additional remediation may be required by the Discharger in the future if it is determined that the remediation system operated by Occidental is not effective in remediating the releases of the COCs to groundwater in the vicinity of the Class II SIs.

CONSTRUCTION AND ENGINEERED ALTERNATIVE

55. The Discharger did not propose to construct any new waste management unit at the facility at the time of this order was adopted. However, the following information presented in Findings 56, 57 and 67 are provided to the Discharger for reference if a new waste management unit is contemplated in the future.
56. Title 27, section 20080(b) allows the Central Valley Water Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with Title 27, sections 20080(c)(1) or (2), the Discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in Title 27, section 20080(b), or would be impractical and would not promote attainment of applicable performance standards. The Discharger must also demonstrate that the proposed engineered alternative liner system is consistent with the performance goal addressed by the particular prescriptive standard, and provides protection against water quality impairment equivalent to the prescriptive standard in accordance with Title 27, section 20080(b)(2).
57. The Discharger shall propose a liner system for any new waste management unit which will be designed, constructed, and operated to prevent migration of wastes from the Unit to adjacent natural geologic materials, groundwater, or surface water during disposal operations, closure, and the post-closure maintenance period in accordance with the criteria set forth in Title 27 for Class II WMUs.
58. The existing Class II SIs base liner system, an engineered alternative, is described in Finding 9. In the past, the Discharger adequately demonstrated during retrofitting the existing ponds that construction of the liner prescriptive standard for the Class II SIs as described in Title 27 is incompatible with the high TDS wastes that to be stored in the

Class II SIs at the facility. The Discharger demonstrated that the proposed engineered alternative is consistent with the performance goals of the containment structures for a Class II WMU affords equivalent protection against water quality impairment.

59. Title 27 section 20340 (b) requires the LCRS to be designed, constructed, maintained and operated to collect and remove twice the maximum anticipated daily volume of leachate from the unit. The existing Class II SIs base liner system consists of geonet drainage layer for LCRS which was constructed when the Class II SIs were retrofitted in 1994 through 1996. The LCRS of each existing Class II SI drains to its respective LCRS sump and the leachate is pumped back into the Class II SI of origin. The Discharger did not provide the capacity of each LCRS and the maximum anticipated daily volume of leachate generated from the existing Class II SIs in the ROWD or in the *Addendum to ROWD*. The Discharger shall estimate the capacity of LCRS and its sump and show that it is maintained and operated to collect and remove twice the maximum anticipated daily volume of leachate pursuant to Title 27 section 20340, as described in Provision I.7.H.
60. Title 27 section 20240 (c) requires existing surface impoundments to be operated to ensure that wastes will be a minimum of five feet above the highest anticipated elevation of underlying groundwater. Based on Hypalon Lined Pond Restoration Plan (drawing 01DC01 dated 29 November 1994) and monitoring reports, the existing Class II SIs are not operated to maintain five-foot waste to groundwater separation: the bottom elevation of the existing Class II SIs is approximately at 11 ft (vertical datum is unknown) and the groundwater elevation at the groundwater monitoring wells LP-6 and LP-10 was at 7.91 and 7.75 ft MSL in last five years, respectively. The historical highest groundwater elevation observed at the site was 8 ft MSL in 2007. In the ROWD and *Addendum to ROWD*, the Discharger did not provide evidence that the existing Class II SIs have adequate waste to groundwater separation pursuant to the Title 27 section 20240(c) requirements. Therefore, the Discharger shall provide evidence that the existing Class II SIs are operated to maintain a minimum of five feet separation between the waste bottom and the highest anticipated elevation of underlying groundwater. If it is determined there is not adequate separation, the Discharger shall provide a feasibility study that outlines means and/or methods and associated feasibility to ensure future separation between bottom of the waste and the highest anticipated groundwater, as described in Provision I.7.K.
61. Title 27 section 20370(a) requires Class II WMUs to be designed to withstand the maximum credible earthquake (MCE) without damage to foundation or containment structures. The construction of the existing Class II SIs predates the stability analysis required by the Title 27. However, since the existing Class II SIs, former asphalt lined ponds, were retrofitted with double liner system over the asphalt liner to meet Title 27 base liner performance goal, the Discharger shall submit Class II SIs Operation and Maintenance (O&M) Manual which shall include procedures to follow to ensure the integrity of the Class II SIs containment structure after a seismic event that affected the site, as described in Provision I.7.J.

62. Title 27 section 20375(a) requires Class II SIs to have capacity for seasonal precipitation, a 1,000-year 24-hour design storm event, and to maintain at least two feet of freeboard at all times. The 1,000-year, 24-hour storm event for the site is 4.65 inches and is referred to hereafter as the “design storm”. For Title 27-required total seasonal precipitation, the Discharger has been required to use the 100-year wet season distributed monthly to prevent overflow of the impoundment or less than two feet of freeboard during a reasonable worst-case scenario wet season. The 100-year wet season for the site is 25.24 inches. The existing Class II SIs shall be operated to maintain minimum two feet freeboard at all time.
63. The Discharger has adequately managed the freeboard requirements for the Class II SIs in the past. Currently, the process water from the manufacturing facility is conveyed and distributed to the existing north, south and west ponds. The west pond is filled first until it reaches its capacity and then the north or the south pond is filled. The current pumping arrangement at the facility is that the process water can be returned to the manufacturing facility only from the west pond. Process water from the north and the south ponds is pumped to the west pond to return to the manufacturing facility. The perimeter perforated pipes at the south and west ponds are connected to the discharge pipe of respective pond return pumps. The piping arrangements are in place to pump excess process water from the west pond for off-site disposal or on-site storage to maintain freeboard requirements. The pond operators manually measure pond water level and control flow to/from the ponds since a permanent marker on the liner would not be visible with the deposits from process water.
64. A detailed water balance for the Class II SI was not included in the ROWD. As described in Finding 63, the Discharger has adequately managed the liquid level in the existing Class II SIs. The Discharger has used methods to enhance evaporation to maintain capacity in the existing north, south and west ponds. Two surface mounted evaporators and perimeter perforated pipe on the side slope were installed in the west pond, one surface mounted evaporator in the north pond and perimeter perforated pipe on the side slope in the south pond. The Discharger shall submit a detailed water balance for the existing Class II SIs, as described in Provision I.7.D. The water balance shall take the following factors into account:
- a) The average daily base process water flow to the Class II SIs from the fertilizer manufacturing facility.
 - b) The average recycling process water flow from the Class II SIs to the fertilizer manufacturing facility.
 - c) Evaporation losses from the Class II SIs: total gallons per year, and distributed monthly.
 - d) The 100-year wet season (25.24 inches) is distributed monthly in accordance with average monthly rainfall patterns. Provide a table showing how this rainfall would be distributed monthly by distributing the total amount among the months using the percentage of monthly precipitation that occurs on average.

- e) The total surface area of the SIs.
- f) The total surface area of the site runoff area captured by the SIs.
- g) Additional capacity required to store the design storm event and additional freeboard (additional capacity translated to feet or inches of freeboard) that needs to be maintained to accommodate the design storm event.
- h) The capacity of the lined SIs at the two-foot freeboard level.
- i) Capacity loss because of solid accumulation in the Class II SIs.

65. In the past, the process water from the existing Class II SIs was stored on-site in temporary storage tanks for reuse following heavy precipitation events to maintain freeboard requirements in the Class II SIs. The Discharger shall submit contingency procedures for disposal of the Class II SI liquid when the Class II SI is near capacity if the water balance finds that the Class II SI would be near capacity during its operational period, as part of the O&M Plan and as described in Provision I.7.J.

66. The Action Leakage Rate (ALR) is the maximum flow rate through the primary liner to the LCRS beyond which the Discharger is required to take actions to inspect and repair the primary liner system. The ALR is based on the recommendations in the 1992 USEPA guidance document *Action Leakage Rate for Leak Detection Systems*. The guidance recommends that ALR for lined SIs be set at no more than 1,000 gallons per acre per day.

Currently, the leachate collected and removed from the existing Class II SIs is returned to the SI of origin. Based on the data presented in the *First Semiannual 2018 Monitoring Report*, more volume of leachate was pumped from the south and west ponds' LCRS sumps than from the north pond. A noticeable trend was not observed for leachate generation from each pond. However, the Discharger noted in First Semiannual 2018 Monitoring Report Appendix B that the primary liners of the ponds are leaking at certain freeboard levels: north pond between 3.0 ft and 1.8 ft, south pond between 2.5 ft and 2.1 ft, and west pond around 3.0 ft. The Discharger shall estimate ALR for the existing Class II SIs using the 1992 EPA guidance. Additionally, the Discharger shall evaluate the leakage through the existing Class II SIs primary geomembrane, conduct a leak location survey, and compare the liquid volume in the LCRS sump to the estimated ALR. The estimated ALR and the results of the evaluation shall be submitted in Existing Class II SIs Primary Liner Evaluation Report as detailed in Provisions I.7.G. Further, the liquid level in the existing Class II SIs should be maintained below the liner leaking levels until the primary liner is repaired for known leaks in the interim, as described in Provision I.7.G; and the entire primary liners of the existing Class II SIs shall be evaluated for its performance, and tested for leaks and repaired per Provision I.7.G (see Facility Specification C.3).

67. Construction of any new waste management unit will proceed only after all applicable construction quality assurance plans have been approved by Executive Officer.

SURFACE IMPOUNDMENT CLOSURE

68. Title 27, section 21400 provides closure requirements for SIs which include the following options:

- Mandatory clean-closure attempt.
- Fallback closure options:
 - i. Closure as a landfill, requiring that the SIs with compacted and dewatered waste shall be closed as a landfill pursuant to Title 27, section 21090.
 - ii. Closure as a land treatment unit, requiring SIs which contain only decomposable wastes at closure be closed as a land treatment unit pursuant to Title 27, section 21420.

69. *Closure and Post-Closure Maintenance Plan Class II Surface Impoundments (CPCMP)*, dated 25 April 1996, for the existing Class II SIs is included in the *Addendum to ROWD*. The Discharger proposed a closure approach of clean closure of the north and south Class II SIs, consolidating fertilizer-affected soils into the west pond, grading the site to provide positive drainage, and constructing a cover over the west pond that consists of a geomembrane and an asphaltic concrete surface suitable for use as a parking lot. The Discharger shall submit final closure plans prior to closure of the existing Class II SIs per Provision I.7.C.

CLOSURE, POST-CLOSURE MAINTENANCE AND CORRECTIVE ACTION FINANCIAL ASSURANCES

70. The Class II SIs are currently in service. The Discharger did not propose a closure and/or post-closure maintenance cost estimate for the existing Class II SIs closure in the *ROWD or Addendum to ROWD*. Title 27 section 21400 sets the closure requirements for the SIs and allows the Discharger either to clean close the SI, or close as a landfill or land treatment unit in cases where clean-closure is infeasible. Further, Title 27 section 21769(a) and (b) sets the preliminary closure and post-closure maintenance plan (PCPCMP) requirements including reasonable estimate of the maximum expected cost that would be incurred at any time during the Unit's projected life for a third party both to close the unit and to carry out the first thirty years of post-closure maintenance, and for the Regional Water Board's review and approval of such plans. The Discharger shall submit the closure and/or post-closure maintenance cost estimates for the existing Class II SIs at the facility, as described in Provision I.7.L. Upon approval of the closure and/or post-closure maintenance cost estimate for the existing ponds, the Discharger shall submit an updated closure and/or post-closure cost estimate and financial assurances to account for inflation by **1 June** every year, as described in Provision I.7.N.

71. Title 27, section 20380, subdivision (b) requires that the Discharger obtain and maintain assurance of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the WMUs. The Discharger submitted

2005 Corrective Action Work Plan to address the known groundwater and soil contamination in the vicinity of the Class II SIs. The Discharger shall submit a corrective action cost estimate for initiating and completing corrective action for all known or reasonably foreseeable releases from the Class II SIs pursuant to Title 27 section 20380(b), 22220 and 22101, as described in Provision I.7.M. Upon approval of the corrective action cost estimate, the Discharger shall submit updated corrective action cost estimate to account for inflation by **1 June** of each year.

72. Title 27, section 22207 (a) requires the Discharger to establish financial assurances for closure in accordance with the approved cost estimate naming the Central Valley Water Board as the beneficiary. The cost estimate must be equal to the cost of closing the Class II SIs at the point in their active life when the extent and manner of operation would make closure the most expensive. When closing units in phases, the estimate may account for closing only the maximum area or unit of the SIs open at any time. Additionally, Title 27 section 22212(a) requires the Discharger to establish an irrevocable fund for the approved post-closure cost estimate naming the Central Valley Water Board as the beneficiary, if closure of any Class II SIs is envisioned as fallback closure option. Title 27, section 20380 (b) and 22222, require that the Discharger obtain and maintain assurance of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the WMUs in accordance with the approved cost estimate naming the Central Valley Water Board as the beneficiary. The Discharger shall submit assurance of financial responsibility as described in Provision I.7.N.

CEQA AND OTHER CONSIDERATIONS

73. The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code section 21000, et seq., and the CEQA guidelines, in accordance with Title 14, section 15301.

74. This order implements:

- *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fifth;*
- The prescriptive standards and performance goals of California Code of Regulations, title 27, section 20005 et seq., effective 18 July 1997, and subsequent revisions;
- State Water Board Resolution 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993, and revised on 21 July 2005.
- The applicable provisions of Title 40 C.F.R. section 258 "Subtitle D" federal regulations as required by State Water Board Resolution 93-62.

75. Based on the threat and complexity of the discharge, the facility is determined to be classified 2C as defined below:

- Category 2 threat to water quality, defined as, "Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."
- Category C complexity, defined as, "Any discharger for which waste discharge requirements have been prescribed pursuant to Section 13263 or the Water Code not included in Category A or Category B as described above. Included are dischargers having no waste treatment systems or that must comply with best management practices, dischargers having passive treatment and disposal systems, or dischargers having waste storage systems with land disposal."

76. The *Statement of Policy With Respect to Maintaining High Quality of Waters in California*, SWRCB Order WQ 68-16 (hereinafter "Anti-Degradation Policy") was adopted by the State Water Board in October 1968. Anti-Degradation Policy limits the Board's discretion to authorize the degradation of "high-quality waters." This policy has been incorporated into the Board's Basin Plans. "High-quality waters" are defined as those waters where water quality is more than sufficient to support beneficial uses designated in the Board's Basin Plan. Whether or not a water is a high-quality water is established on a constituent-by-constituent basis, which means that an aquifer can be considered a high-quality water with respect to one constituent, but not for others. (SWRCB Order No. WQ 91-10.)

77. Anti-Degradation Policy applies when an activity discharges to high quality waters and will result in some degradation of such high-quality waters. When it applies, the Policy requires that WDRs reflect best practicable treatment or control (BPTC) of wastes and that any degradation of high-quality waters (a) will be consistent with the maximum benefit to the people of the State, and (b) will not result in an exceedance of water quality objectives. If the activity will not result in the degradation of high-quality waters, Anti-Degradation Policy does not apply, and the Discharger need only demonstrate that it will use "best efforts" to control the discharge of waste.

78. Anti-Degradation Policy does not apply to the discharge of waste to J.R Simplot Lathrop Facility Class II SIs. The requirements of this Order are designed to ensure that any such wastes remain contained at the facility and will not reach waters of the State. The requirements of this Order reflect the Discharger's best efforts to control such wastes.

