

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD COLORADO RIVER BASIN REGION

Office
73-720 Fred Waring Dr. #100
Palm Desert, CA 92260
waterboards.ca.gov/coloradoriver/

ORDER R7-2021-0011



Order Information

Dischargers: Earthrise Nutritionals, LLC
Facility: Microalgae Production Facility
Address: 113 East Hooper Road, Calipatria, California
92233
County: Imperial County
WDID: 7A130133001
GeoTracker ID: T10000011562
Prior Order(s): R7-2018-0007

I, PAULA RASMUSSEN, Executive Officer, hereby certify that the following is a full, true, and correct copy of the order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region, on February 9, 2021.

Original signed by

PAULA RASMUSSEN
Executive Officer

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER R7-2021-0011

WASTE DISCHARGE REQUIREMENTS
FOR
EARTHRISE NUTRITIONALS, LLC
OWNER/OPERATOR
MICROALGAE PRODUCTION FACILITY
CLASS II SURFACE IMPOUNDMENTS
CALIPATRIA, IMPERIAL COUNTY

The California Regional Water Quality Control Board, Colorado River Basin Region (Regional Water Board) hereby makes the following Findings:

1. Earthrise Nutritionals, LLC (Discharger) owns and operates a microalgae production facility (Facility) located at 113 East Hooper Road in an unincorporated portion of Imperial County, north of Calipatria, California, 92233. The Facility location is depicted in **Attachment A**, Location Map, made part of this Order by reference. The Facility produces Spirulina algae and a natural blue pigment derived therefrom, known as Linablue®, for food, bio-chemical, and pharmaceutical use.
2. The Facility includes 37 open, lined ponds used to grow the algae, harvesting and production facilities, and eight wastewater evaporation ponds. The Facility layout is depicted in **Attachment B**, Site Layout Map. The evaporation ponds are used for the disposal of non-hazardous wastewater, and are waste management units regulated under California Code of Regulations, title 27, section 20005 et seq.¹
3. In 2018, the Discharger expanded production at the Facility and constructed its newest evaporation pond (EVP-8) to retain the increased volume of wastewater generated by an increase in production capacity. Due to the high concentrations of salts and nutrients in the wastewater, the Discharger constructed EVP-8 in compliance with requirements under title 27 of the California Code of Regulations for a Class II surface impoundment. Waste Discharge Requirements (WDRs) were issued for EVP-8 as Order R7-2018-0007. The other seven pre-existing evaporation ponds (EVP-1 through EVP-7) were not covered by Order R7-2018-0007 because the freeboard on the pre-existing ponds did not meet title 27 requirements, and the Discharger had not yet decided whether they would up-

¹ Waste management unit” is as defined in California Code of Regulations, title 27, section 20164. Unless otherwise specified, all terms have the meaning specified in California Code of Regulations, title 27, division 2, subdivision 1, chapter 2, article 1.

grade these ponds or cease using them for disposal. Regional Water Board staff gave the Discharger three years to propose how they would bring EVP-1 through EVP-7 into compliance with title 27.

4. Regarding the construction of EVP-8, the Discharger submitted an initial Report of Waste Discharge (ROWD) on May 2, 2017. After receiving comments from Regional Water Board staff, the Discharger submitted a revised ROWD for EVP-8 on December 1, 2017, increasing the size of EVP-8 and containing additional details concerning its construction. Regional Water Board staff provided the Discharger with comments regarding the revised ROWD on January 8, 2018. On January 18, 2018, the Discharger submitted an amended ROWD Supplement in response to staff's comments.
5. Regarding modification of EVP-1 through EVP-7, the Discharger submitted an ROWD on December 19, 2019 and submitted revised drawings of the plan on February 21, 2020. The Discharger proposes to maintain these ponds as separate discharge locations. The 2 feet of freeboard will be achieved by constructing a 2-foot high berm around EVP-1 through EVP-7 and installing a matching liner between these ponds so that the entire area of EVP-1 through EVP-7 will be covered by a continuous liner, including the new surrounding berms. Once complete, the berm and new liner will provide the two feet of free board required by title 27 of the California Code of Regulations, without affecting the individual operation of these older evaporation ponds. The 2019 ROWD further states that onsite operations are otherwise unchanged from that described in the 2017 and 2018 ROWD documents, and the environmental and Facility information submitted in 2018 applies equally to the proposed modifications. EVP-8 is not being modified as part of the proposed Facility modifications.
6. Staff found the 2019/2020 ROWD submittals to be complete with respect to the proposed modifications.
7. This Order updates the WDRs to comply with current laws and regulations as set forth in the Water Code and the California Code of Regulations. Accordingly, this Order supersedes Order R7-2018-0007 upon the effective date of this Order, except for enforcement purposes.
8. The Facility and these WDRs are assigned California Integrated Water Quality System (CIWQS) No. CW-727317, Waste Discharge Identification (WDID) No. 7A130133001, and GeoTracker ID No. WDR100028549.

Site Overview

9. The Facility is located on Assessor's Parcel Number (APN) 022-140-015-0000, comprising approximately 160 acres at 113 East Hooper Road, located in an unincorporated portion of Imperial County, north of Calipatria, California, as shown in **Attachment A**. The Facility is in the southeast quarter of Section 33

and a portion of the southwest quarter of Section 34 lying west of the east line of the Southern Pacific Railway right-of-way, Township 11 South, Range 14 East, San Bernardino Base and Meridian, Imperial County.

10. The vicinity of the Facility is zoned "Agricultural," i.e., "A-2G, General Agriculture" with a Geothermal Overlay, according to the Imperial County General Plan. Imperial County considers the Facility to be an agricultural land use. Surrounding land uses include industrial and agricultural uses; the Southern Pacific Railroad and Calipatria State Prison are to the east, agricultural fields and the City of Niland are to the north, agricultural fields and the Salton Sea are to the west, and agricultural fields and the City of Calipatria are to the south.
11. The California Department of Public Health has inspected and approved the Facility for food production.
12. The Facility maintains an aquaculture license from the California Department of Fish and Wildlife, which oversees the Facility and regulates algal species.
13. Algae are produced in 37 various-size racetrack-style aquaculture ponds where the water chemistry is adjusted and optimized to promote algal growth through the addition of nutrients. The growth medium consists of water, sodium carbonate, nitrates, phosphates, and sulfates.
14. The production ponds are equipped with plastic liners to prevent water infiltration. Water from the aquaculture ponds is circulated through a filter to harvest the algae and then put back into the aquaculture ponds. When water in the aquaculture ponds becomes too saline for optimal production, a portion is discharged into the evaporation ponds and replaced with fresh water. The production process does not utilize pesticides, herbicides, genetically modified organisms (GMOs), or preservatives. The U.S. Food and Drug Administration issued the Facility a "Generally Recognized As Safe" (GRAS) status.
15. Process water is supplied to the Facility by the Imperial Irrigation District (IID) through an agricultural account. The water is obtained from the Colorado River via an adjacent canal and has a Total Dissolved Solids (TDS) content of about 750 mg/L. As needed, the natural salts in the supply water are removed through a reverse-osmosis facility located onsite. The wastewater from the reverse osmosis facility is discharged to the lined, onsite wastewater evaporation ponds (EVP-1 through EVP-8).

Facility Operations and Wastewater Disposal

16. Spirulina biomass is harvested from the ponds primarily during the summer months using filters inside the Spirulina Harvesting Plant (SHP). The water from the ponds is pumped to the SHP, where filters are used to remove biomass from the pond water. The pond water is then pumped back to the production ponds. The filtered algae are dewatered and then dried in a warm air tower, where they

are turned into powder and packaged for shipment. An air scrubber ensures that algae are not released into the environment. Wastewater produced in the dewatering process is routed to the evaporation ponds.

17. The Facility also produces Linablue®, which is a blue, food-grade dye extracted from the algae. The extraction process requires potable water, which is produced from the IID canal water using a 50 gallon per minute reverse-osmosis water treatment system. Backwash from the reverse-osmosis process is routed to the evaporation ponds. The Linablue® production process uses a filter press and chemicals to separate the liquid dye from the biomass in an area referred to as the Linablue® Extraction Plant (LEP) building. The solid biomass is then dried using a pulse dryer for disposal to a landfill. Wastewater generated by the extraction process is routed to the evaporation ponds.
18. Wastewater at each of the two production areas, SHP and LEP, is collected and temporarily stored in 2,000-gallon concrete sumps. Comingling the wastewater produced at each production area occurs in the concrete sumps. The wastewater in the sumps is periodically transferred through subsurface pipes to the evaporation ponds by pumps that are operated by a float valve. The sludge and water generated from cleaning the production ponds are also collectively conveyed to the evaporation ponds. A general schematic of the production process is attached as **Attachment C**.
19. Other wastewater generated at the Facility, such as during equipment cleaning and pond cleaning, is also routed to the evaporation ponds.
20. Domestic wastewater and non-hazardous laboratory wastewater from the Facility are discharged to an onsite septic system that is permitted under the oversight of Imperial County.
21. No stormwater runoff from the Facility enters the wastewater evaporation ponds.
22. According to the Discharger, hazardous waste generated or stored at the Facility is stored and disposed of in a manner compliant with federal and state regulations, and not placed into the evaporation ponds.
23. Approximately 28.7 million gallons per year are disposed of into the evaporation ponds. The wastewater is retained in the ponds until it evaporates.
24. Chemical concentrations in the evaporation ponds have been monitored by collecting wastewater samples from EVP-8. Average concentrations of selected chemicals in December 2019 are presented in **Attachment D**. TDS in EVP-8 averaged 35,400 mg/L in December 2019.

Waste and Unit Classification

25. Eight disposal ponds totaling approximately 29.6 acres are currently being used at the Facility and are identified as EVP-1 through EVP-8, as shown in **Attachment B**. These evaporation ponds were reconstructed starting in 2010. Construction details for the evaporation ponds, which are waste management units, are summarized in the following table.

Table 1. Waste Management Units at the Facility

Pond Number	Size (feet)	Date Constructed	Material	LCRS Info (size is length, width, depth in feet)
EVP-1	1,490 x 100	2010	One layer, 36 mil Reinforced Polypropylene (Carlisle SynTec)	None
EVP-2	1,490 x 225	2010	One layer, 36 mil Reinforced Polypropylene (Carlisle SynTec)	None
EVP-3	517 x 213	2010	1 Layer, 36 mil Reinforced Polypropylene (Carlisle SynTec)	None
EVP-4	517 x 215	2010	1 Layer, 36 mil Reinforced Polypropylene (Carlisle SynTec)	None
EVP-5	339 x 189	2010	1 Layer, 30 mil LDPE (Raven K30B)	None
EVP-6	115 x 115	2015	2 Layers, 45 mil LDPE (Raven K45B)	One: 5 x 10 x 2
EVP-7	737 x 190	2015	2 Layers, 45 mil LDPE (Raven K45B)	Three: 5 x 10 x 2
EVP-8	1,380 x 345	2018	2 Layers, 45 mil LDPE (Raven K45B)	Ten: 8 x 8 x 2