79. Water Code section 13267(b) provides that: "In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of having discharge or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.

80. The technical reports required by this Order and the attached "Monitoring and Reporting Program R5-2018-0010" are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

PROCEDURAL REQUIREMENTS

81. All local agencies with jurisdiction to regulate land use, liquid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.

82. The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

83. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

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

http://www.waterboards.ca.gov/public_notices/petitions/water_quality

or will be provided upon request.

IT IS HEREBY ORDERED, pursuant to California Water Code sections 13263 and 13267, that Order 97-229 is rescinded except for purposes of enforcement, and that J.R. Simplot Company, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of 'hazardous waste' is prohibited. For the purposes of this Order, the term 'hazardous waste' is as defined in California Code of Regulations, Title 23, section 2510 et seq.

2. The cessation of any corrective action measure implemented and operated by the Discharger is prohibited without written Executive Officer approval. If routine maintenance or a breakdown results in cessation of corrective action for greater than 24 hours, the Discharger shall notify Board staff.
3. The Discharger shall comply with all Standard Prohibitions listed in Section C of the Industrial SPRRs which are attached hereto and made part of this Order by reference.

B. DISCHARGE SPECIFICATIONS

1. Only non-hazardous liquid wastes shall be discharged to the Class II SIs. The discharge shall not cause a condition of pollution or nuisance as defined by the Water Code section 13050. As stated in Finding 15, the nonhazardous liquid wastes allowed to be discharged to the Class II SIs are:
 - a. Process water,
 - b. Storm water from fertilizer manufacturing area,
 - c. Zeolite softener backwash, and
 - d. Leachate collected and removed from the LCRS
2. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order. If the Discharger is unable to remove and relocate the waste, the Discharger shall submit a report to the Central Valley Water Board explaining how the discharge occurred, why the waste cannot be removed, and any updates to the waste acceptance program necessary to prevent re-occurrence. If the waste is a hazardous waste, the Discharger shall immediately notify the Department of Toxic Substances Control.
3. The Discharger shall obtain a Non-Subchapter 15 permit for discharges of waste to land that do not require full containment, for the operation of unlined stormwater SI and reclamation of stormwater for land application by 30 June 2019.
4. The Discharger shall obtain a general industrial stormwater permit for stormwater discharges associated with industrial activities in the vicinity of the Class II SIs.
5. The Discharger shall comply with all Standard Discharge Specifications listed in Section D of the Industrial SPRRs which are attached hereto and made part of this Order by reference.

C. FACILITY SPECIFICATIONS

1. Annually, prior to the anticipated rainy season but no later than **1 November**, any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed and reported in compliance with MRP No. R5-2019-0010.

2. The Class II SI shall have capacity for process water flows to the impoundment, precipitation and contaminated site runoff from a 100-year wet season of 25.24 inches distributed at least monthly, and a 1,000-year 24-hour storm event (design storm) of 4.65 inches; and shall maintain at least two (2.0) feet of freeboard at all times. The minimum freeboard of two feet shall be maintained in all existing Class II SIs at all times.
3. The liquid level in the existing Class II SIs should be maintained below the liner leaking levels until the primary liner is repaired for known leaks in the interim, as prescribed in Provision I.7.G.
4. The Discharger shall install an automated rainfall gauge to track the magnitude of storm events or obtain information from publicly available sources in the vicinity of the facility, install a means to directly measure the available freeboard in the Class II SI at any time, and record SI freeboard levels in accordance with the attached monitoring and reporting program.
5. Waste shall not be placed in the Class II SIs that would affect the physical and chemical properties of the liner to ensure containment of discharged wastes over the operating life, closure, and post-closure maintenance period of the Class II SIs.
6. Waste shall not be placed in the Class II SI that would affect the physical and chemical properties of the LCRS to ensure the required transmission of leachate over the life of the WMUs and the post-closure maintenance period.
7. LCRSs shall be maintained to collect twice the anticipated daily volume of leachate generated by each SI and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of the fluid in any LCRS sump shall be kept at the minimum needed for safe pump operation
8. Any direct-line discharge to a SI shall have fail-safe equipment or operating procedures to prevent overfilling.
9. The SI(s) shall be designed, constructed and maintained to prevent scouring and/or erosion of the liners and other containment features at points of discharge to the impoundments and by wave action at the water line.
10. Leachate removed from a SI's primary LCRS shall be discharged to the SI from which it originated.
11. Leachate generation by the Class II SI to the primary LCRS shall not exceed the ALR to be estimated by the Discharger and approved by the Central Valley Water Board as detailed in Provisions I.7.G. If leachate generation in the LCRS of the Class II SI exceeds the ALR, the Discharger shall:

- a. **Immediately** cease the discharge of waste to the affected Class II SI, excluding the Class II SI LCRS leachate;
 - b. **Immediately** notify Central Valley Water Board staff by telephone and email. Submit written notification within **seven days** that includes a time schedule to locate and repair leak(s) in the liner system.
 - c. If repairs do not result in a leakage rate less than the required ALR, the Discharger shall submit written notification within **seven days** that includes a time schedule for replacement of the upper liner of the SI or other action necessary to reduce leachate production.
 - d. Complete repairs or liner replacement in accordance with the approved time schedule under “b” and/or “c”, above.
12. The Discharger shall submit a SI Operations and Maintenance Plan to the Central Valley Water Board as detailed in Provision I.7.J.
13. The Discharger shall submit a detailed water balance as detailed in Provision H.7.D.
14. If the liquid level in the Class II SI reaches the two-foot freeboard level, the Discharger shall **immediately** notify Central Valley Water Board staff by telephone and email with the Class II SI water level and the proposed actions to maintain the liquid level in the Class II SI at or below the two-foot freeboard level. Sediments or solids that accumulate in the Class II SI shall be periodically removed to maintain minimum freeboard requirements and to maintain sufficient capacity for SI leachate and for the discharge of wastes. The solids removed from the Class II SI may be reused at the fertilizer manufacturing facility. Prior to removal of these solids for off-site disposal, sufficient samples shall be taken for their characterization and classification pursuant to Article 2, Subchapter 2, Chapter 3, Division 2 of Title 27. The rationale for the sampling protocol used, the results of this sampling, and a rationale for classification of the solids shall be submitted to Central Valley Water Board staff for review.
15. Following sediment/solids removal from the Class II SI, the liner system shall be inspected for damage within 30 days and any damage shall be repaired within 60 days prior to the discharge of additional process water. A report shall be submitted to the Central Valley Water Board within 30 days of completion of the liner inspection or repair. In the event of partial removal of sediments/solids from the Class II SI, a visual/manual inspection of the liner system shall be performed. The Discharger shall monitor leachate collected in the respective LCRS sump and compare leachate generation to its ALR. Liner inspection and the results shall be presented in the semiannual monitoring report following the solids removal from the Class II SI.
16. The Discharger shall comply with all Standard Facility Specifications listed in Section E of the Industrial SPRRs which are part of this Order.

D. CONSTRUCTION SPECIFICATIONS

1. The Class II SI and related containment structures shall be constructed and maintained to prevent, to the greatest extent possible, inundation, erosion, slope failure, washout, and overtopping under 1,000-year, 24-hour precipitation conditions.
2. Waste management units shall be designed, constructed and operated to prevent inundation or washout due to flooding events with a 100-year return period.
3. Materials used to construct liners shall have appropriate physical and chemical properties to ensure containment of discharged wastes over their operating life.
4. LCRSs shall be designed, constructed, and maintained to collect twice the anticipated daily volume of leachate generated by each SI and to prevent the buildup of hydraulic head on the underlying liner at any time. The LCRS pump shall be capable of removing this volume of leachate and/or 150% of the Action Leakage Rate flow, whichever is greater.
5. The depth of the fluid in any LCRS sump shall be kept at the minimum needed for safe pump operation without excessive pump cycling that could damage the pump.
6. The Discharger shall submit a design report including water balance for the Class II SIs, plans, specifications, and a construction quality assurance plan for review and approval prior to constructing any new lined waste management unit.
7. The Discharger shall submit a final report documenting construction of any new Class II SI for review and approval prior to discharging wastes to the waste management unit.
8. The Class II SI shall have a sump to collect and return leachate to the impoundment of origin that leaks through the primary liner. The sump shall include a dedicated automated pump to remove leachate and return it to the impoundment.
9. The Class II SI shall have a flow totalizer to measure leachate volumes pumped from the sump in order to track leakage rates.
10. The Class II SI shall have an unsaturated zone monitoring system consisting of a pan lysimeter beneath the entire sump area of the impoundment.
11. The Class II SI and any overflow basin shall have permanent markings on the liner, or a permanent freeboard gauge so that the freeboard can be observed and recorded at any time. The markings or gauge shall have increments no greater than 6-inches.
12. The Discharger may propose changes to the liner system design prior to construction, provided that approved components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed liner system results

in the protection of water quality equal to or greater than the design prescribed by Title 27 and this Order. The proposed changes may be made following written approval by the Executive Officer. Substantive changes to the design require reevaluation as an engineered alternative and approval by the Central Valley Water Board in revised WDRs.

13. The Discharger shall comply with all Standard Construction Specifications listed in Section F of the Industrial SPRRs which are attached hereto and made part of this Order by reference.
14. The Discharger shall comply with all Storm Water Provisions listed in Section L of the Industrial SPRRs which are attached hereto and made part of this Order by reference.

E. CORRECTIVE ACTION SPECIFICATIONS

1. For all units/modules in a corrective action program to address a release from the unit/module, the Discharger shall implement all corrective measures necessary to remediate the release and prevent a continued or subsequent release from the Unit, including, but not necessarily limited to, repairs, cleanup, and source control. Additional measures shall be implemented, as appropriate, if monitoring data indicates that cleanup is not being achieved in a reasonable timeframe and/or if waste constituent concentrations are increasing. To demonstrate cleanup of all water-bearing media affected by the release, the Discharger shall complete the applicable proof period under Title 27, section 20430(g).
2. Additional remediation may be required by the Discharger in the future if it is determined that the remediation system operated by Occidental is not effective in remediating the releases of the COCs to groundwater in the vicinity of the Class II SIs.

F. CLOSURE AND POST-CLOSURE MAINTENANCE SPECIFICATIONS

1. At closure of the Class II SI, the Discharger shall clean-close the unit(s) pursuant to Title 27 section 21400(b)(1). All precipitates, settled solids, liner materials, and adjacent natural geologic materials contaminated by wastes shall be completely removed and discharged to an appropriately permitted landfill facility. If after reasonable attempts to remove contaminated natural geologic materials, the Discharger demonstrates that removal of all remaining contamination is infeasible, the impoundment and/or overflow basins shall be closed as a landfill pursuant to Title 27 section 21400(b)(2)(A). In this event, the Discharger shall backfill and grade the area and submit a revised Final Closure and Post-Closure Maintenance Plan proposing a final cover meeting the requirements of Title 27 section 21090 and shall perform all post-closure maintenance in the approved Post-Closure Maintenance Plan.
2. Prior to closure, the Discharger shall submit a final or partial final closure and post-closure maintenance plan prepared by a California-registered civil engineer or certified

engineering geologist, and that contains all application information required in Title 27 section 21769, for review and approval of Central Valley Water Board.

3. The Discharger shall comply with all Standard Closure and Post-Closure Specifications listed in Section F of the Industrial SPRRs which are attached hereto and made part of this Order by reference.

G. FINANCIAL ASSURANCE SPECIFICATIONS

1. Title 27 section 21769(a) and (b) sets the preliminary closure and post-closure maintenance plan (PCPCMP) requirements including reasonable estimate of the maximum expected cost that would be incurred at any time during the Unit's projected life for a third party both to close the unit and to carry out the first thirty years of post-closure maintenance, and for the Regional Water Board's review and approval of such plans. The Discharger shall submit the closure and/or post-closure maintenance cost estimates for the existing Class II SIs at the facility, to Central Valley Water Board for review and approval by 31 August 2019, as described in Provision I.7.M.
2. The Discharger shall submit a corrective action cost estimate for initiating and completing corrective action for all known or reasonably foreseeable releases from the Class II SIs pursuant to Title 27 section 20380(b), 22220 and 22101, as described in Provision I.7.M.
3. Upon approval of the closure and post-closure cost estimate by Central Valley Water Board, pursuant to Title 27 Section 22207 and/or section 22212, the Discharger shall submit a report showing that it has established an irrevocable closure and/or post-closure maintenance fund at least for the approved amount with the Central Valley Water Board named as beneficiary to ensure closure of the Class II SIs. The financial assurances mechanism shall be one listed in Title 27 section 22228 for which the Discharger is eligible. For financial assurance mechanisms requiring funding, the Discharger shall either fully fund the mechanism by **1 June 2020** or may propose a payment schedule. If the Discharger proposes a payment schedule to fund the mechanism, it shall submit a report by **1 June 2021** showing that the mechanism is fully funded. For financial assurance mechanisms not requiring funding, such as a Guarantee, the Discharger shall submit a report showing the mechanism is in place by **1 June 2020**.
4. By **1 June 2020**, pursuant to Title 27 section 22222, the Discharger shall submit a report showing that it has established an irrevocable corrective action fund at least for the approved amount with the Central Valley Water Board named as beneficiary to ensure funds are available to address a known or reasonably foreseeable release from the Class II SI. The financial assurances mechanism shall be one listed in Title 27 section 22228 for which the Discharger is eligible. For financial assurance mechanisms requiring funding, the Discharger shall either fully fund the mechanism by **1 June 2020** or may propose a payment schedule. If the Discharger proposes a

payment schedule to fund the mechanism, it shall submit a report by **1 June 2021** showing that the mechanism is fully funded. For financial assurance mechanisms not requiring funding, the Discharger shall submit a report showing the mechanism is in place by **1 June 2020**.

5. By **1 June** of each year, the Discharger shall submit a report to the Central Valley Water Board that reports the balance of both the closure and corrective action funds or the amounts of the Guarantees and the adjustments to account for inflation in accordance with Title 27 section 22236.
6. The Discharger shall comply with all Standard Financial Assurance Specifications listed in Section H of the Industrial SPRRs which are attached hereto and made part of this Order by reference.

H. MONITORING SPECIFICATIONS

1. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, and in accordance with Monitoring and Reporting Program (MRP) R5-2019-0010, and the Standard Monitoring Specifications listed in Section I of the Industrial SPRRs which are attached hereto and made part of this Order by reference.
2. The Discharger shall, for any waste management unit in a corrective action monitoring program, comply with the corrective action monitoring program provisions of Title 27, MRP R5-2019-0010, and the Standard Monitoring Specifications listed in Section I of Industrial SPRRs which are attached hereto and made part of this Order by reference.
3. The Discharger shall comply with the WQPS as specified in this Order, MRP R5-2019-0010, and the Industrial SPRRs which are attached hereto and made part of this Order by reference.
4. The concentrations of the constituents of concern in waters passing the Point of Compliance (defined pursuant to Title 27, section 20164 as a vertical surface located at the hydraulically downgradient limit of the landfill unit that extends through the uppermost aquifer underlying the unit) shall not exceed the concentration limits established pursuant to MRP R5-2019-0010.
5. For each monitoring event, the Discharger shall determine whether the Class II SIs are in compliance with the WQPS using procedures specified in MRP R5-2019-0010 and the Standard Monitoring Specifications in Section I of the Industrial SPRRs which are attached hereto and made part of this Order by reference.
6. As specified in MRP R5-2019-0010, the Discharger shall enter all reports and monitoring data into the online Geotracker database as required by Division 3 of Title 27 and Chapter 30, Division 3 of Title 23.