26. EVP-1 through EVP-7 were not originally constructed as Class II impoundments. The Discharger will upgrade EVP-1 through EVP-7 to address the potential for over-filling of the ponds, and the lack of 2 feet of freeboard during standard operating procedures. EVP-1 through EVP-5 have a low-density polyethylene (LDPE) primary liner but do not have a Leachate Collection and Removal System (LCRS), as indicated above. Therefore, EVP-1 through EVP-5 do not meet the prescriptive design criteria for a new Class II surface impoundment specified in title 27 of the California Code of Regulations; however, as explained below, they meet title 27 requirements as “engineered alternatives” to these prescriptive requirements. EVP-6, EVP-7 and EVP-8 do meet the design criteria for new Class II surface impoundments of having upper and lower liners separated by a LCRS collection layer, and sumps to allow collection and removal of leachate that penetrates the upper liner. The lower liner is sloped so that water reaching the collection layer flows to sumps located at low points. EVP-8 is laid out as 5 individual cells that can be operated independently. All of the evaporation ponds are underlain by low-permeability clay.
27. A sprayer system to enhance evaporation is present in EVP-2. This system consists of a pump, PVC piping, and a series of nozzles that spray water into the air along the middle portion of the western center island. The sprayer system occupies the middle 800 feet and is 380 feet from the southern end of EVP-2 and 300 feet from the northern end of EVP-2. In an east-west direction, the sprayers are located 280 feet from the eastern and western edges of the proposed liner system boundaries. The sprayer system is not operated on windy days.
28. The ROWD submitted in December 2017 included a wind-rose that indicated the predominant wind direction in the Calipatria area was from either the north or southwest at windspeeds generally less than 10 miles per hour.
29. The Discharger submitted a letter on October 28, 2020, that proposed a windspeed threshold for turning off the sprayer system based on how far the spray would travel before falling back into the pond. The letter indicated that it would take 1 to 1.5 seconds for droplets to fall back into the pond after being sprayed. The lateral travel distance at a range of wind speeds was calculated to range from 22 feet for 10 miles per hour to 88 feet for 40 miles per hour. After applying a safety factor of 4 to these results, the Discharger proposed using 25 miles per hour as the cutoff for operating the sprayer system in EVP-2. This value did not appear to consider the lifting effect of air turbulence.
30. The cutoff for operating the sprayer system should be lower than the value proposed by the Discharger to account for (a) air turbulence at higher wind velocities, and (b) the fact that droplets get smaller and lighter as they evaporate. Given that wind speeds are usually less than 10 miles per hour, the sprayer system should not be operated when the average wind speed exceeds 15 miles per hour for 15 minutes, or wind gusts exceed 25 miles per hour. Requirements to this effect have been added to this Order.

31. Groundwater monitoring wells are located upgradient, downgradient, and in the immediate vicinity of all evaporation ponds. The TDS of groundwater is quite high, exceeding the TDS of both the production ponds and 2019 EVP-8 wastewater concentrations. As shown in **Attachment D**, the chemical character of the groundwater is characterized as primarily calcium, chloride and sulfate while the chemical character of the wastewater in the evaporation ponds is dominated by sodium, carbonate and bicarbonate. These very different chemistries indicate that groundwater has not been measurably affected by a release of pond water.
32. Based on the combination of a liner underlain by low conductivity clays that serve as a barrier confining groundwater, the lack of impacts to groundwater after years of use, and the high TDS of groundwater under the site, the upgraded, existing ponds EVP-1 through EVP-5 are considered “engineered alternatives” and functionally equivalent to Class II surface impoundments with respect to protecting groundwater pursuant to California Code of Regulations, title 27, section 20080, subsections(b) and (c). Specifically, the existing ponds are consistent with the performance goals addressed by title 27 prescriptive standards and afford equivalent protection against water quality impairment. Further, requiring the Discharger to retrofit all of the ponds at this time would be unreasonable and unnecessarily burdensome and costly.
33. Wastewater at the Facility is considered designated waste. Designated waste is defined in Water Code section 13173 and California Code of Regulations, title 27, section 20210 as a nonhazardous waste consisting of or containing pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or reasonably expected to affect beneficial uses of the waters of the state. The wastewater generated by this Facility contains elevated concentrations of salts and nutrients that would pose a significant threat to surface water quality if allowed to leave the site. Therefore, the discharge is a designated waste and, as such, must be discharged to waste management units regulated under title 27 of the California Code of Regulations.

Control Systems/Monitoring Programs

34. A LCRS is present under EVP-6, EVP-7, and EVP-8 and is comprised of a geonet drainage layer between upper and lower LDPE liners. The upper liner is designed to contain the wastewater within the pond. The lower liner and geonet stop and collect leaks through the upper liner and convey the leaking water to sumps that consist of low spots in the lower liner. The lower liner is underlain by low permeability clay, which also prevents the migration of fluids. The lower liner slopes so that leaks drain toward the sumps. The leak collection sumps are of various sizes and have riser-pipes to provide access to the sumps from the surrounding berms. The riser pipe is used to inspect for the accumulation of

fluids within the sump, which may indicate a leak in the primary liner, and allow for the removal of those fluids as needed.

35. Monitoring and Reporting Program – Monitoring systems are outlined in the attached Monitoring and Reporting Program (MRP) No. R7-2021-0011 and include visual inspections, groundwater monitoring, and leak detection monitoring.
36. Groundwater Monitoring – The groundwater monitoring system includes upgradient and downgradient monitoring wells to evaluate the quality of the groundwater under the Facility. The monitoring program is designed to meet the applicable requirements of California Code of Regulations, title 27, sections 20415 and 20420. The background and detection monitoring wells are described as follows:
 - a. Background monitoring wells: MW-9 is located east of the Facility and is used to monitor background groundwater quality.
 - b. Detection Monitoring Wells: Five detection monitoring wells are present downgradient of the evaporation ponds at the locations shown in **Attachments B and E** of this Order. In general, MW-5 and MW-6 are downgradient of EVP-1 through EVP-7, MW-7 and MW-8 are immediately downgradient of EVP-8, and MW-10 is along the western-most (downgradient) property line. These wells will be used to monitor for releases from the evaporation ponds.
 - c. Groundwater Elevation Monitoring: A total of nine wells are located at the Facility; the six described above as wells as monitoring wells MW-1, MW-2 and MW-3, which are located within the boundaries of the Facility but are not located in a position to monitoring groundwater quality associated with the evaporation ponds. All nine wells can be used to evaluate the groundwater gradient and flow direction (see **Attachment E**). Note that monitoring well MW-4 was previously destroyed.
37. Surface Water Monitoring – No surface water monitoring is required. All waste must be contained within the evaporation ponds.
38. Wind Monitoring – These WDRs require that the Discharger install a wind monitoring system as part of the control system for the sprayer system.

Hydrogeologic Conditions

39. The Imperial Valley is located in the southeastern half of the Salton Trough and is bound by the San Andreas Fault and Chocolate Mountains to the northeast, and the Peninsular Range and faults of the San Jacinto Fault Zone to the southwest. The Salton Trough is a broad, northwest-trending basin that represents the northward extension of the Gulf of California. Tectonic activity

that formed the trough continues at a high rate, as evidenced by deformed young sedimentary deposits and high levels of seismicity in the general vicinity.

40. Marine and non-marine sediments in the vicinity of the Facility are as much as 20,000 feet thick. Uppermost soils are lacustrine deposits from Ancient Lake Cahuilla, comprised of interbedded lenticular and tabular silt, sand and clay layers that are Late Pleistocene to Holocene in age, probably less than 100 feet thick, and derived from periodic flooding of the Colorado River into the Salton Basin. These deposits create confined groundwater conditions in some areas.
41. Older deposits below the lacustrine sediments consist of Miocene to Pleistocene non-marine and marine sediments deposited during incursions of the Gulf of California. Two major aquifers are present in the Facility vicinity. The upper aquifer is between 200 and 450 feet thick, and the lower aquifer averages 380 feet thick and has a maximum thickness of 1,500 feet. These two aquifers are separated by a semi-permeable aquitard that is 60 to 280 feet thick. Water quality in these aquifers is reported to be poor due to high salt concentrations.
42. The average annual precipitation in the Imperial Valley is about 3 inches per year. The average annual evapotranspiration rate is about 67 inches per year.
43. A geotechnical investigation was performed as part of the ROWD for EVP-8. A total of 10 borings to a maximum depth of 50 feet were drilled, including 6 within the footprint of EVP-8. Soils at the Facility were observed to be composed primarily of silt and clay, with occasional interbedded clayey sand layers.
44. Groundwater was first encountered in the borings at a depth of between 12.5 and 16.5 feet below ground surface. After well installation, groundwater in the wells rose to a depth of about 10 to 13.3 feet below ground surface. Two additional borings were drilled to an elevation of 807 feet (all elevations are relative to mean sea level, plus 1,000 feet), which is 5.5 feet below the lowest elevation of the proposed EVP-8. These additional borings were left open for two days to evaluate whether five feet of separation is present between the proposed pond and the uppermost groundwater aquifer. Free water did not accumulate in the borings, indicating that uppermost groundwater was "confined" under EVP-8, and five feet of separation is present between the waste and uppermost groundwater.
45. Hydraulic conductivity testing was performed on five soil samples comprised of clay. In-place hydraulic conductivity testing was performed in five shallow borings and four monitoring wells. The conductivity (K) of the soil samples ranged from 7.46E-09 to 9.59E-09 centimeters per second (cm/sec), which is very low. K values obtained from the in-place testing ranged from 5.67E-3 to 4.6E-07 cm/sec. The higher K values from the in-place testing are likely due to secondary porosity (such as cracks and root holes) or soil heterogeneity.
46. Groundwater elevation measurements from December 2019 indicate a groundwater gradient of 0.006 feet per foot, sloping to the north-northwest. At

that gradient, the groundwater flow rate is approximately 0.00025 feet per day, which is 0.09 feet per year, or 11 years per foot.

47. Groundwater monitoring samples have been collected quarterly. Testing results from December 2019 are summarized in **Attachment D** and indicate groundwater quality under the site is poor due to high salt concentrations. The lowest salt concentration reported was 12,000 mg/L total dissolved solids (TDS), which is greater than the 3,000 mg/L value in State Water Resources Control Board (State Water Board) Resolution 88-63, *Sources of Drinking Water Policy* for designating waters as having a potential municipal beneficial use.
48. The shallow depth to groundwater and low hydraulic conductivity of the soil may result in the vadose/unsaturated zone being saturated by the capillary fringe. The high electrical conductivity of the existing groundwater and the low hydraulic conductivity prevent effective monitoring of the vadose zone, and vadose zone monitoring is considered infeasible.

Basin Plan and Other Regulatory Considerations

49. The Water Quality Control Plan for the Colorado River Basin Region (Basin Plan), adopted on November 17, 1993 and most recently amended on January 8, 2019, designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Pursuant to Water Code section 13263, subdivision (a), WDRs must implement the Basin Plan and take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of Water Code section 13241.
50. The Facility is located in the Imperial Hydrologic Unit designated in the Basin Plan. The beneficial uses of ground waters in the Imperial Hydrologic Unit are:
 - a. Municipal and domestic supply (MUN), and
 - b. Industrial service supply (IND).
51. Surface waters in the area of the Facility consist of the IID irrigation canals and surface drains (Imperial Valley Drains). The beneficial uses of the Imperial Valley Drains are:
 - a. Fresh Water replenishment of Salton Sea (FRSH),
 - b. Water Contact Recreation (REC I),
 - c. Non-contact Water Recreation (REC II),
 - d. Warm Water Habitat (WARM),

- e. Wildlife Habitat (WILD), and
 - f. Preservation of Rare, Threatened or, Endangered Species (RARE).
52. This Order establishes WDRs pursuant to division 7, chapter 4, article 4 of the Water Code for discharges that are not subject to regulation under Clean Water Act section 402 (33 U.S.C. § 1342).
53. These WDRs implement numeric and narrative water quality objectives for groundwater and surface waters established by the Basin Plan and other applicable state and federal laws and policies. The numeric objectives for groundwater designated for municipal and domestic supply (MUN) include the Maximum Contaminant Levels (MCLs) and bacteriological limits specified in California Code of Regulations, title 22, section 64421 et seq. The Basin Plan states that groundwater for use as domestic or municipal water supply (MUN) must not contain taste- or odor-producing substances in concentrations that adversely affect beneficial uses as a result of human activity.
54. It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring the Discharger to maintain waste containment systems that prevent discharges of waste to waters of the state.
55. These WDRs also implement state regulations applicable to the discharge of solid/designated waste to land found in California Code of Regulations, title 27, division 2, subdivision 1, commencing with section 20005 (“Consolidated Regulations for Treatment, Storage, Processing or Disposal of Solid Waste”). These regulations contain classification criteria for wastes and for disposal sites, and prescribe minimum standards for the siting, design, construction, monitoring, and closure of waste management units.
56. Consistent with Water Code section 13241, the Regional Water Board, in establishing the requirements contained herein, considered factors including, but not limited to, the following:
- a. Past, present, and probable future beneficial uses of water,
 - b. Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto,
 - c. Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area,
 - d. Economic considerations,
 - e. The need for developing housing within the region, and