7. The Discharger shall comply with all Standard Monitoring Specifications and Response to a Release specifications listed in Sections I and J of the Industrial SPRRs which are attached hereto and made part of this Order by reference.

I. PROVISIONS

1. The Discharger shall maintain a copy of this Order at the facility, including the MRP R5-2019-0010 and the Industrial SPRRs which are part of this Order, and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
2. The Discharger shall comply with all applicable provisions of Title 27 that are not specifically referred to in this Order.
3. The Discharger shall comply with MRP R5-2019-0010, which is incorporated into and made part of this Order by reference.
4. The Discharger shall comply with the applicable portions of the Standard Provisions and Reporting Requirements for Industrial Facilities Regulated by Title 27 which are attached hereto and made part of this Order by reference.
5. If there is any conflicting or contradictory language between the WDRs, the MRP, or the SPRRs, then language in the WDRs shall supersede either the MRP or the SPRRs, and language in the MRP shall supersede the SPRRs.
6. All reports required by this Order shall be submitted pursuant to Water Code section 13267, and to the extent applicable, shall be prepared by the appropriately licensed professional as described in the Standard Provisions and Reporting Requirements.
7. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule:

<u>Task</u>	<u>Compliance Date</u>
<p>A. Construction Plans</p> <p>Submit construction and design plans for review and approval. (see all Construction Specifications in Section D, above and Section F of the SPRRs.)</p>	<p>90 days prior to proposed construction</p>
<p>B. Construction Report</p> <p>Submit a construction report for review and approval upon completion demonstrating construction was in accordance with approved construction plans (see Standard Construction Specification F.27 in the Industrial SPRRs).</p>	<p>60 days prior to proposed discharge</p>

<p>C. Final Closure Plans</p> <p>Submit a final or partial final closure and post-closure maintenance plan, design plans, and CQA plan for review and approval (see all Closure and Post-Closure Specifications in Section E, above and Section G of the Industrial SPRRs).</p>	<p>Two years prior to closure</p>
<p>D. Water Balance for the Class II Surface Impoundments</p> <p>The Discharger shall submit a detailed water balance to demonstrate that the Class II SIs are designed, constructed and operated to have sufficient capacity to store design storm, and 100-year wet season precipitation, distributed monthly, while maintaining two-feet freeboard. The water balance shall include following items, but not limited to:</p> <ul style="list-style-type: none"> a) The average daily base process water flow to the Class II SI from the fertilizer manufacturing facility. b) The average recycling process water flow from the Class II SI to the fertilizer manufacturing facility. c) Evaporation losses from the Class II SI: total gallons per year, and distributed monthly. d) The 100-year wet season (25.24 inches) is distributed monthly in accordance with average monthly rainfall patterns. Provide a table showing how this rainfall would be distributed monthly by distributing the total amount among the months using the percentage of monthly precipitation that occurs on average. e) The total surface area of the impoundment. f) The total surface area of the site runoff area captured by the impoundment g) Additional capacity required to store the design storm event and additional freeboard (additional capacity translated to feet or inches of freeboard) that needs to be maintained to accommodate the design storm event. h) The capacity of the lined Class II SIs at the two-foot and two-feet freeboard level. i) Capacity loss because of solid accumulation in the Class II SIs. 	<p>1 November 2019</p>

<p>E. Water Quality Protection Standard</p> <p>Pursuant to Title 27 section 20390, the Discharger shall submit an updated WQPS report incorporating surface water monitoring (Title 27 section 20415(c)), corrective action monitoring program (Title 27 section 20415(b)(1)(D) and section 20430) and additional analytical results from existing monitoring system. The updated WQPS report shall include, but not limited to:</p> <ul style="list-style-type: none"> a) Monitoring programs b) Monitoring points for each monitoring medium and point of compliance c) Constituents of concern d) Sampling collection and analysis plan e) Concentration limit for each monitoring medium f) Statistical procedure including approach to data analysis, data management and statistical method g) Verification retesting procedures to confirm measurably significant evidence of a release <p>The Discharger shall update the WQPS when a correction action program is implemented.</p>	<p>31 August 2019</p>
<p>F. Background Well LP-7 Groundwater Impact Evaluation</p> <p>COCs concentrations have increased in Background Well LP-7 which is located in close proximity to the Class II SI south pond. The Discharger shall evaluate whether well LP-7 is consistently upgradient of the Class II SIs and representative of background conditions. The Discharger shall submit the evaluation report for Central Valley Water Board review.</p>	<p>31 August 2019</p>
<p>G. Existing Class II Surface Impoundments Primary Liner Evaluation</p> <p>The existing north, south and west ponds were retrofitted to meet performance goals of Title 27 liner system in 1994 through 1996, and the north pond primary liner was replaced in 2010. To ensure the existing Class II SIs at the</p>	

facility are maintained and operated in accordance with the requirements in Title 27 sections 20340 and 20375, the Discharger shall evaluate the condition and performance of the primary liners and submit a report summarizing the results for Central Valley Water Board review and approval.

1) Primary Liner Interim Repair Work Plan

The Discharger shall submit a work plan to repair the known leaks in the primary liner of the existing Class II SIs. The workplan shall include detailed schedule to complete the repair work before 1 October 2019. Upon approval of the work plan, the Discharger shall perform the repair work and submit a repair work report which shall include any liner testing performed, repair work specification and location, and quality control assurance report, by 31 October 2018. The report shall also include ALR for the existing Class II SIs:

- a. Evaluation of the leakage through the Class II SI primary geomembrane by estimating the ALR using the 1992 EPA guidance document Action Leakage Rate for Leak Detection Systems, for review and approval.
- b. Comparison of the liquid volume collected in the Class II SI LCRS sump to estimated ALR.

2) Leak Location Detection Test Work Plan

The Discharger shall submit a Work Plan to conduct a leak location detection test on the entire primary liner of all existing Class II SIs to locate any defects in the primary liner that may have developed over the years from ultraviolet degradation, normal wear and tear, or other activities. The work plan shall include a schedule to complete leak location tests and repair works, if needed, to all ponds by 31 December 2024. Depending on the Class II SIs operation requirements and flexibility, if needed, one Class II SI shall be tested for leak locations and repaired at a time.

15 March 2019

1 June 2019

<p>3) Primary Liner Performance Evaluation Report: Following the approval of Leak Location Detection Test Work Plan by the Central Valley Water Board, a leak location test shall be performed on the primary liner to find any defects. The test report shall include:</p> <ol style="list-style-type: none"> 1. Results from the primary liner leak location test; and 2. Proposed primary liner repair plan, if required, including primary liner repair specifications and Construction Quality Assurance Plan. 	<p>Within two weeks after leak location test</p>
<p>H. Existing Class II Surface Impoundment LCRS Testing</p> <p>The LCRS of the existing Class II SIs shall be tested to evaluate its performance and functionality pursuant to Title 27 section 20340(c) and (d). The Discharger shall submit followings for Central Valley Water Board review and approval.</p> <p>1) LCRS Testing Work Plan LCRS testing work plan shall be submitted to test the LCRS of each existing pond, including west pond until it is replaced with the proposed southwest pond, to demonstrate proper operation pursuant to Title 27 section 20340(d). The work plan shall include a time schedule to test each existing pond, a proposed method of LCRS testing and criteria for performance evaluation.</p> <p>2) LCRS Testing Report Upon approval of the LCRS Testing Work Plan, the Discharger shall perform the LCRS testing and submit the testing results in a report that shall include, but not limited to:</p> <ol style="list-style-type: none"> a. The existing LCRS testing results b. Capacity of each Class II SI LCRS and LCRS sump. The Discharger shall estimate the capacity of each existing and proposed LCRS and show that it is designed to collect and remove twice the maximum anticipated daily volume of leachate pursuant to Title 27 section 20340. c. Proposed corrective action, if the LCRS of any existing pond fails to meet evaluation criteria. 	<p>1 June 2019</p> <p>31 August 2020</p>

<p>I. Groundwater Corrective Action</p> <p>The groundwater in the vicinity of the Class II SIs is impacted by release(s) from the Class II SIs. The Discharger has evaluated the nature and extent of the release and performed extraction well testing for groundwater remediation. Implementing a localized corrective action (groundwater pumping) in the vicinity of the Class II SIs would potentially negatively influence the hydraulic control of Occidental's groundwater remediation system. The COCs present in the groundwater in the vicinity of the Class II SIs is captured by the Occidental's groundwater remediation system.</p> <p>The Discharger shall monitor and report the effectiveness of Occidental's groundwater remediation system, which captures the COCs present in the groundwater in the vicinity of the Class II SIs, in removing the COCs present in the groundwater in the vicinity of the Class II SIs, per the Correction Action Monitoring A.8 of MRP R5-2019-0010 requirements. The Discharger may use publicly available data from Occidental for the required evaluation. Additional remediation may be required by the Discharger in the future if it is determined that the remediation system operated by Occidental is not effective in remediating the releases of the COCs to groundwater in the vicinity of the Class II SIs.</p>	<p>Semiannual monitoring reports</p>
<p>J. Surface Impoundment Operations and Maintenance Plan</p> <p>Submit a plan that addresses operation and maintenance of the SIs, including, but not limited to: routine maintenance activities to keep discharge and distribution pipes and slope liners free of deposits, procedure to maintain adequate freeboard, the procedure and schedule for leak testing of SI liners; the procedure and schedule for replacing SI liners, including rationale for replacement; routine inspections to assess existing liner integrity, including in conjunction with sediment removal; annual testing of the LCRS to demonstrate proper operation; and the proposed Action Leakage Rate (ALR) for each SI, calculated using the 1992 United States Environmental Protection Agency method outlined in their guidance document <i>Action Leakage Rate for Leak Detection</i></p>	<p>1 June 2020</p>

<p><i>Systems</i>, or equivalent procedures. The O&M plan shall include a contingency plan describing the procedures for off-site disposal of process water when liquid level in the SI reaches free board level.</p>	
<p>K. Waste to Groundwater Separation</p> <p>Title 27 section 20240 (c) requires the existing SIs to be operated to ensure that wastes will be a minimum of five feet above the highest anticipated elevation of underlying groundwater. The Discharger shall provide evidence to show that the existing Class II SIs are operated to maintain this five-foot waste to groundwater separation. If it is determined that there is not adequate separation, the Discharger shall provide a feasibility study that outlines means and/or methods and associated feasibility to ensure future separation between bottom of the waste and the highest anticipated groundwater to comply with Title 27 section 20240 (c) requirements.</p>	<p>31 December 2019</p>
<p>L. Closure and Post-Closure Maintenance Cost Estimate</p> <p>Pursuant to Title 27 section 21769 (b)(2)(A), the Discharger shall submit a reasonable estimate of the maximum expected cost that would be incurred at any time during the Unit's projected life for a third party both to close the unit and to carry out the first thirty years of post-closure maintenance, and for the Regional Water Board's review and approval of such plans.</p>	<p>1 June 2020</p>
<p>M. Class II Surface Impoundment Corrective Action Cost Estimate</p> <p>The Discharger shall submit a corrective action cost estimate for initiating and completing corrective action for all known or reasonably foreseeable releases from the Class II SIs pursuant to Title 27 section 20380(b), 22220 and 22101.</p>	<p>1 June 2020</p>
<p>N. Class II Surface Impoundment Financial Assurance</p>	<p>31 December 2020</p>

<p>Pursuant to Title 27 Section 22207 and/or section 22212, the Discharger shall submit a report showing that it has established an irrevocable closure and/or post-closure maintenance fund at least for the approved amount to conduct closure activities with the Central Valley Water Board named as beneficiary to ensure closure of the Class II SIs. The financial assurances mechanism shall be one listed in Title 27 section 22228 for which the Discharger is eligible.</p> <p>Title 27, section 20380 (b) and 22222, require that the Discharger obtain and maintain assurance of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the WMUs in accordance with the approved cost estimate naming the Central Valley Water Board as the beneficiary.</p> <p>Upon approval, the Discharger shall obtain and maintain assurance of financial responsibility with Central Valley Water Board named as beneficiary, for the Class II SI closure and/or post-closure maintenance and corrective action in at least the approved amount of the current cost estimate, adjusted for inflation annually.</p>	
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8. The Discharger shall comply with all General Provisions listed in Section K of the Industrial SPRRs which are part of this Order.
9. The Central Valley Water Board has converted to a paperless office system. All project correspondence and reports required under this Order shall therefore be submitted electronically rather than in paper form, as follows:

All technical reports and monitoring reports required under this Order shall be converted to PDF and uploaded via internet to the State Water Board's GeoTracker database at <http://geotracker.waterboards.ca.gov>, as specified in California Code of Regulations, title 23, section 3892, subdivision (d) and section 3893. Project-associated analytical data shall be similarly uploaded to the GeoTracker database in an appropriate format specified under this Order under a site-specific global identification number. Information on the GeoTracker database is provided at:

http://www.swrcb.ca.gov/ust/electronic_submittal/index.shtm

Notification of the Geotracker upload shall be emailed to the Central Valley Water Board at: centralvalleysacramento@waterboards.ca.gov. To ensure that the submittal

is routed to the appropriate staff as quickly as possible, the following information shall be included in the body of the email:

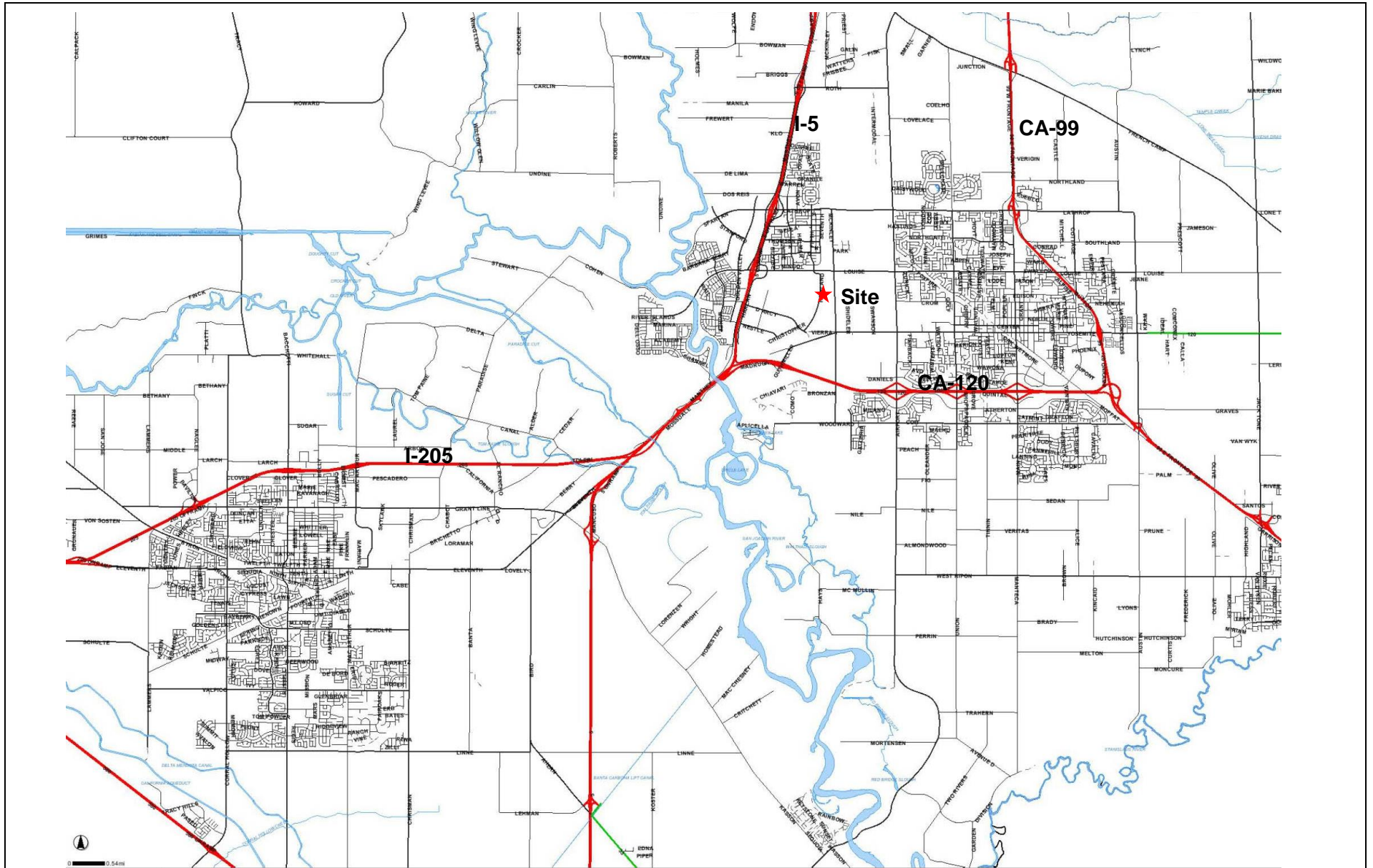
Attention:	Title 27 Compliance & Enforcement Unit Or Title 27 Permitting Unit
Report Title	
Geotracker Upload ID	
Discharger name:	J.R. Simplot Company
Facility name:	Lathrop Facility Class II Surface Impoundment
County:	San Joaquin
CIWQS place ID:	236656

I, PATRICK PULUPA, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 8 February 2019.

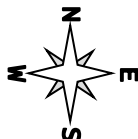
ORIGINAL SIGNED BY

PATRICK PULUPA, Executive Officer

MP



Approximate Scale:
1" = 0.54 mile
(as shown)



Drawing Reference: San Joaquin
County
District Viewer

LOCATION MAP
J.R. Simplot Company
Lathrop Facility Class II Surface Impoundments
San Joaquin County



Approximate Scale:
As shown



Drawing Reference: Wood
Project No. 006741, Figure 2
Date: 5 Sep 2018

SITE PLAN AND MONITORING NETWORK
J.R. Simplot Company
Lathrop Facility Class II Surface Impoundments
San Joaquin County

ORDER NO. R5-2019-0010
SAN JOAQUIN COUNTY
J.R. SIMPLOT COMPANY
LATHROP FACILITY
CLASS II SURFACE IMPOUNDMENTS
OPERATION, MAINTENANCE, CLOSURE, POST-CLOSURE MAINTENANCE AND CORRECTIVE
ACTION
SAN JOAQUIN COUNTY

INFORMATION SHEET

In Order No. R5-2019-0010 and its associated Monitoring and Reporting Program (MRP), the Central Valley Regional Water Quality Control Board prescribes updated waste discharge requirements (WDRs) for the J.R. Simplot Company (Discharger) Lathrop Facility Class II surface impoundments (facility) in San Joaquin County, situated approximately one mile south of the town of Lathrop, south of the City of Stockton.

The facility currently consists of approximately 341 acres of property (site) on the east and west sides of Howland Road north of Highway 120 and south of Louise Avenue. The area west of Howland Road includes the Discharger's fertilizer plant (manufacturing and warehousing) and Occidental's groundwater remediation system. The area east of Howland Road includes Simplot's water management systems, which currently consist of the unlined stormwater pond, three Class II surface impoundments (north, south and west ponds) and about 101 acres of agricultural property irrigated with storm water supplemented by water from the facility's supply wells.

Pursuant to Title 27 of the California Code of Regulations (Title 27), the lined ponds have been classified as a "Class II" unit. The facility was previously been assessed with an overall Threat to Water Quality (TTWQ) and Complexity (CPLX) rating of 2C. This order continues the waste management unit classification for the ponds and incorporates this threat and complexity rating.

The WDR Order No. 97-229 regulated the three lined ponds, one unlined stormwater pond and wastewater reclamation from the stormwater pond. The operation of unlined stormwater pond and reclamation of stormwater for land irrigation are exempted from Title 27 requirements pursuant to Title 27 section 20090. The WDR Order No. R5-2019-0010 regulates the three lined ponds and does not regulate the unlined stormwater pond which was regulated by Order No. 97-229. The Discharger shall obtain a Non-Subchapter 15 permit for discharges of waste to land that do not require full containment, for the operation of unlined stormwater pond and reclamation of stormwater for land application.

Facility Description

As of 1 January 1983, Occidental Chemical Company (Occidental) who manufactured and formulated both fertilizer and pesticides at the facility, conveyed to the Discharger certain property and assets of the manufacturing facility. Prior to transfer of the manufacturing facility to the Discharger, groundwater at this site was found to be contaminated with some organic pesticides [primarily dibromochloropropane (DBCP) and ethylene dibromide]. Under terms and conditions of the Stipulation and Judgment Approving Settlement (No. CIV S-79-898 MLS) for investigation and cleanup of the Occidental site, approved by the U.S. District Court on 9 February 1981, Occidental is responsible for investigation and remediation of the site. Under terms of the Stipulation and Order (hereafter Stipulation) approved by the Court on 21 December 1982, the State of California consented to the transfer from Occidental to the Discharger of the Lathrop manufacturing facility's property and assets provided that Occidental expressly retains full responsibility for compliance with all obligations

imposed by the Stipulation, and that Simplot assumes responsibility for the proper handling, storage and disposal of liquid and solid wastes and stormwater runoff in accordance with the Stipulation.

Occidental implemented a groundwater remedial program that included the extraction and treatment of affected groundwater and the injection of treated groundwater in the far western portion of the Simplot facility. Occidental conducts ongoing groundwater remediation, related to releases of DBCP, ethylene dibromide (EDB) and sulfolane, which are collectively referred to as Occidental's constituents of concern (COCs), around the site using 17 groundwater extraction wells, a treatment system for extracted groundwater and two groundwater injection wells. Occidental has been monitoring groundwater for Occidental COCs and inorganic constituents east and west of Howland Road. Additionally, Occidental also installed a temporary groundwater remediation system on the east side of facility (Occidental, 2012). This system treats groundwater from the facility's backup supply well (BSW, see Attachment B). The temporary treatment system removes sulfolane from BSW water for use within Simplot operations. Occidental reports separately to the RWQCB on operations and monitoring of these systems.

Four groundwater zones have been identified beneath the facility to a depth of 338 feet below ground surface (bgs): water table zone, shallow groundwater zone, intermediate groundwater zone and deep groundwater zone. The Discharger monitors well in the water table and shallow groundwater zones at the facility. Occidental monitors all four groundwater zones under a separate MRP.

Class II Surface Impoundments

The three Class II ponds were constructed with asphalt liners between 1975 and 1982 and retrofitted with double liner system (double Hypalon or Hypalon and PVC liners) to meet performance goals of Title 27 between 1994 and 1996. The north pond primary liner was replaced with 80-mil high density polyethylene (HDPE) in 2010. The Discharger discharges an average flow rate of approximately 0.05 million gallon per day (total flow rate) of process water, stormwater from fertilizer processing area and zeolite softener backwash to the ponds. The process water stored in the ponds generally has high concentrations of total dissolved solids (TDS), sulfate and ammonia with low concentrations of bicarbonate and low pH.

Currently, the process water from the fertilizer manufacturing facility is conveyed and distributed to the existing north, south and west ponds. The west pond is filled first until it reaches its capacity and then the north or the south pond is filled. The current pumping arrangement at the facility is that the process water can be returned to the manufacturing facility only from the west pond. Process water from the north and the south ponds is pumped to the west pond to return to the manufacturing facility. The piping arrangements are in place to pump excess process water from the west pond for off-site disposal or on-site storage to maintain freeboard requirements. The leachate collected and removed from the leachate collection and removal system (LCRS) is returned to the pond of origin. Surface mounted evaporators in the west and north ponds, and the perimeter perforated pipes at the south and west enhance evaporation from the ponds. The facility operators manually measure pond water level and control flow to/from the ponds. The solids accumulated at the bottom of the ponds over the time, contain high value for fertilizer nutrients, therefore the Discharger reuses it at their facility when it is removed from the ponds to maintain sufficient liquid capacity.

In 2017, the site experienced annual precipitation of approximately 15.55 inches which was larger than the annual average precipitation of 11.84 inches from 1965 to 1977 as recorded at weather station in Manteca, CA. Several of the storms in 2017 also occurred in close succession. The Discharger installed two temporary on-site storage tanks to increase the process water storage capacity to maintain the freeboard requirements. Stored process water in the on-site storage tanks was reused at the manufacturing facility following the storm events.

In the past, the Discharger proposed an engineered alternative to the composite liner prescribed in the construction standard of Title 27 (i.e., a synthetic liner underlain by a compacted clay liner). The Discharger demonstrated in the past that the clay liners used in a composite liner system are incompatible with the high TDS wastes (primarily calcium sulfate). The Discharger showed that compacted clay liners are primarily sodium montmorillonite clays composed of aluminum and magnesium silicates. The high concentration of calcium in Simplot's discharge will replace the sodium thereby making the clay liner more pervious. The Discharger also pointed out that calcium sulfate in its gypsum form is sold as a commercial product to improve water penetration in soils with high clay content. Therefore, the Discharger proposed a synthetic double-liner system to meet the performance goals addressed by the Title 27 standards when retrofitted the existing Class II ponds, previously asphalt lined, in 1994 through 1996.

Groundwater Degradation and Corrective Action

Historical and recent groundwater monitoring results indicate release(s) to groundwater in the vicinity of the existing Class II surface impoundments. The Central Valley Water Board requested the Discharger to submit a corrective action program to clean up groundwater in a letter dated 11 February 2005. The Discharger submitted a corrective action work plan in June 2005 and has performed some corrective action to delineate the lateral and vertical extent of the releases and to determine aquifer parameters through groundwater extraction well testing. During a conference call discussion with the Discharger on 5 November 2018, the Discharger indicated that implementing a separate groundwater extraction system as a corrective action to capture COCs in the Class II SIs' area would influence the hydraulic control of Occidental's groundwater remediation system which already captures the COCs present in the groundwater in the vicinity of the Class II SIs. The Discharger shall monitor and report on the effectiveness of the Occidental's groundwater remediation system in removing COCs present in the groundwater in the vicinity of the Class II SIs, as a corrective action and as described in the WDRs. The Discharger shall use publicly available data provided by Occidental for this requirements. Additionally the Discharger shall propose a corrective action monitoring program for the facility. Additional remediation may be required by the Discharger in the future if it is determined that the remediation system operated by Occidental is not effective in remediating the releases of the COCs to groundwater in the vicinity of the Class II SIs.

WDR Revision

This Order implements, operation, maintenance, post-closure maintenance and corrective action requirements for the existing Class II surface impoundments. Notable revisions to the Facility's WDRs include:

- a. Documenting current site conditions and changes since WDR Order No. 97-229
- b. Updating the operation and maintenance requirements for the existing Class II SIs
- c. Requirements for the Class II SI primary liner performance and LCRS performance and functionality tests
- d. Documenting soil and groundwater contamination at the facility and status of corrective action
- e. Providing status and requirements for monitoring programs
- f. Updating the requirements for financial assurances.

MP

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2019-0010
FOR
J.R. SIMPLOT COMPANY
LATHROP FACILITY
CLASS II SURFACE IMPOUNDMENT
OPERATION, MAINTENANCE, CLOSURE, POST-CLOSURE MAINTENANCE, AND
CORRECTIVE ACTION
SAN JOAQUIN COUNTY

This monitoring and reporting program (MRP) is issued to J.R. Simplot Company (Discharger) pursuant to California Water Code section 13267 and incorporates requirements for groundwater, surface water, and unsaturated zone monitoring and reporting; facility monitoring, maintenance, and reporting; and financial assurances reporting contained in California Code of Regulations, title 27, section 20005, et seq. (hereafter Title 27), Waste Discharge Requirements (WDRs) Order No. R5-2019-0010, and the Standard Provisions and Reporting Requirements for Industrial Facilities dated April 2016 (Industrial SPRRs). Compliance with this MRP is ordered by the WDRs and the Discharger shall not implement any changes to this MRP unless a revised MRP is issued by the Central Valley Water Board or the Executive Officer. Failure to comply with this MRP, or with the SPRRs, constitutes noncompliance with the WDRs and with Water Code Section 13267, which can result in the imposition of civil monetary liability.

A. MONITORING

The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone in accordance with Standard Monitoring Specifications in Section I of the Industrial SPRRs. All monitoring shall be conducted in accordance with the most current approved *Sample Collection and Analysis Plan*, which includes quality assurance/quality control standards.

All compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard (WQPS). All detection monitoring program groundwater monitoring wells, unsaturated zone monitoring devices, leachate, and surface water monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern (COCs) as indicated and listed in Tables 1 through 5.

The Discharger shall use USEPA test methods with the lowest achievable detection limit for that constituent taking any matrix interferences into account. The reporting limit shall be no higher than the practical quantitation limit. The Discharger shall report all trace concentrations that are between the detection limit and the practical quantitation limit. All metals analyses shall be for dissolved metals.

The monitoring program of this MRP includes:

<u>Section</u>	<u>Monitoring Program</u>
A.1	Groundwater Monitoring
A.2	Unsaturated Zone Monitoring
A.3	Surface Water Monitoring
A.4	Surface Impoundment
A.5	LCRS Monitoring, Action Leakage Rate, and Annual LCRS Testing
A.6	Waste Discharge Monitoring
A.7	Facility Monitoring
A.8	Corrective Action Monitoring

1. Groundwater Monitoring

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with the applicable provisions of Title 27, sections 20415 and 20420. The detection monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The current groundwater detection monitoring system meets the applicable requirements of Title 27 for the existing Class II surface impoundment.