- f. The need to develop and use recycled water.
57. Water Code section 13267 authorizes the Regional Water Board to require technical and monitoring reports. MRP R7-2021-0011 establishes monitoring and reporting requirements to implement state requirements and demonstrate compliance with this Order and to identify the Facility's impact, if any, on receiving waters. The State Water Resources Control Board's (State Water Board) electronic database, GeoTracker Information Systems, facilitates the submittal and review of facility correspondence, discharger requests, and monitoring and reporting data. The burden, including costs, of the MRP bears a reasonable relationship to the need for the information and the benefits to be obtained from that information.
58. Pursuant to Water Code section 13263, subdivision (g), the discharge of waste is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

Antidegradation Analysis

59. State Water Board Resolution 68-16, *Statement of Policy with Respect to Maintaining High Quality Waters in California* (Resolution 68-16), generally prohibits the Regional Water Board from authorizing discharges that will result in the degradation of high quality waters, unless it is demonstrated that any change in water quality will: (a) be consistent with maximum benefit to the people of the state, (b) not unreasonably affect beneficial uses, and (c) not result in water quality less than that prescribed in state and regional policies (e.g., the violation of one or more water quality objectives). The discharger must also employ best practicable treatment or control (BPTC) to minimize the degradation of high quality waters. High quality waters are surface waters or areas of groundwater that have a baseline water quality better than required by water quality control plans and policies.
60. Potential constituents of concern (PCOCs) for this Facility include TDS, nitrates, and phosphates. These PCOCs are monitored annually to determine constituent concentrations. Wastewater is only stored in the lined surface impoundments for evaporation. The surface impoundments are Class II surface impoundments lined to title 27 requirements and are underlain by clay with a low hydraulic conductivity. Migration of PCOCs through the liner system and into the soil to the local groundwater is not expected to occur, and therefore no degradation should occur to surface water, groundwater, or soils.
61. The discharge of wastewater to the surface impoundments, as permitted herein, reflects BPTC. These WDRs incorporate specific containment requirements for discharged materials, including:
 - a. Liner system with 1×10^{-6} cm/sec permeability, or synthetic liner with equivalent permeability,

- b. LCRS to collect leaks through the primary liners at EVP-6, EVP-7 and EVP-8,
 - c. Groundwater monitoring well network,
 - d. Operation and maintenance with a minimum of two (2) feet of freeboard, and
 - e. Construction outside the 100-year floodplain.
62. This Order complies with Resolution 68-16 by requiring the Discharger to maintain waste containment systems that prevent discharges of waste to waters of the state. Although no degradation from the discharge to the surface impoundments is expected to occur, the Facility is equipped with sufficient controls to detect and minimize any impacts. Any minimal degradation of groundwater by some of the typical waste constituents is consistent with the maximum benefit to the people of the state. The Discharger also supports the economic prosperity of the community by the employment of full-time and part-time personnel at the Facility. Accordingly, the discharge as authorized is consistent with the antidegradation provisions of Resolution 68-16.

Stormwater

63. Federal regulations for stormwater discharges were promulgated by the U.S. Environmental Protection Agency on November 16, 1990 (40 C.F.R. parts 122, 123, and 124) to implement the Clean Water Act's stormwater program set forth in Clean Water Act section 402(p) (33 U.S.C. §1342(p)). In relevant part, the regulations require specific categories of facilities that discharge stormwater associated with industrial activity to "waters of the United States" to obtain National Pollutant Discharge Elimination System (NPDES) permits and to require control of such pollutant discharges using Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to prevent and reduce pollutants and any more stringent controls necessary to meet water quality standards.
64. The State Water Board adopted Order 2014-0057-DWQ (NPDES No. CAS000001), *General Permit for Storm Water Discharges Associated with Industrial Activities* (Industrial General Permit), which became effective on July 1, 2015. The Industrial General Permit regulates discharges of stormwater associated with certain industrial activities, excluding construction activities, and requires submittal of a Notice of Intent (NOI) to be covered under the permit.
65. The North American Industrial Classification System (NAICS) code number for the Facility is 112519, which is for establishments primarily engaged in (a) farm raising of aquatic animals (except finfish and shellfish) and/or (b) farm raising of aquatic plants. Alligator, algae, frog, seaweed, or turtle production is included in this industrial category. The NAICS code is closest to Standard Industrial Classification

(SIC) code 0919 – Miscellaneous Marine Products, which includes establishments primarily engaged in miscellaneous fishing activities, such as catching or taking of sea urchins, terrapins, turtles, and frogs, and gathering of seaweed and sponges. The gathering of seaweed is the closest description found to growing and harvesting algae. Because the Industrial General Permit does not regulate SIC code 0919, the Discharger indicates it has not enrolled in the Industrial General Permit.

Financial Assurances

66. The State Water Board-promulgated provisions of title 27 of the California Code of Regulations require maintenance of appropriate financial assurance mechanisms to cover all expenses related to the following:
 - a. Closure Activities (Cal. Code Regs., tit. 27, § 22207) – in at least the amount of the current closure cost estimate;
 - b. Post-closure Maintenance (Cal. Code Regs., tit. 27, § 22212) – in at least the amount of the current post-closure cost estimate; and
 - c. Corrective Action (Cal. Code Regs., tit. 27, § 22222) – for initiating and completing corrective action for all known or reasonably foreseeable corrective action.
67. In the ROWD for EVP-8, dated December 1, 2017, the Discharger indicated that EVP-8 would be “clean-closed” in accordance with the requirements of title 27, division 2, section 21400 of the California Code of Regulations. In an email on December 23, 2020, the Discharger affirmed that EVP-1 through EVP-7 would also be clean-closed when operations cease. Post-closure financial assurances are therefore not needed
68. On July 4, 2018, DIC Corporation, a business entity organized under the laws of Japan, issued a letter of guarantee that meets the financial guarantee requirements for clean closure of EVP-8.
69. Within 120 days following the issuance of this Order, the Discharger must provide an updated assurance of financial responsibility for clean closure of all evaporation ponds (EVP-1 through EVP-8) and for corrective action.

CEQA and Public Participation

70. Pursuant to California Code of Regulations, title 14, section 15301, the issuance of these WDRs, which govern the operation of an existing facility involving negligible or no expansion of use beyond that previously existing, is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, § 21000 et seq.).