The current groundwater monitoring network shall consist of the following:

<u>Groundwater Monitoring Well</u>	<u>Top of Casing (MSL)</u>	<u>Total Depth (ft)</u>	<u>Screen Interval from Top of Casing (ft)</u>	<u>Water Zone being Monitored</u>	<u>WMU being Monitored</u>	<u>Type and Gradient</u>
LP-1	20.30	51.3	45 - 50	Shallow	West	Detection, downgradient
LP-2	18.05	65.3	59 - 64	Shallow	North	Detection, downgradient
LP-3	21.73	45	39 - 44	Shallow	South	Detection, sidegradient
LP-4	17.05	25	10 - 25	Water Table	West	Detection, downgradient
LP-5B	16.73	25	10 - 25	Water Table	North	Detection, downgradient
LP-6	20.71	25	10 - 25	Water Table	South	Detection, downgradient
LP-7	20.62	25	10 - 25	Water Table	-	Background
LP-8	19.82	27	12 - 27	Water Table	-	Detection, downgradient
LP-9	18.50	27	12 - 27	Water Table	-	Detection, downgradient

<u>Groundwater Monitoring Well</u>	<u>Top of Casing (MSL)</u>	<u>Total Depth (ft)</u>	<u>Screen Interval from Top of Casing (ft)</u>	<u>Water Zone being Monitored</u>	<u>WMU being Monitored</u>	<u>Type and Gradient</u>
LP-10	22.30	30.5	10.5 - 19.7	Water Table	North	Detection, downgradient
LP-11	17.17	17.0	7.1 – 16.6	Water Table	North Pond	Detection, sidegradient
PW1-48	27.10	48	40 - 45	Shallow	-	Detection, sidegradient

Notes:

WMU – Waste Management Unit

Groundwater samples shall be collected semiannually from the background wells, detection monitoring wells, corrective action monitoring wells (if any), and any additional wells added as part of the approved groundwater monitoring system. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan. Depth to groundwater shall be measured to the nearest 0.01 feet. Samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in the following table:

Table 1: Groundwater Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Groundwater Elevation	feet & hundredths, MSL	Quarterly ¹	Semiannually
Temperature	°F	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
Turbidity	NTU	Semiannually	Semiannually
Volume Purged	Gallons	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Nitrate as N	mg/L	Semiannually	Semiannually
Ammonia as N			
General Minerals ²		Annually	Annually
Dissolved Metals ²		5 year	In following semiannual report

¹ The Discharger shall measure the groundwater elevation in each well **quarterly**, determine groundwater flow direction, and estimate groundwater flow rates in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation monitored. The results shall be reported semiannually, including the times of expected highest and lowest elevations of the water levels in the wells, pursuant to Title 27, section 20415(e)(15).

²The groundwater samples shall be collected and analyzed for general minerals and dissolved metals provided in Table 7.

2. Unsaturated Zone Monitoring

Title 27 requires the Discharger to operate and maintain an unsaturated zone detection monitoring system that complies with the applicable provisions of Title 27, sections 20415 and 20420. The current unsaturated zone detection monitoring system does not meet the applicable requirements of Title 27 for the existing Class II surface impoundments. Currently, the north pond does not have any suction lysimeters in service for soil pore liquid monitoring and the south pond has one suction lysimeter in service. Since the groundwater is approximately 8 feet below ground surface and the groundwater is already impacted in the vicinity of the existing ponds, establishing a reliable unsaturated zone monitoring for the existing ponds is not feasible with suction lysimeters. The Discharger shall install unsaturated zone monitoring devices (after review and approval by Central Valley Water Board staff) each time a new Class II waste management unit is constructed.

The current unsaturated zone monitoring network shall consist of:

<u>Mon Pt.</u>	<u>Status</u>	<u>WMU Being Monitored</u>
N Pond S Lys	Detection, not in service	North Pond
S Pond E Lys	Detection	South Pond
W Pond N Lys	Detection	West Pond
W Pond W Lys	Detection	West Pond

Unsaturated zone samples shall be collected from the monitoring network listed above and shall be analyzed for the parameters and constituents listed in the following table in accordance with the specified methods and frequencies.

<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Presence of liquid	observation	Monthly	Semiannually
Flow Rate or Quantity Collected	gallons/day or ml	Monthly	Semiannually
Electrical Conductivity	umhos/cm	Monthly	Semiannually
pH	pH units	Monthly	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Nitrate as N	mg/L	Semiannually	Semiannually
Dissolved Metals (Barium,	ug/L	Semiannually	Semiannually

Copper, Lead)			
Volatile Organic Compounds	ug/L	Semiannually	Semiannually
General Minerals ¹		Annually	Annually
Dissolved Metals (except Barium, Copper and Lead) ¹		5 year	In following semiannual report

Note:

ml – milliliter

¹ The samples shall be collected and analyzed for general minerals and dissolved metals provided in Table 7.

The Discharger shall collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in the approved Sample Collection and Analysis Plan.

Monitoring results for the unsaturated zone shall be included in monitoring reports and shall include an evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

3. Surface Water Monitoring

The Discharger shall operate a surface water detection monitoring system for any facility where runoff from waste management unit areas flows or could flow to waters of the United States. The monitoring system shall comply with the applicable provisions of Title 27, sections 20415 and 20420. At the facility runoff from Class II surface impoundments areas generally sheet flows to east side of the property boundary and general direction of the runoff flow is to San Joaquin River. The facility does not have a surface water detection monitoring system that meets the applicable requirements of Title 27. The Discharger shall establish a surface water monitoring system pursuant to Title 27 section 20415(c) and section 20420, as part of the WQPS and as described in Provision I.7.E of the WDRs.

For surface water detection monitoring (after review and approval of the WQPS by Central Valley Water Board staff), a sample shall be collected at each monitoring point location and analyzed for the monitoring parameters and constituents in accordance with the methods and frequency specified in the following table.

Table 3: Surface Water Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Temperature	°F	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
Turbidity	NTU	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Nitrate as N	mg/L	Semiannually	Semiannually
Ammonia as N	mg/L	Semiannually	Semiannually

4. Surface Impoundment Monitoring

Samples shall be collected from the Class II surface impoundments in accordance with the following table:

Table 4: Surface Impoundment Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Freeboard	feet and tenths	Weekly ¹	Semiannually
Remaining Capacity	gallons	Monthly	Semiannually
Discharge Flow ²	gallons/day	Monthly	Semiannually
Returned Flow ³	Gallons/day	Monthly	Semiannually
pH	pH units	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
<u>Parameters</u>			
<u>Units</u>			
Nitrate as N	mg/L	Semiannually	Semiannually
Ammonia as N	mg/L	Semiannually	Semiannually
General Minerals ⁴		Annually	Annually
Dissolved Metals ⁴		5 year	In following semiannual report

¹ Freeboard shall be measured weekly and within 24 hours after onsite rainfall of greater than two inches in a 24 hour period. Freeboard shall be measured from the top of the surface impoundment down to the water level in the impoundment, using a means to directly measure

- the available freeboard.
- ² Flow of process water into Class II surface impoundment as measured and recorded at totalizing meter.
 - ³ Process water flow returned to the fertilizer manufacturing facility or transferred from one pond to another as measured and recorded at the totalizing meter.
 - ⁴ The samples shall be collected and analyzed for general minerals and dissolved metals provided in Table 7.

5. LCRS Monitoring, Action Leakage Rate, and Annual LCRS Testing

LCRS Monitoring: The Discharger shall operate and maintain leachate collection and removal system (LCRS) sumps, record and calculate monthly leakage rates, and conduct annual testing of each LCRS in accordance with Title 27 and this monitoring program.

The current LCRS leachate sump monitoring points are:

<u>Mon Pt.</u>	<u>MWU Where Sump is Located</u>
N Pond Sump	North pond
S Pond Sump	South pond
W Pond NW Sump	West Pond
W Pond SE Sump	West Pond

All LCRS sumps shall be inspected monthly for the presence of leachate, and flow shall be recorded in accordance with the following table. If leachate is detected in a previously dry sump, the Discharger shall verbally notify Central Valley Water Board staff within **seven days** and shall immediately sample and test the leachate for Field and Monitoring Parameters listed in the following table. Leachate in the LCRS sump shall then be sampled for all parameters and constituents in accordance with the frequencies listed in the following table whenever liquid is present.

Table 5: LCRS Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Presence of leachate	observation	Monthly	Semiannually
Flow Rate ¹	gallons/day	Monthly	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Nitrate as N	mg/L	Semiannually	Semiannually
Ammonia as N	mg/L	Semiannually	Semiannually

¹ Flow in gallons per day from LCRS sump back to surface impoundment.

Action Leakage Rate: If monthly monitoring of the flow rate into the LCRS shows an exceedance of the Action Leakage Rate required by the WDRs, the Discharger shall follow the procedures in the WDRs under “C. Facility Specifications”. Tabulated monthly leakage rates shall be included in the semiannual monitoring reports.

Annual LCRS Testing: All LCRSs shall be tested annually pursuant to Title 27, section 20340(d) to demonstrate proper operation. The results of these tests shall be reported to the Central Valley Water Board in the Annual Monitoring Report and shall include comparisons with earlier tests made under comparable conditions.

6. Waste Discharge Monitoring

The Discharger shall monitor all wastes discharged to the Class II surface impoundment(s) on a monthly basis and report the results in the semiannual monitoring reports:

Table 6: Waste Discharge Monitoring		
<u>Parameters</u>	<u>Units</u>	<u>Frequency</u>
Quantity Discharged	gallons	Monthly
Remaining Capacity	gallons	Monthly
Minimum Freeboard	feet and tenths	Monthly

7. Facility Monitoring

a. Annual Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess repair and maintenance needed for liner systems; LCRS pumps, piping and control systems; drainage control systems; groundwater monitoring wells; unsaturated zone monitoring systems; and shall assess preparedness for winter conditions including but not limited to the required surface impoundment capacity and erosion and sedimentation control. The Discharger shall take photos of any problems areas before and after repairs. Any necessary construction, maintenance, or repairs shall be completed by **1 November**. Annual facility inspection reporting shall be submitted as required in Section B.3 of this MRP.

b. Major Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities and all WMU berms for damage **within 7 days** following major storm events capable of causing damage or significant erosion. Freeboard in Class II surface impoundments shall be measured and recorded within 24 hours after onsite rainfall of greater than two inches in a 24 hour period. The Discharger shall take photos of any problem areas before and after repairs. Necessary repairs shall be completed **within 30 days** of the inspection. Notification and reporting requirements for major storm events shall be conducted as required in Section B.4 of this MRP.

c. **Rainfall Monitoring**

The Discharger shall monitor and record onsite rainfall data using an automated rainfall gauge or obtain information from publicly available sources in the vicinity of the facility. Data shall be used in establishing the severity of storm events and wet seasons for comparison with design parameters used for WMU design and conveyance and drainage design. Daily data and onsite observation shall be used for establishing the need for inspection and repairs after major storm events. Rainfall data shall be reported in the semiannual monitoring reports as required by this MRP under "Reporting".

8. Corrective Action Monitoring

The soil and groundwater in the vicinity of the Class II surface impoundments have been impacted and the Discharger is in the process of implementing a corrective action program to cleanup the groundwater to levels that restore beneficial uses. The Discharger shall perform the corrective action as described in Provision I.7.I of the WDRs Order No. R5-2019-0010.

The Discharger shall establish a corrective action monitoring program which to be reviewed and approved by Central Valley Water Board staff. The Discharger shall conduct corrective action monitoring to demonstrate the effectiveness of corrective action program including the Occidental's groundwater remediation in removing COCs in groundwater in the vicinity of the Class II SIs in accordance with Title 27, section 20430 and this MRP. Groundwater monitoring wells and unsaturated zone monitoring points that are in a corrective action monitoring program shall be monitored in accordance with the groundwater and unsaturated zone monitoring requirements in parts A.1 and A.2 of this MRP, except as modified in this part of the MRP for any additional constituents or modified monitored frequencies.

The Discharger's COCs in groundwater are captured by the Occidental's groundwater remediation system which is located western portion of the Discharger's fertilizer manufacturing facility. The Discharger shall record the hours of operation and quantity of groundwater treated for any corrective action

system, including Occidental groundwater remediation system if the Discharger depends on this system for removal of COCs present in the groundwater until it is in service, and report them in the Semiannual Monitoring Report required in Section B.1 of this MRP. The Discharger may use publicly available data from Occidental for this requirement. The Discharger shall estimate the total mass of each monitoring parameters in part A.1 of this MRP to assess the progress of groundwater corrective action and reported in the Semiannual Monitoring Report (including method of calculations) in the format below:

<u>Zone</u>	Quantity of Groundwater Treated, gallons per month	Mass of COC(s) (lbs)	
		<u>Amount Removed During Month</u>	<u>Cumulative Amount Removed</u>
Water Table			
Shallow			

B. REPORTING

The Discharger shall submit the following reports in accordance with the required schedule:

Reporting Schedule

<u>Section</u>	<u>Report</u>	<u>End of Reporting Period</u>	<u>Due Date</u>
B.1	Semiannual Monitoring Report	30 June, 31 December	1 August, 1 February
B.2	Annual Monitoring Report	31 December	1 February
B.3	Annual Facility Inspection Report	31 October	1 February
B.4	Major Storm Event Reporting	Continuous	7 days from damage discovery
B.5	Financial Assurances Report	31 December	1 June

Reporting Requirements

The Discharger shall submit monitoring reports **semiannually** with the data and information as required in this Monitoring and Reporting Program and as required in WDRs Order No. R5-2019-0010 and the Standard Provisions and Reporting Requirements (particularly Section I: "Standard Monitoring Specifications" and Section J: "Response to a Release"). In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste

discharge requirements or the lack thereof. Data shall also be submitted in a digital format, such as a computer disk.

Field and laboratory tests shall be reported in each monitoring report. Semiannual and annual monitoring reports shall be submitted to the Central Valley Water Board in accordance with the above schedule for the calendar period in which samples were taken or observations made. In addition, the Discharger shall enter all monitoring data and monitoring reports into the online Geotracker database as required by Division 3 of Title 27.

The results of **all monitoring** conducted at the site shall be reported to the Central Valley Water Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

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 throughout the life of the facility. Such records shall be legible and shall show the following for each sample:

- a) Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
- b) Date, time, and manner of sampling;
- c) Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
- d) Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
- e) Calculation of results; and
- f) Results of analyses, and the MDL and PQL for each analysis. All peaks shall be reported.

Required Reports

1. **Semiannual Monitoring Report:** Monitoring reports shall be submitted semiannually and are due on **1 August** and **1 February**. Each semiannual monitoring report shall contain at least the following:
 - a) For each groundwater monitoring point addressed by the report, a description of:
 - 1) The time of water level measurement;

- 2) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;
 - 3) The method of purging used to stabilize water in the well bore before the sample is taken including the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; results of pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water;
 - 4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
 - 5) A statement that the sampling procedure was conducted in accordance with the approved Sample Collection and Analysis Plan.
- b) A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
 - c) The estimated quarterly groundwater flow rate and direction in the uppermost aquifer, in any zones of perched water, and in any additional zone of saturation monitored based upon water level elevations taken prior to the collection of the water quality data submitted in the report [Title 27, section 20415(e)(15)].
 - d) Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater, LCRS/leachate, unsaturated zone, surface water, and the surface impoundments. Concentrations below the laboratory reporting limit shall not be reported as "ND" unless the reporting limit is also given in the table. Otherwise they shall be reported "<" the reporting limit (e.g., <0.10). Units shall be as required in Tables 1 through 5 unless specific justification is given to report in other units. Refer to the Industrial SPRRs Section I "Standard Monitoring Specifications" for requirements regarding MDLs and PQLs.
 - e) Laboratory statements of results of all analyses evaluating compliance with requirements.
 - f) An evaluation of the concentration of each monitoring parameter as compared to the current concentration limits, and the results of any required verification testing for constituents exceeding a concentration limit. Report any actions taken under Section J: Response to a Release in the SPRRs for verified exceedances of a concentration limit for wells/constituents not already in corrective action monitoring.
 - g) Tabulated monthly freeboard levels in the Class II surface impoundment with comparison to the freeboard requirement in the Facility Specifications of the WDRs.
 - h) Tabulated monthly leakage rates into the LCRS sump with comparison to the Action Leakage Rate in the Facility Specifications of the WDRs, and a discussion of required response if ALR was exceeded.