71. The Regional Water Board has notified the Discharger and all known interested agencies and persons of its intent to issue WDRs for this discharge and provided them with an opportunity for a public meeting and to submit comments.
72. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, pursuant to section 13263 and 13267 of the California Water Code, that Order R7-2018-0007 is rescinded, except for the purposes of enforcement, and in order to meet the provisions contained in division 7 of the Water Code and regulations adopted thereunder, the Discharger shall comply with the following:

A. Discharge Prohibitions

1. The discharge of waste classified as “hazardous,” as defined California Code of Regulations, title 27, section 20164 is prohibited.
2. The disposal of incompatible wastes or wastes that, when mixed or commingled with other wastes, may create heat, pressure, fire, explosion, toxic by-products, or other chemical reactions that: (1) impair the integrity of the containment structures, or (2) generate products requiring a higher level of containment than provided by the waste management unit into which the wastes are placed, is prohibited.
3. The discharge of process wastewater to a location or in a manner different from that described in this Order is prohibited.
4. The discharge of waste to land not owned or controlled by the Discharger, or not authorized for such use, is prohibited.
5. The discharge of waste to any surface water or surface drainage courses is prohibited.
6. The Discharger shall not cause or contribute to an increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the waste management unit if such waste constituents could migrate to waters of the state, in either the liquid or the gaseous phase, and cause, or threaten to cause, a condition of contamination or pollution.
7. The storage, treatment, or disposal of wastes from the Facility shall not cause contamination, pollution, or nuisance as defined in Water Code section 13050, subdivisions (k), (l), and (m).

B. Discharge Specifications

1. The Discharger shall comply with all applicable provisions of title 27 (Cal. Code Regs., tit. 27, § 20005 et seq.), even if not specifically referenced in this Order.
2. Wastes shall be discharged only into waste management units specifically designed for their containment and/or treatment, as described in this Order.
3. The Discharger is responsible for accurate characterization of wastes, including determinations of whether wastes will be compatible with containment features and other wastes at the waste management unit, and whether the wastes are required to be managed as a “hazardous” waste or “designated” waste.
4. The Discharger shall not cause the concentration of any Constituent of Concern (including Monitoring Parameters), as defined in the MRP and incorporated herein by reference, to exceed its representative concentration limit in any monitoring medium (i.e., exceed the Water Quality Protection Standard [WQPS]). The concentration limit for each constituent will be set in accordance with the MRP. Data analysis shall be performed in accordance with the MRP.
5. All waste management units shall be operated to ensure that wastes, including leachate, will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater, including the capillary fringe.
6. The Discharger shall promptly notify the Regional Water Board of any slope failure occurring at a waste management unit. The Discharger shall promptly correct any failure which threatens the integrity of containment features or the unit in accordance with the method approved by the Regional Water Board’s Executive Officer.
7. 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 California Code of Regulations, title 27, sections 20200(d) and 20340(g), and in a manner consistent with the waste classification of the liquid.
8. Each cell within EVP-8 shall contain an independent LCRS between the inner and outer liners.
9. The Discharger shall maintain sufficient freeboard in each surface impoundment to accommodate seasonal precipitation and to contain a 1,000 year 24-hour storm event, but in no case no less than two (2) feet of freeboard (measured vertically).
10. Any direct-line discharge to a surface impoundment shall have fail-safe equipment or operating procedures to prevent overfilling. Discharges shall be

stopped in the event of any containment system failure which causes a threat to water quality.

11. If during the active life of a surface impoundment, the wastes are removed and the bottom of the impoundment is cleaned down to the liner, an inspection shall be made of the bottom of the liner prior to refilling of the impoundment.
12. 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.
13. The LCRS shall be operated to function without clogging through the scheduled closure of the applicable waste management unit and during the post-closure maintenance period. The 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.
14. The liquid entering the LCRS sump shall not accumulate to an extent that it extends out of the LCRS sump and into the collection portion of the LCRS. The Discharger shall remove fluids from the LCRS sump as often as needed to prevent the liquid in the LCRS from backing up into the collection portion of the LCRS.
15. LCRS maintenance and repair plans shall be submitted to the Regional Water Board in advance of any work. Surface Impoundment repair plans and liner Construction Quality Assurance (CQA) Plans shall be developed and stamped by a licensed professional experienced in this type of work.
16. Residual solids obtained by evaporation of process wastewater shall be discharged only at a waste management facility licensed to receive such wastes. The Discharger shall maintain legible records on the volume and type of each waste discharged at each waste management unit at the Facility.
17. The Discharger shall maintain visible monuments identifying the boundary limits of the entire Facility. Public contact with material in the waste management units shall be precluded through fences, signs, or other appropriate alternatives.
18. Objectionable odors originating at this Facility shall not be perceivable beyond the limits of the wastewater disposal area.
19. The sprayer system in EVP-2 shall not be operated when the average wind speed over 15 minutes exceeds 15 miles per hour, or when wind gusts exceed 25 miles per hour. A wind monitoring system shall be installed at the evaporation ponds. A summary of the wind monitoring results and sprayer operations shall be recorded and reported in the annual monitoring report.

C. Stormwater Specifications

1. The Class II surface impoundments shall be designed, constructed, operated, and maintained to limit, to the greatest extent possible, erosion, slope failure, overtopping, inundation or washout, and damage resulting from natural disasters such as: floods from a 24-hour storm event having a predicted frequency of once in 1000 years, pursuant to California Code of Regulations, title 27, section 20375; the Maximum Credible Earthquake (MCE) pursuant to section 20310, Table 4.1; and severe wind storms.
2. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit.
3. Surface drainage from tributary areas, and internal site drainage from surface or subsurface sources, shall not contact or percolate through the wastes discharged at the Facility.
4. Diversion and drainage facilities shall be designed, constructed, and maintained to:
 - 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.

D. Monitoring Specifications

1. The Discharger shall implement MRP R7-2021-0011 and any revisions thereto to detect at the earliest opportunity unauthorized discharges of waste constituents from the Facility, or any impairment of beneficial uses that result from discharges of waste to the Facility. The Discharger shall report the results of all onsite monitoring in accordance with MRP R7-2021-0011 and revisions thereto.
2. The Discharger shall conduct a water quality monitoring and response program in accordance with MRP R7-2021-0011 and any future amendments thereto, including:
 - a. Detection Monitoring. The Discharger shall institute a detection monitoring program pursuant to California Code of Regulations, title 27, section 20420.
 - b. Evaluation Monitoring. The Discharger shall institute an evaluation monitoring program under California Code of Regulations, title 27, section 20425:
 - i. Whenever there is "measurably significant" (as defined in section 20164) evidence of a release from the waste management unit under the detection monitoring program; or
 - ii. Whenever there is significant physical evidence of a release from the waste management unit. Significant physical evidence of a release includes unexplained volumetric changes in surface impoundments, unexplained stress in biological communities, unexplained changes in soil characteristics, visible signs of leachate migration, and unexplained water table mounding beneath or adjacent to the unit and any other change to the environment that could reasonably be expected to be the result of a release from the unit.
 - c. Corrective Action Monitoring. The Discharger shall institute a corrective action program under California Code of Regulations, title 27, section 20430 when the Regional Water Board determines that the assessment

of the nature and extent of the release and the design of a corrective action program have been satisfactorily completed.

3. **Sample Collection and Analysis Plan.** Within **90 days** of the adoption of these WDRs, the Discharger shall submit, for review and approval by the Regional Water Board's Executive Officer, a comprehensive Sample Collection and Analysis Plan (SCAP) that shall describe in detail the methods used to perform all monitoring activities for all onsite features, including:
 - 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.

Once the SCAP is approved, the Discharger may request changes to the approved SCAP, as needed, but shall use the procedures described in the approved SCAP until such changes are authorized by the Regional Water Board's Executive Officer.

E. Corrective Action Specifications

1. For all waste management units in a corrective action program to address a release from the unit, the Discharger shall implement all corrective measures necessary to remediate the release and to ensure that the Discharger achieves compliance with the WQPS (as defined in the MRP) adopted for that unit. To show cleanup of all water-bearing media affected by the release, the Discharger shall complete the demonstration required under California Code of Regulations, title 27, section 20430(g).
2. The cessation of any corrective action measure (e.g. landfill gas, leachate, and groundwater extraction) is prohibited without written approval from the Regional Water Board's Executive Officer. If routine maintenance or a breakdown results in cessation of corrective action for greater than **24 hours**, the Discharger shall notify Regional Water Board staff.
3. Following an earthquake that generates significant ground shaking (Modified Mercalli Intensity Scale V or greater) at or near the Facility, the Discharger shall submit a detailed post-earthquake inspection and corrective action plan. The plan shall address damage to and corrective measures for: containment

structures; leachate control and stormwater management systems; wells and equipment to monitor groundwater and landfill gas; and any other system/structure potentially impacted by static and seismic deformations of the waste management unit. The Discharger shall notify the Regional Water Board Executive Officer immediately, but no later than **24 hours**, of damage to the Facility due to an earthquake, and provide a post-earthquake inspection report within **15 business days**.

F. Financial Assurances Specifications

1. The Discharger shall obtain and maintain adequate assurances of financial responsibility for closure, post-closure maintenance, and corrective action for all known and reasonably foreseeable releases from a waste management unit at the Facility in accordance with California Code of Regulations, title 27, sections 20380(b) and 20950 and subchapter 2 (“Financial Assurance Requirements”) of division 2, subdivision 1, chapter 6 of title 27.
2. The Discharger shall demonstrate to the Regional Water Board that it has established acceptable financial assurance mechanisms described in subchapter 3 (“Allowable Mechanisms”) of California Code of Regulations, title 27, division 2, subdivision 1, chapter 6 in at least the amount of the cost estimates for closure, post-closure maintenance, and corrective action approved by the Regional Water Board’s Executive Officer.
3. **Corrective Action Financial Assurance.** Within **120 days** of the adoption of this Order, the Discharger shall submit to the Regional Water Board, in accordance with California Code of Regulations, title 27, section 22222, assurance of financial responsibility acceptable to the Regional Water Board’s Executive Officer for initiating and completing corrective action for all known or reasonably foreseeable releases from the surface impoundments.
4. **Updated Closure Financial Assurance.** Within **120 days** of the adoption of this Order, the Discharger shall submit to the Regional Water Board, in accordance with California Code of Regulations, title 27, section 22207, an updated assurance of financial responsibility acceptable to the Regional Water Board’s Executive Officer for initiating and completing clean closure for all surface impoundments (EVP-1 through EVP-8).
5. **Yearly Financial Assurances Report.** The Discharger shall submit, by June 1 of each year, a report calculating the increase in the cost estimates for closure, post-closure maintenance, and corrective action due to the inflation factor (specified in Cal. Code Regs., tit. 27, § 22236) for the previous calendar year.
6. Documents supporting the amount and active status of the required financial assurance mechanisms shall be included in the Facility’s ROWD and revisions. Annual cost estimates and inflation factors shall be submitted to the Regional Water Board as an addendum to the ROWD.

G. Closure and Post-Closure Specifications

1. The Discharger shall notify the Regional Water Board in writing of the final closure or partial final closure of a waste management unit as follows:
 - a. Landfill Units. For landfill waste management units, notice shall be given either: (1) at the same time that CalRecycle is notified under California Code of Regulations, title 27, section 21110, or (2) **180 days** prior to beginning any final closure activities, whichever is sooner.
 - b. Non-Landfill Units. For non-landfill waste management units (including Class II surface impoundments), notice shall be given at least **180 days** prior to beginning any final closure activities.
 - c. Affirmation. The notice shall include a statement that all closure activities will conform to the most recently approved final or partial final closure plan and that the plan provides for site closure in compliance with all applicable federal and state regulations.
2. The Discharger shall carry out closure of a waste management unit or a portion of a unit only in accordance with a closure and post-closure maintenance plan approved by the Regional Water Board (Cal. Code Regs., tit. 27, §§ 20950(a)(1), 21769(d)) through the issuance of closure WDRs.