- i) A summary of all waste discharge monitoring required in Section A.6 of this MRP.
 - j) A summary of all Facility Monitoring including onsite rainfall data for the reporting period required in Section A.7 of this MRP.
 - k) A summary of all Corrective Action Program monitoring required in Section A.8 of this MRP.
 - l) A discussion about any solids that were removed from the Class II surface impoundment during the reporting period to regain capacity.
2. **Annual Monitoring Report:** The Discharger shall submit an Annual Monitoring Report to the Central Valley Water Board by **1 February** covering the reporting period of the previous monitoring year. If desired, the Annual Monitoring Report may be combined with the second semiannual report, but if so, shall clearly state that it is both a semi-annual and annual monitoring report in its title. Each Annual Monitoring Report shall contain the following additional information beyond what is required for semiannual monitoring reports:
- a) All monitoring parameters shall be graphed to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
 - b) An evaluation of the monitoring parameters with regards to the cation/anion balance, and a graphical presentation using a Stiff diagram, a Piper graph, or a Schoeller plot.
 - c) All historical monitoring data (readily available and minimum for last 10 years) for which there are detectable results, including data for the previous year, shall be submitted in tabular form in a digital file format such as a computer disk. The Central Valley Water Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Title 27, section 20420(h)], that facilitates periodic review by the Central Valley Water Board.
 - d) Hydrographs of each well showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually.
 - e) A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.

- f) A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.
 - g) The results of the annual testing of the LCRS.
 - h) Updated concentration limits for each monitoring parameter at each monitoring well based on the new background data set.
 - i) A comprehensive discussion of any Corrective Action Program required by this MRP under Section A.8 including a discussion of long-term trends in the concentrations of the pollutants in the groundwater monitoring wells and an analysis of whether the pollutants are being effectively treated.
3. **Annual Facility Inspection Reporting:** By **1 February** of each year, the Discharger shall submit a report describing the results of the inspection and the repair measures implemented, preparations for winter, and include photographs of any problem areas and the repairs. Refer to Section A.7.a of this MRP, above.
4. **Major Storm Event Reporting:** The Discharger shall notify Central Valley Water Board staff within 24 hours after a storm event of greater than two inches in 24 hours as to the status of freeboard in any Class II surface impoundment. The Discharger shall also notify Central Valley Water Board staff within **7 days** after major storm events of any damage or significant erosion and report any needed repairs within **14 days** of completion of the repairs, including photographs of the problem and the repairs. Refer to Section A.7.b of this MRP above for requirements for performing the inspection and conducting the repairs.
5. **Financial Assurances Report:** By **1 June** of each year, the Discharger shall submit a report to the Central Valley Water Board that reports the balance of all the closure, post-closure maintenance and corrective action funds or the amounts of the Guarantees and the adjustments to account for inflation in accordance with Title 27 Section 22236. Refer to Financial Assurances Specifications G.1 through G.5 of the WDRs.

C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

1. Water Quality Protection Standard Report

For each waste management unit, the Water Quality Protection Standard (WQPS) shall consist of all COCs, the concentration limit for each constituent of concern, the verification retesting procedure to confirm measurably significant evidence of a release, the point of compliance, and all water quality monitoring points for each monitored medium. Program specific WQPS shall be developed for facilities conducting a detection monitoring program in conjunction with a corrective action program.

The Water Quality Protection Standard for naturally occurring waste constituents consists of the COCs, the concentration limits, and the point of compliance and all monitoring points. Any proposed changes to the Water Quality Protection Standard other than annual update of the concentration limits shall be submitted in a report for review and approval.

The report shall:

- a. Identify all distinct bodies of surface and ground water that could be affected in the event of a release from a waste management unit or portion of a unit. This list shall include at least the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the facility.
- b. Include a map showing the monitoring points and background monitoring points for the surface water monitoring program, groundwater monitoring program, and the unsaturated zone monitoring program. The map shall include the point of compliance in accordance with Title 27, section 20405.
- c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).
- d. Include a proposed statistical method for calculating concentration limits for monitoring parameters and constituents of concern that are detected in 10% or greater of the background data (naturally-occurring constituents) using a statistical procedure from Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E).
- e. Include a retesting procedure to confirm or deny measurably significant evidence of a release pursuant to Title 27, section 20415(e)(8)(E) and section 20420(j)(1-3).

The Water Quality Protection Standard shall be certified by a California-registered civil engineer or geologist as meeting the requirements of Title 27. If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of the Water Quality Protection Standard.

The Discharger proposed the methods for calculating concentration limits in the April 2003 *Water Quality Protection Standard Report*. The limits are calculated using Interwell prediction limits at 95% confidence and 95% coverage based on background data from background monitoring well LP-7.

The Water Quality Protection Standard shall be updated annually for each monitoring well using new and historical monitoring data.

2. Monitoring Parameters

Monitoring parameters are a select group of constituents that are monitored during each monitoring event that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a waste management unit. The monitoring parameters for all waste management units are those listed in the tables in Section A of this MRP specified monitored medium.

3. Concentration Limits

For a naturally occurring constituent of concern, the concentration limit for each constituent of concern shall be determined as follows:

- a. By calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or
- b. By an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).

The methods for calculating concentration limits were included in the April 2003 *Water Quality Protection Standard Report*. The Discharger proposed combination of parametric statistical data analysis for constituents with sufficient analytical data and non-statistical methods for constituents with insufficient analytical data at that time, to calculate concentration limits for each monitored constituent in accordance with Title 27. The statistical method used Interwell prediction limits at 95% confidence and 95% coverage based on background data from background monitoring well LP-7. The Discharger shall submit an updated WQPS incorporating detection monitoring system in conjunction with a corrective action monitoring program, and additional analytical results from existing detection monitoring program, as described in Provision I.7.E. of the WDRs.

The Discharger has been using concentration limits set in MRP R5-2008-0838 for the COCs and reported in the semiannual monitoring reports. This MRP uses the same concentration limits set in MRP R5-2008-0838 until the Central Valley Water Board review and approve the updated WQPS to be submitted per WDR Provision I.7.E. The concentration limits for the COCs are tabulated in the Table 7 below.

TABLE 7. CONSTITUENTS OF CONCERN, ANALYTICAL METHODS, AND CONCENTRATION LIMITS		
Chemical Constituent	U.S.EPA Test Method	Concentration Limit (mg/L)
MONITORING PARAMETERS ¹		
Ammonia as N	350.1	1
Chloride	300	109
Nitrate as N	300	23.6
Sulfate	300	250
Total Dissolved Solids	160.1	1070
GENERAL MINERALS ²		
Bicarbonate as HCO ₃ ⁻	Sm2320b	744
Calcium	200.7	183
Carbonate	Sm2320b	1
pH	9040C	6.5 to 7.7
Phosphate	365	1.7
Potassium	200.7	5
Sodium	200.7	186
Total alkalinity	Sm2320b	610
DISSOLVED METALS ³		
Arsenic	206.2	0.018
Antimony	204.2	0.005
Aluminum	200.7	1.1
Barium	200.7	0.345
Beryllium	Sm3500-Be	0.0005
Boron	200.7	0.54
Cadmium	200.7	0.001
Cobalt	200.7	0.01
Copper	200.7	0.005
Chromium	200.7	0.001
Iron	200.7	1.1
Lead	239.2	0.004
Manganese	200.7	0.1
Magnesium	200.7	66
Mercury	245.1	0.002
Molybdenum	200.7	0.005
Nickel	200.7	0.005
Selenium	Sm3500-Se	0.007
Thallium	279.2	0.002
Vanadium	286.2	0.028
Zinc	200.7	0.02

¹ Sampled semiannually

² Sampled annually

³ Sampled once every five years

4. Retesting Procedures for Confirming Evidence of a Release

If monitoring results indicate measurably significant evidence of a release, as described in Standard Monitoring Specification I.43 of the SPRRs, then:

- a. For analytes that are detected in less than 10% of the background samples (such as non-naturally occurring constituents), the Discharger shall use the non-statistical retesting procedure required in Standard Monitoring Specification I.44 of the SPRRs.

- b. For analytes that are detected in 10% or greater of the background samples (naturally occurring constituents), the Discharger shall use one of the statistical retesting procedure as required in Standard Monitoring Specification I.45 of the SPRRs.

5. Point of Compliance

The point of compliance for the water standard at each waste management unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the unit. The following are monitoring locations at the point of compliance:

<u>Cell or Module</u>	<u>Point of Compliance Monitoring Wells</u>	<u>Groundwater Zone</u>
North Pond	LP_5B	Water table
South Pond	LP-6	Water table
West Pond	LP-4	Water table
North Pond	LP-2	Shallow
West Pond	LP-1	Shallow

6. Compliance Period

The compliance period for each waste management unit shall be the number of years equal to the active life of the unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the waste management unit. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program [Title 27, section 20410].

7. Monitoring Points

A monitoring point is a well, device, or location specified in the waste discharge requirements, which monitoring is conducted and at which the water quality protection standard applies. The monitoring points for each monitored medium are listed in Section A of this MRP.

D. TRANSMITTAL LETTER FOR ALL REPORTS

A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is

contained in the accompanying report. The transmittal letter shall contain a statement by the discharger, or the discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and complete.

I, PATRICK PULUPA, Executive Officer, do hereby certify the forgoing is a full, true and correct copy of the Monitoring and Reporting Program issued by the California Regional Water Quality Control Board, Central Valley Region, on 8 February 2019.

ORIGINAL SIGNED BY

PATRICK PULUPA, Executive Officer

MP

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS
FOR
WASTE DISCHARGE REQUIREMENTS
FOR
INDUSTRIAL FACILITIES REGULATED BY TITLE 27
(Title 27, § 20005 et seq.)

April 2016

TABLE OF CONTENTS

Section	Page
A. APPLICABILITY	2
B. TERMS AND CONDITIONS	2
C. STANDARD PROHIBITIONS	4
D. STANDARD DISCHARGE SPECIFICATIONS	4
E. STANDARD FACILITY SPECIFICATIONS	5
F. STANDARD CONSTRUCTION SPECIFICATIONS	6
G. STANDARD CLOSURE AND POST-CLOSURE SPECIFICATIONS	9
H. STANDARD FINANCIAL ASSURANCE PROVISIONS	10
I. STANDARD MONITORING SPECIFICATIONS	10
J. RESPONSE TO A RELEASE	20
K. GENERAL PROVISIONS	21
L. STORM WATER PROVISIONS	23

A. APPLICABILITY

1. These Standard Provisions and Reporting Requirements (SPRRs) are applicable to Class II surface impoundments, waste piles, and land treatment units that are regulated by the Central Valley Regional Water Quality Control Board (hereafter, Central Valley Water Board) pursuant to the provisions of California Code of Regulations, title 27 ("Title 27"), section 20005 et seq.
2. "Order," as used throughout this document, means the Waste Discharge Requirements (WDRs) to which these SPRRs are incorporated.
3. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, and do not protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.
4. 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.
5. If there is any conflicting or contradictory language between the WDRs, the Monitoring and Reporting Program (MRP), or the SPRRs, then language in the WDRs shall govern over either the MRP or the SPRRs, and language in the MRP shall govern over the SPRRs.
6. If there is a site-specific need to change a requirement in these SPRRs for a particular facility, the altered requirement shall be placed in the appropriate section of the WDRs and will supersede the corresponding SPRRs requirement. These SPRRs are standard and cannot be changed as part of the permit writing process or in response to comments, but they will be periodically updated on an as-needed basis.
7. Unless otherwise stated, all terms are as defined in Water Code section 13050 and in Title 27, section 20164.

B. TERMS AND CONDITIONS

1. Failure to comply with any waste discharge requirement, monitoring and reporting requirement, or Standard Provisions and Reporting Requirement, or other order or prohibition issued, reissued, or amended by the Central Valley Water Board or the State Water Board, or intentionally or negligently discharging waste, or causing or permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of this Order and the Water Code, which can result in the imposition of civil monetary liability [Wat. Code, § 13350(a)]
2. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [Wat. Code, § 13381]:

- 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; or
 - d. A material change in the character, location, or volume of discharge.
3. Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall file a new report of waste discharge (ROWD), or other appropriate joint technical document (JTD), with the Central Valley Water Board [Wat. Code, § 13260(c) and § 13264(a)]. 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. A change in the type of waste being accepted for disposal; or
 - d. A change to previously-approved liner systems or final cover systems that would eliminate components or reduce the engineering properties of components.
4. Representatives of the Central Valley Water Board may inspect the facilities to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting the public health or safety, an inspection may be made without consent or the issuance of a warrant [Wat. Code, §13267(c)].
5. The Central Valley Water Board will review this Order periodically and will revise these waste discharge requirements when necessary [Wat. Code, § 13263(e) and Title 27, § 21720(b)].
6. 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 Central Valley Water Board [Wat. Code, § 13267(b)]. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.
7. A discharge of waste into the waters of the state is a privilege, not a right. No discharge of waste into waters of the state, whether or not the discharge is

made pursuant to waste discharge requirements, shall create a vested right to continue the discharge [Wat. Code, § 13263(g)].

8. Technical and monitoring reports specified in this Order are requested pursuant to the Water Code [§13267(b)]. Failure to furnish the reports by the specified deadlines or falsifying information in the reports, are misdemeanors that may be liable civilly in accordance with §13268(b) of the Water Code [Wat. Code, §13268(a)].

C. STANDARD PROHIBITIONS

1. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the waste management unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products, which, in turn:
 - a. require a higher level of containment than provided by the unit; or
 - b. are 'restricted wastes'; or
 - c. impair the integrity of containment structures;is prohibited [Title 27, § 20200(b)].
2. The discharge of wastes outside of a waste management unit or portions of a unit specifically designed for their containment is prohibited.
3. The discharge of waste to a closed waste management unit is prohibited.
4. The discharge of waste constituents to the unsaturated zone or to groundwater is prohibited, except within the treatment zone at a land treatment unit.
5. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.

D. STANDARD DISCHARGE SPECIFICATIONS

1. The Discharger is responsible for accurate characterization of wastes, including a determination of whether or not wastes will be compatible with containment features and other wastes at the waste management unit and whether or not the wastes are required to be managed as a hazardous waste [Title 27, § 20200(c)] or designated waste [Title 27, § 20210].
2. Leachate collected from a waste management unit shall be discharged to the unit from which it came, or discharged to an appropriate waste management unit in accordance with Title 27 and in a manner consistent with the waste classification of the liquid [Title 27, § 20200(d) and § 20340(g)].

3. Wastes shall be discharged only into waste management units specifically designed for their containment and/or treatment, as described in this Order.
4. The discharge shall remain within the designated disposal area at all times.
5. The discharge of waste shall not cause a nuisance condition [Wat. Code, § 13050(m)].

E. STANDARD FACILITY SPECIFICATIONS

1. All waste management units shall be designed, constructed, and operated to ensure that wastes, including leachate, will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater [Title 27, § 20240(c)], including the capillary fringe.
2. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].
3. The Discharger shall **immediately** notify the Central Valley Water Board staff of any slope failure occurring at a waste management unit. Any failure which threatens the integrity of containment features or the waste management unit shall be promptly corrected in accordance with an approved method [Title 27, § 21710(c)(2)].
4. The Discharger shall **immediately** notify Central Valley Water Board staff of any flooding, unpermitted discharge of waste off-site or outside of waste management units, equipment failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
5. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.
6. The Discharger shall lock all groundwater monitoring wells with a lock on the well cap or monitoring well box. All monitoring devices shall be clearly labeled with their designation including all monitoring wells, LCRS risers, and lysimeter risers and shall be easily accessible for required monitoring by authorized personnel. Each monitoring device shall be clearly visible and be protected from damage by equipment or vehicles.
7. The Discharger shall maintain the depth of the fluid in the sump of each waste management unit at the minimum needed for efficient pump operation (the depth at which the pump turns on given the pump intake height and maximum pump cycle frequency).

8. Each LCRS shall be tested at least annually to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions [Title 27, § 20340(d)].
9. The Discharger shall maintain a *Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements* in accordance with State Water Board Order No. 2014-0057-DWQ (or most recent general industrial storm water permit), or retain all storm water on-site.

F. STANDARD CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for review and approval at least **90 days** prior to proposed construction, design plans and specifications for new Class II waste management units that include the following:
 - a. Detailed construction drawings showing all required liner system components, the LCRS, leachate sump, unsaturated zone monitoring system, and access to the LCRS for required annual testing.
 - b. A Construction Quality Assurance (CQA) Plan prepared by a California-registered civil engineer or certified engineering geologist, and that meets the requirements of Title 27, section 20324.
 - c. A geotechnical evaluation of the area soils, evaluating their use as the base layer or reference to the location of this information in the ROWD/JTD [Title 27, § 21750(f)(4)].
 - d. Information about the seismic design of the proposed new waste management unit (or reference to the location of this information in the ROWD/JTD) in accordance with Title 27, section 20370.
 - e. A revised water quality monitoring plan for groundwater detection monitoring (or information showing the existing plan is adequate) in accordance with Title 27, section 20415.
 - f. An Operation Plan (or reference to the location of this information in the ROWD/JTD) meeting the requirements of Title 27, sections 21760(b) and 20375(b).
2. All containment structures shall be designed by, and construction shall be supervised by, a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, in accordance with this Order prior to waste discharge.
3. The Discharger shall not proceed with construction until the construction plans, specifications, and all applicable construction quality assurance plans have

been approved. Waste management units shall receive a final inspection and approval of the construction by Central Valley Water Board staff before use of the unit commences [Title 27, § 20310(e)].

4. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a waste management unit's containment features or monitoring systems shall be approved by a California registered civil engineer or a certified engineering geologist [Title 27, § 21710(d)].
5. Materials used in containment structures shall have appropriate chemical and physical properties to ensure that such structures do not fail to contain waste because of pressure gradients, physical contact with waste or leachate, chemical reactions with soil or rock, climatic conditions, the stress of installation, or because of the stress of daily operations [Title 27, § 20320(a)].
6. Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping [Title 27, § 20365(a)].
7. The Discharger shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].
8. All Class II waste management units shall be designed to withstand maximum credible earthquake without damage to the foundation or to the structures that control leachate, or surface drainage, or erosion [Title 27, § 20370(a)].
9. The Discharger shall perform stability analyses that include components to demonstrate the integrity of the waste management unit foundation, final slopes, and containment systems under both static and dynamic conditions throughout the life of the unit [Title 27, § 21750(f)(5)].
10. New Class II Units, other than LTUs and expansions of existing Class II units, shall have a 200 foot setback from any known Holocene fault. [Title 27, § 20250(d)].
11. Liners shall be designed and constructed to contain the fluid, including waste, and leachate [Title 27, § 20330(a)].
12. Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. The results of laboratory tests with both water and leachate, and field tests with water, shall be compared to evaluate how the field permeabilities will be affected by leachate. It is acceptable for the Discharger to use appropriate compaction tests in conjunction with laboratory hydraulic conductivity tests to determine field permeabilities as long as a reasonable number of field hydraulic conductivity tests are also conducted [Title 27, § 20320(c)].

13. Hydraulic conductivities specified for containment structures other than the final cover shall be relative to the fluids (leachate) to be contained. Hydraulic conductivities for the final cover shall be relative to water [Title 27, § 20320(b)].
14. A test pad for each barrier layer and any final cover shall be constructed in a manner duplicating the field construction. Test pad construction methods, with the designated equipment, shall be used to determine if the specified density/moisture-content/hydraulic conductivity relationships determined in the laboratory can be achieved in the field with the compaction equipment to be used and at the specified lift thickness [Title 27, § 20324(g)(1)(A)].
15. The Discharger shall ensure proper preparation of the subgrade for any liner system that includes a GCL so as to provide a smooth surface that is free from rocks, sticks, or other debris that could damage or otherwise limit the performance of the GCL.
16. The Discharger shall propose an electronic leak location survey of the top liner for any new waste management unit in the construction quality assurance plan unless the Discharger demonstrates that a leak location survey is not needed.
17. Leachate collection and removal systems are required for Class II surface impoundments [Title 27, § 20340(a)].
18. The LCRS shall be designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the waste management unit [Title 27, § 20340(b)].
19. Leachate collection and removal systems shall be designed and operated to function without clogging through the life of the waste management unit.
20. The leachate sump, leachate removal pump, and pump controls shall be designed and set to maintain a fluid depth no greater than the minimum needed for efficient pump operation [Title 27, § 20340(c)].
21. All construction of liner systems and final cover systems shall be performed in accordance with a Construction Quality Assurance Plan certified by a registered civil engineer or a certified engineering geologist [Title 27, § 20323].
22. The Construction Quality Assurance program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer [Title 27, § 20324(b)(2)].
23. The Discharger shall ensure that a third party independent of both the Discharger and the construction contractor performs all of the construction quality assurance monitoring and testing during the construction of a liner system.

24. The Discharger shall notify Central Valley Water Board staff at least **14 days** prior to commencing field construction activities including construction of a new Class II waste management unit, construction of a final cover (for units closed as a landfill), or any other construction that requires Central Valley Water Board staff approval under this Order.
25. The Discharger shall submit for review and approval at least **60 days** prior to proposed discharge, final documentation required in Title 27 Section 20324(d)(1)(C) following the completion of construction of a new Class II waste management unit. The report shall be certified by a registered civil engineer or a certified engineering geologist and include a statement that the liner system was constructed in accordance with the approved design plans and specifications, the CQA Plan, the requirements of the WDRs, and that it meets the performance goals of Title 27. The report shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, the construction quality assurance plan, and the performance goals of Title 27.
26. The Discharger shall not discharge waste onto a newly constructed liner system until the final documentation report has been reviewed and an acceptance letter has been received.

G. STANDARD CLOSURE AND POST-CLOSURE SPECIFICATIONS

1. The final closure and post-closure maintenance plan for the waste management unit shall include at least the following: an itemized cost analysis, closure schedule, any proposed final treatment procedures, map, changes to the unit description presented in the most recent ROWD, future land use, and a construction quality assurance plan [Title 27, § 21769(c) & (d)].
2. Closure of each waste management unit shall be under the direct supervision of a registered civil engineer or certified engineering geologist [Title 27, § 20950(b)].
3. The final cover of waste management units closed as a landfill shall be designed, graded, and maintained to prevent ponding and soil erosion due to high run-off velocities [Title 27, § 21090(b)(1)(A)].
4. The final grading design shall be designed and approved by a registered civil engineer or certified engineering geologist [Title 27, § 21090(b)(1)(C)].
5. All final cover designs shall include a minimum 1-foot thick erosion resistant vegetative layer or a mechanically erosion-resistant layer [Title 27, § 21090(a)(3)(A)(1 & 2)].

6. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion [Title 27, § 21090(b)(2)].
7. The Discharger shall design storm water conveyance systems for Class II units that are closed as a landfill for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].
8. Construction or repair of a final cover system's low-hydraulic conductivity layer is to be carried out in accordance with an approved construction quality assurance plan [Title 27, § 21090(b)(1)(E)].
9. Within **30 days** of completion of all closure activities, the Discharger shall certify that all closure activities were performed in accordance with the most recently approved final closure plan and CQA Plan, and in accordance with all applicable regulations. The Discharger shall also certify that units that are closed as a landfill shall be maintained in accordance with an approved post-closure maintenance plan [Title 27, § 21710(c)(6)].
10. The post-closure maintenance period for units closed as a landfill shall continue until the Central Valley Water Board determines that wastes remaining in the landfill unit(s) no longer pose a threat to water quality [Title 27, § 20950(a)(1)].
11. The Discharger shall periodically inspect and identify problems with the final cover including areas that require replanting, erosion, areas lacking free drainage, and any areas damaged by equipment operations [Title 27, § 21090(a)(4)(B)].
12. The Discharger shall repair any cover promptly in accordance with a cover repair plan to be included in the final post-closure maintenance plan [Title 27, § 21090(a)(4)(C)].

H. STANDARD FINANCIAL ASSURANCE PROVISIONS

1. The Discharger shall establish an irrevocable fund (or provide other means) for closure to ensure closure of each Class II unit in accordance with an approved closure plan [Title 27, § 20950(f) and § 22207(a)].
2. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management unit [Title 27, §20380(b) and § 22222].

I. STANDARD MONITORING SPECIFICATIONS

1. The water quality monitoring program shall include appropriate and consistent sampling and analytical procedures and methods designed to ensure that

monitoring results provide a reliable indication of water quality at all monitoring points and background monitoring points [Title 27, § 20415(e)(4)].

2. All monitoring systems shall be designed and certified by a registered geologist or a registered civil engineer [Title 27, § 20415(e)(1)].
3. All monitoring wells shall be cased and constructed in a manner that maintains the integrity of the monitoring well bore hole and prevents the bore hole from acting as a conduit for contaminant transport [Title 27, § 20415(b)(4)(A)].
4. All sample chemical analyses of any material shall be performed by a laboratory certified by the California Department of Health Services [Wat. Code, § 13176(a)].
5. A Detection Monitoring Program for a new Class II waste management unit shall be installed, operational, and one year of monitoring data collected from background monitoring points prior to the discharge of wastes [Title 27, § 20415(e)(6)].
6. Background for water samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point).
7. The Discharger shall submit for approval, establish, and maintain an approved Sample Collection and Analysis Plan. The Sample Collection and Analysis Plan shall at a minimum include:
 - a. Sample collection procedures describing purging techniques, sampling equipment, and decontamination of sampling equipment;
 - b. Sample preservation information and shipment procedures;
 - c. Sample analytical methods and procedures;
 - d. Sample quality assurance/quality control (QA/QC) procedures;
 - e. Chain of Custody control; and
 - f. Sample analysis information including sample preparation techniques to avoid matrix interferences, method detection limits (MDLs), practical quantitation limits (PQLs) and reporting limits (RLs), and procedures for reporting trace results between the MDL and PQL.

If required by the Executive Officer, the Discharger shall modify the Sample Collection and Analysis Plan to conform with this Order.

8. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless a longer time period is approved, and shall be taken in a manner that ensures sample independence to the greatest extent feasible. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) Methods for the Analysis of Organics in Water and Wastewater (USEPA 600 Series), (2) Test Methods for Evaluating Solid Waste (SW-846, latest edition), and (3) Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan. Appropriate sample preparation techniques shall be used to minimize matrix interferences.
9. If methods other than USEPA-approved methods or Standard Methods are used, or there is a proposed alternant USEPA method than the one listed in the MRP, the proposed methodology shall be submitted for review and approval prior to use, including information showing its equivalence to the required method.
10. The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background monitoring points for that medium, the analytical method having the lowest MDL shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.
11. The laboratory reporting limit (RL) for all reported monitoring data shall be set no greater than the practical quantitation limit (PQL).
12. **"Trace" results** - results falling between the MDL and the PQL - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
13. Laboratory data shall not be altered or revised by the Discharger. If the Discharger observes potential lab errors, it shall identify the issue in the monitoring report and shall describe steps that will be taken to prevent similar errors in the future.
14. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively

interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs. MDLs and PQLs shall be reported.

15. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged in the laboratory report accordingly, along with estimates of the detection limit and quantitation limit actually achieved. **The MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.** The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.
16. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and signature of a responsible person from the laboratory. **Sample results shall be reported unadjusted for blank results or spike recoveries.** In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged, but the analytical results shall not be adjusted.
17. Unknown chromatographic peaks shall be reported, flagged, and tracked for potential comparison to subsequent unknown peaks that may be observed in future sampling events. Identification of unknown chromatographic peaks that recur in subsequent sampling events may be required.
18. The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative groundwater samples [Title 27, § 20415(b)(4)(B)].
19. All borings are to be logged during drilling under the direct supervision of a registered geologist or registered civil engineer with expertise in stratigraphic well logging [Title 27, § 20415(e)(2)].
20. Soils are to be described according to the Unified Soil Classification System [Title 27, § 20415(e)(2)(A)]. Rock is to be described in a manner appropriate for the purpose of the investigation [Title 27, § 20415(e)(2)(B)].

21. The Discharger shall submit a work plan for review and approval at least **60 days** prior to installation or abandonment of groundwater monitoring wells.
22. The Discharger shall provide Central Valley Water Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation or abandonment of monitoring devices.
23. The water quality protection standard shall consist of the constituents of concern (COC), concentration limits, and the point of compliance. The water quality protection standard shall apply during the active life of the waste management unit, closure period, post-closure maintenance period, and any compliance period under Title 27, section 20410 [Title 27, § 20390].
24. The point of compliance at which the water quality protection standard applies is a vertical surface located at the hydraulically downgradient limit of the waste management unit that extends through the uppermost aquifer underlying the unit [Title 27, § 20405).
25. The compliance period is the minimum period of time during which the Discharger shall conduct a water quality monitoring program and is the number of years equal to the active life of the waste management unit plus the closure period [Title 27, § 20410(a)].
26. The groundwater monitoring system shall include a sufficient number of monitoring points, installed at appropriate locations, to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater that has not been affected by a release from the waste management unit [Title 27, § 20415(b)(1)(A)].
27. The Detection Monitoring Program shall include a sufficient number of monitoring points, installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater passing the point of compliance to allow the detection of a release from the waste management unit [Title 27, § 20415(b)(1)(B)1.].
28. Additional monitoring points shall be added as necessary to provide the best assurance of the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)2.].
29. The Detection Monitoring Program shall also include a sufficient number of monitoring points installed at appropriate depths and locations to yield groundwater samples from other aquifers or perched zones not already monitored to provide the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)3. and 4., and §20420(b)].

30. A surface water monitoring system shall be established to monitor each surface water body that could be affected by a release from the waste management unit [Title 27, § 20415(c)].
31. An unsaturated zone monitoring system shall be established for each waste management unit [Title 27, § 20415(d)].
32. The Discharger shall notify Central Valley Water Board staff within **seven days** if fluid is detected in a previously dry LCRS, unsaturated zone monitoring system, or if a progressive increase is detected in the volume of fluid in a LCRS [Title 27, § 21710(c)(3)].
33. Driller's logs for all monitoring wells shall to be submitted to the Central Valley Water Board and the Department of Water Resources [Wat. Code, § 13751 and Title 27, § 20415(b)(3)].
34. Groundwater elevation, temperature, electrical conductivity, turbidity, and pH are to be accurately measured at each well each time groundwater is sampled [Title 27, § 20415(e)(13)].
35. The groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation being monitored shall be determined at least quarterly [Title 27, § 20415(e)(15)].
36. The Discharger shall graph all analytical data from each monitoring point and background monitoring point and shall submit the graphs to the Central Valley Water Board annually [Title 27, § 20415(e)(14)].
37. For each waste management unit, the Discharger shall collect all data necessary for selecting appropriate data analysis methods for establishing background values for each constituent of concern and for each monitoring parameter [Title 27, § 20420(c)]. The Discharger shall propose a data analysis method that includes a detailed description of the criteria to be used for determining "measurably significant" (as defined in Title 27, section 20164) evidence of a release from the waste management unit and determining compliance with the water quality protection standard [Title 27, § 20415(e)(6) and (7)].
38. For statistical analysis of data, the Discharger shall use one of the methods described in Title 27, section 20415(e)(8)(A)-(E). A non-statistical data analysis method can be used if the method can achieve the goal of the particular monitoring program at least as well as the most appropriate statistical method [Title 27, § 20415(e)(8)]. The Discharger shall use a statistical or nonstatistical data analysis method that complies with Title 27, section 20415(e)(7, 8, 9, and 10), to compare the concentration of each constituent of concern or monitoring parameter with its respective background concentration to determine whether

there has been a measurably significant evidence of a release from the waste management unit. For any given monitoring point at which a given constituent has already exhibited a measurably significant indication of a release at that monitoring point, the Discharger may propose to monitor the constituent, at that well, using a concentration-versus-time plot.

39. The Discharger may propose an alternate statistical method [to the methods listed under Title 27, section 20415(e)(8)(A-D)] in accordance with Title 27, section 20415(e)(8)(E), for review and approval.
40. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Title 27, section 20415(e)(7) that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs or an approved Sample Collection and Analysis Plan for routine laboratory operating conditions that are available to the facility. The Discharger's technical report (Sample Collection and Analysis Plan and/or Water Quality Protection Standard Report), pursuant to Title 27, section 20415(e)(7), shall consider the PQLs listed in Appendix IX, Article 19 to Chapter 14 of Division 4.5 of Title 22, CCR, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or non-statistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".
41. The water quality protection standard for organic compounds which are not naturally occurring and not detected in background groundwater samples shall be taken as the detection limit of the analytical method used (e.g., USEPA methods 8260 and 8270).
42. Alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) if part of an approved water quality protection standard. Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Central Valley Water Board staff.
43. **Confirmation of Measurably Significant Evidence of a Release.** Whenever a constituent is detected at a detection monitoring point at a concentration that exceeds the concentration limit from the water quality protection standard, the

Discharger shall conduct verification sampling to confirm if the exceedance is due to a release or if it is a false-positive (unless previous monitoring has already confirmed a release for that constituent at that monitoring point). An exceedance of the concentration limit from the water quality protection standard is considered measurably significant evidence of a release that must be either confirmed or denied. There are two separate verification testing procedures:

- a. Standard Monitoring Specification I.44 provides the procedure for analytes that are detected in less than 10% of the background samples such as non-naturally occurring constituents like volatile organic compounds; and
- b. Standard Monitoring Specification I.45 provides the procedure for analytes that are detected in 10% or greater of the background samples such as naturally occurring constituents like chloride.

44. Verification Procedure for Analytes Detected in Less than 10% of

Background Samples. The Discharger shall use the following non-statistical method for all analytes that are detected in less than 10% of the background samples. The non-statistical method shall be implemented as follows:

- a. **Initial Determination of Measurably Significant Evidence of a Release.** Identify each analyte in the **current** detection monitoring point sample that exceeds either its respective MDL or PQL, and for which a release has not been previously confirmed. The Discharger shall conclude that the exceedance provides a preliminary indication of a release or a change in the nature or extent of the release, at that monitoring point, if **either**:
 - 1) The data contains two or more analytes that equal or exceed their respective MDLs; or
 - 2) The data contains one or more analyte that equals or exceeds its PQL.
- b. **Discrete Retest** [Title 27, § 20415(e)(8)(E) and § 20420(j)(1-3)]:
 - 1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.44.a., above) that there is a preliminary indication of a release, then the Discharger shall **immediately** notify Central Valley Water Board staff by phone or e-mail and, within **30 days** of such indication, shall collect two new (retest) samples from the monitoring point where the release is preliminarily indicated and analyze them for the constituents that caused the need for the retest.
 - 2) **Confirmation of a Release.** As soon as the retest data are available, the Discharger shall conclude that measurably significant evidence of a release is confirmed if (not including the original sample) two or more

analytes equal or exceed their respective MDLs or if one or more analyte equals or exceeds its PQL. The Discharger shall then:

- a) **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of the verbal notification; and
- b) Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.
- c) Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

45. **Verification Procedure for Analytes Detected in 10% or Greater of the Background Samples.** The Discharger shall use either a statistical or non-statistical method pursuant to Title 27, section 20415(e)(8)(E) for all analytes that are detected in 10% or greater of the background samples. The Discharger shall use one of the statistical methods required in Title 27, section 20415(e)(8)(E) unless another method has been proposed by the Discharger in a Water Quality Protection Standard Report (or equivalent report) and approved by the Central Valley Water Board in a Monitoring and Reporting Program pursuant to Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E). The method shall be implemented as follows:

- a. **Initial Determination of Measurably Significant Evidence of a Release.**
The Discharger shall compare the value reported by the laboratory for each analyte to the statistically-derived concentration limit from the most recent report (Annual Monitoring Report or Water Quality Protection Standard Report) that uses the approved statistical procedure. If the value exceeds the concentration limit for that constituent, the Discharger shall conclude that there is measurably significant evidence of a release [Title 27, § 20420(i)].
- b. **Retest Method** [Title 27, § 20415(e)(8)(E) and § 20420(j)(1-3)].
 - 1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.45.a., above) that there is a preliminary indication of a release, then the Discharger shall **immediately** notify Central Valley Water Board staff by phone or e-mail and, within **30 days** [Title 27, § 20415(e)(8)(E)(3)] of such indication, the Discharger shall implement a verification procedure/retest option, in accordance with Title 27, sections 20415(e)(8)(E) and 20420(j)(2). The verification procedure shall include either a single “composite” retest (i.e., a statistical analysis that augments and reanalyzes the data from the monitoring point that indicated a release) or shall consist of at least two “discrete” retests

(i.e., statistical analyses each of which analyzes only newly-acquired data from the monitoring point that indicated a release) [Title 27, § 20415(e)(8)(E)]. The Discharger may use an alternate method previously approved by the Central Valley Water Board and included in the Monitoring and Reporting Program. The verification procedure shall comply with the requirements of Title 27, section 20415(e)(8)(E) in addition to the performance standards of Title 27, section 20415(e)(9). The retest samples shall be collected from the monitoring point where the release is preliminarily indicated and shall be analyzed for the constituents that caused the need for the retest. For any indicated monitoring parameter or constituent of concern, if the retest results of one or more of the retest data suites confirm the original indication, the Discharger shall conclude that measurably significant evidence of a release has been confirmed.

- 2) **Confirmation of a Release.** As soon as the retest data are available, the Discharger shall evaluate the results pursuant to paragraph I.45.b.1, above and shall:
 - a) **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of the verbal notification; and
 - b) Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.
 - c) Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

46. **Physical Evidence of a Release.** If the Discharger determines that there is a significant **physical** evidence of a release, the Discharger shall immediately verbally notify Central Valley Water Board staff and provide written notification **by certified mail within 7 days** of such determination, and within **90 days** shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program [Title 27, § 20385(a)(3) and § 20420(l)(1) & (2)].

J. RESPONSE TO A RELEASE

1. **Measurably Significant Evidence of a Release Has Been Confirmed.** If the Discharger has confirmed that there is measurably significant evidence of a release from a waste management unit pursuant to Standard Monitoring Specification I.44 or I.45, then the Discharger shall:
 - a. **Immediately** sample all monitoring points in the affected medium at that waste management unit and determine the concentration of all monitoring parameters and constituents of concern for comparison with established concentration limits. Because this constituent of concern scan does not involve statistical testing, the Discharger will need to collect and analyze only a single water sample from each monitoring point in the affected medium [Title 27, § 20420(k)(1)].
 - b. **Within 90 days** of confirming measurably significant evidence of a release, the Discharger shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program meeting the requirements of Title 27, sections 20420(k)(5)(A-D), including but not limited to the results of sampling pursuant to paragraph J.1.a, above. The Evaluation Monitoring Program shall be designed for the collection and analysis of all data necessary to assess the nature and extent of the release and to determine the spatial distribution and concentration of each constituent throughout the zone affected by the release [Title 27, § 20420(k)(5) and § 20425(b)].
 - c. **Within 180 days** of confirming measurably significant evidence of a release, the Discharger shall submit to the Central Valley Water Board an initial engineering feasibility study for a Corrective Action Program necessary to meet the requirements of Title 27, section 20430. At a minimum, the initial engineering feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern [Title 27, § 20420(k)(6)].
 - d. If the Discharger confirms that there is measurably significant evidence of a release from the waste management unit at any monitoring point, the Discharger may attempt to demonstrate that a source other than the waste management unit caused the evidence of a release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in groundwater, surface water, or the unsaturated zone. The Discharger may make a demonstration pursuant to Title 27, section 20420(k)(7) in addition to or in lieu of submitting both an amended report of waste discharge or an engineering feasibility study; however, the Discharger is not relieved of the requirements and due dates of Title 27, sections 20420(k)(6) & (7) unless Central Valley Water Board staff agree that the demonstration successfully shows that a source other than the

waste management unit caused the evidence of a release or that the evidence resulted from error in sampling, analysis, or statistical evaluation or from natural variation in groundwater, surface water, or the unsaturated zone. In order to make this demonstration, the Discharger shall notify the Central Valley Water Board by certified mail of the intent to make the demonstration **within seven days** of determining measurably significant evidence of a release, and shall submit a report **within 90 days** of determining measurably significant evidence of a release [Title 27, § 20420(k)(7)].

- e. **Within 90 days** of the date that the Evaluation Monitoring Program from paragraph J.1.b is approved (the date is it established), the Discharger shall complete and submit the following:
 - i) **Results and Assessment for the Evaluation Monitoring Program.** A report with the results and assessment based on the approved Evaluation Monitoring Program [Title 27, § 20425(b)].
 - ii) **Updated Engineering Feasibility Study.** An updated engineering feasibility study for corrective action based on the data collected to delineate the release and data from the ongoing monitoring program required under Title 27, section 20425(e) [Title 27, § 20425(c)].
 - iii) **Amended ROWD for a Corrective Action Program.** An amended report of waste discharge to establish a Corrective Action Program meeting the requirements of Title 27, section 20430 based on the data collected to delineate the release and based on the updated engineering feasibility study [Title 27, § 20425(d)].

K. GENERAL PROVISIONS

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 appropriate Central Valley Water Board office by telephone **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 describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.
2. All reports and transmittal letters 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 a, b or c above if:
 - 1) The authorization is made in writing by a person described in a, b, or c of this provision;
 - 2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 - 3) The written authorization is submitted to the Central Valley Water Board.
 - e. 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 those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”
3. 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, extent, and impact of the noncompliance.
 4. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and leachate generated by discharged waste during the active life, closure, and any post-closure maintenance period of the waste management units and during subsequent use of the property for other purposes.
 5. 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 regarded as a defense for the Discharger’s violations of this Order.
 6. The Discharger shall notify the Central Valley Water Board of a material change in; the types, quantity, or concentrations of wastes discharged; site operations and features; or proposed closure procedures, including changes in cost

estimates. This notification shall be given a reasonable time before the changes are made or become effective. No changes shall be made without Central Valley Water Board approval following authorization for closure pursuant to the site Notification of Closure [Title 27, § 21710(a)(4)].

7. The Discharger shall maintain legible records of the volume and type of each waste discharged at each waste management unit or portion of a unit, and the manner and location of discharge. Such records shall be maintained by the Discharger until the beginning of the post-closure maintenance period. These records shall be on forms approved by the State Water Board or Central Valley Water Board and shall be maintained at the waste management facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the State Water Board or Central Valley Water Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Central Valley Water Board [Title 27, § 21720(f)].
8. In the event of any change in landowner or the operator of the waste management facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Central Valley Water Board.
9. In the event of any change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of the waste discharge facilities described in this Order, the Discharger shall notify the Central Valley Water Board prior to the effective date of the change and shall include a statement by the new Discharger that construction, operation, closure, or post-closure maintenance will be in compliance with this Order and any revisions thereof [Title 27, § 21710(c)(1)].
10. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Central Valley Water Board requesting transfer of the Order within **14 days** of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory requirements contained in General Provision K.2 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer of this Order shall be approved or disapproved by the Central Valley Water Board.

L. STORM WATER PROVISIONS

1. The Discharger shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].

2. Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under the precipitation conditions for the unit [Title 27, § 20365(a)].
3. Precipitation on Class II waste piles which is not diverted by covers or drainage control systems shall be collected and managed through the LCRS, which shall be designed and constructed to accommodate the precipitation conditions for each class unit [Title 27, § 20365(b)].
4. Diversion and drainage facilities shall be designed, constructed, and maintained to [Title 27, § 20365(c)]:
 - a. Accommodate the anticipated volume of precipitation and peak flows from surface runoff and under the precipitation conditions for the waste management unit.
 - b. Effectively divert sheet flow runoff laterally, via the shortest distance, into the drainage and collection facilities.
 - c. Prevent surface erosion through the use of energy dissipators where required to decrease the velocity of runoff, slope protection, and other erosion control measures where needed to prevent erosion.
 - d. Control and intercept run-on, in order to isolate uncontaminated surface waters from water that might have come into contact with waste.
 - e. Take into account:
 - i) For closed waste management units and for closed portions of units, the expected final contours of the closed unit, including its planned drainage pattern.
 - ii) For operating portions of waste management units other than surface impoundments, the unit's drainage pattern at any given time.
 - iii) The possible effects of the waste management unit's drainage pattern on and by the regional watershed.
 - iv) The design capacity of drainage systems of downstream and adjacent properties by providing for the gradual release of retained water downstream in a manner which does not exceed the expected peak flow rate at the point of discharge if there were no waste management facility.
 - f. Preserve the system's function. The Discharger shall periodically remove accumulated sediment from the sedimentation or detention basins as needed to preserve the design capacity of the system.

5. Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system [Title 27, § 20365(d)].
6. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].
7. Cover materials shall be graded to divert precipitation from the waste management unit, to prevent ponding of surface water over wastes, and to resist erosion as a result of precipitation [Title 27, § 20365(f)].
8. Any drainage layer in a final cover shall be designed and constructed to intersect with the final drainage system for the waste management unit in a manner promoting free drainage from all portions of the drainage layer [Title 27, §20365(f)].