H. Standard Provisions

1. **Noncompliance.** The Discharger shall comply with all of the terms, requirements, and conditions of this Order and MRP R7-2021-0011. Noncompliance is a violation of the Porter-Cologne Water Quality Control Act (Water Code, § 13000 et seq.) and grounds for: (1) an enforcement action; (2) termination, revocation and reissuance, or modification of these WDRs; or (3) denial of an Order renewal application.
2. **Enforcement.** The Regional Water Board reserves the right to take any enforcement action authorized by law. Accordingly, failure to timely comply with any provisions of this Order may subject the Discharger to enforcement action. Such actions include, but are not limited to, the assessment of administrative civil liability pursuant to Water Code sections 13323, 13268, and 13350, a Time Schedule Order (TSO) issued pursuant to Water Code section 13308, or referral to the California Attorney General for recovery of judicial civil liability.
3. **Proper Operation and Maintenance.** The Discharger shall at all times properly operate and maintain all systems and components of collection, treatment, and control installed or used by the Discharger to achieve compliance with this Order. Proper operation and maintenance includes, but is not limited to, effective performance, adequate process controls, and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities/systems when necessary to achieve compliance

with this Order. All systems in service or reserved shall be inspected and maintained on a regular basis. Records of inspections and maintenance shall be retained and made available to the Regional Water Board on request.

4. **Reporting of Noncompliance.** The Discharger shall report any noncompliance that may endanger human health or the environment. Information shall be provided orally to the Regional Water Board office and the Office of Emergency Services within 24 hours of when the Discharger becomes aware of the incident. If noncompliance occurs outside of business hours, the Discharger shall leave a message on the Regional Water Board's office voicemail. A written report shall also be provided within five (5) business days of the time the Discharger becomes aware of the incident. The written report shall contain a description of the noncompliance and its cause, the period of noncompliance, the anticipated time to achieve full compliance, and the steps taken or planned, to reduce, eliminate, and prevent recurrence of the noncompliance. All other forms of noncompliance shall be reported with the Discharger's next scheduled Self-Monitoring Reports (SMRs), or earlier if requested by the Regional Water Board's Executive Officer.
5. **Duty to Mitigate.** The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment.
6. **Material Changes.** Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall report all pertinent information in writing to the Regional Water Board, and if required by the Regional Water Board, obtain revised requirements before any modifications are implemented. 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.
7. **Familiarity with Order.** The Discharger shall ensure that all site-operating personnel are familiar with the content of this Order and maintain a copy of this Order at the site.
8. **Inspection and Entry.** The Discharger shall allow the Regional Water Board, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:

- a. Enter the premises regulated by this Order, or the place where records are kept under the conditions of this Order;
 - b. Have access to and copy, at reasonable times, records kept under the conditions of this Order;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
 - d. Sample or monitor at reasonable times, for the purpose of assuring compliance with this Order or as otherwise authorized by the Water Code, any substances or parameters at this location.
- 9. Change in Ownership.** This Order is not transferable to any person without written approval by the Regional Water Board's Executive Officer. Prior to any change in ownership of this operation, the Discharger shall notify the Regional Water Board's Executive Officer in writing at least 30 days in advance. The notice must include a written transfer agreement between the existing owner and the new owner. At a minimum, the transfer agreement must contain a specific date for transfer of responsibility for compliance with this Order and an acknowledgment that the new owner or operator is liable for compliance with this Order from the date of transfer. The Regional Water Board may require modification or revocation and reissuance of this Order to change the name of the Discharger and incorporate other requirements as may be necessary under the Water Code.
- 10. Monitoring Wells.** The Discharger shall comply with all notice and reporting requirements of the California Department of Water Resources and with any well permitting requirements imposed by a local agency regarding the construction, alteration, destruction, maintenance, or abandonment of any monitoring wells used for compliance with this Order and the accompanying MRP, as required under Water Code sections 13750 and 13755 and local agency requirements.
- 11. Format of Technical Reports.** The Discharger shall furnish, under penalty of perjury, technical monitoring program reports, and such reports shall be submitted in accordance with California Code of Regulations, title 23, division 3, chapter 30, as groundwater raw data uploads electronically over the Internet into the State Water Board's [GeoTracker](#) database. Documents that were formerly mailed by the Discharger to the Regional Water Board, such as regulatory documents, narrative monitoring reports or materials, and correspondence, shall be uploaded into GeoTracker in the appropriate Microsoft Office software application format, such as Word or Excel files, or as a Portable Document Format (PDF) file. Large documents must be split into appropriately labelled, manageable file sizes and uploaded into GeoTracker.

- 12. Qualified Professionals.** In accordance with Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of California registered professionals (i.e., civil engineer, engineering geologist, geologist, etc.) competent and proficient in the fields pertinent to the required activities. All technical reports required under this Order that contain work plans, describe the conduct of investigations and studies, or contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall contain a statement of qualifications of the responsible licensed professional(s) as well as the professional's signature and/or stamp of the seal. Additionally, all field activities are to be conducted under the direct supervision of one or more of these professionals.
- 13. Certification Under Penalty of Perjury.** All technical reports required in conjunction with this Order shall include a statement by the Discharger, or an authorized representative of the Discharger, certifying under penalty of perjury under the laws of the State of California, that the reports were prepared under his or her supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted, and that based on his or her inquiry of the person or persons who manage the system, the information submitted is, to the best of his or her knowledge and belief, true, complete, and accurate.
- 14. Violation of Law.** This Order does not authorize violation of any federal, state, or local laws or regulations.
- 15. Property Rights.** This Order does not convey property rights of any sort, or exclusive privileges, nor does it authorize injury to private property or invasion of personal rights.
- 16. Modification, Revocation, Termination.** This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for an Order modification, rescission, or reissuance, or the Discharger's notification of planned changes or anticipated noncompliance, does not stay any Order condition. Causes for modification include, but are not limited to, the violation of any term or condition contained in this Order, a material change in the character, location, or volume of discharge, a change in land application plans or sludge use/disposal practices, or the adoption of new regulations by the State Water Board, Regional Water Board (including revisions to the Basin Plan), or federal government.
- 17. Severability.** The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of these requirements shall not be affected.

Any person aggrieved by this Regional Water Board action may petition the State Water Board for review in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 et seq. The State Water Board must receive the petition by 5:00 p.m. on the 30th day after the date of this Order; if the 30th day falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the statutes and regulations applicable to filing petitions are available on the State Water Board's website and can be provided upon request.

Order Attachments

Attachment A—Site Location Map

Attachment B—Site Layout Map

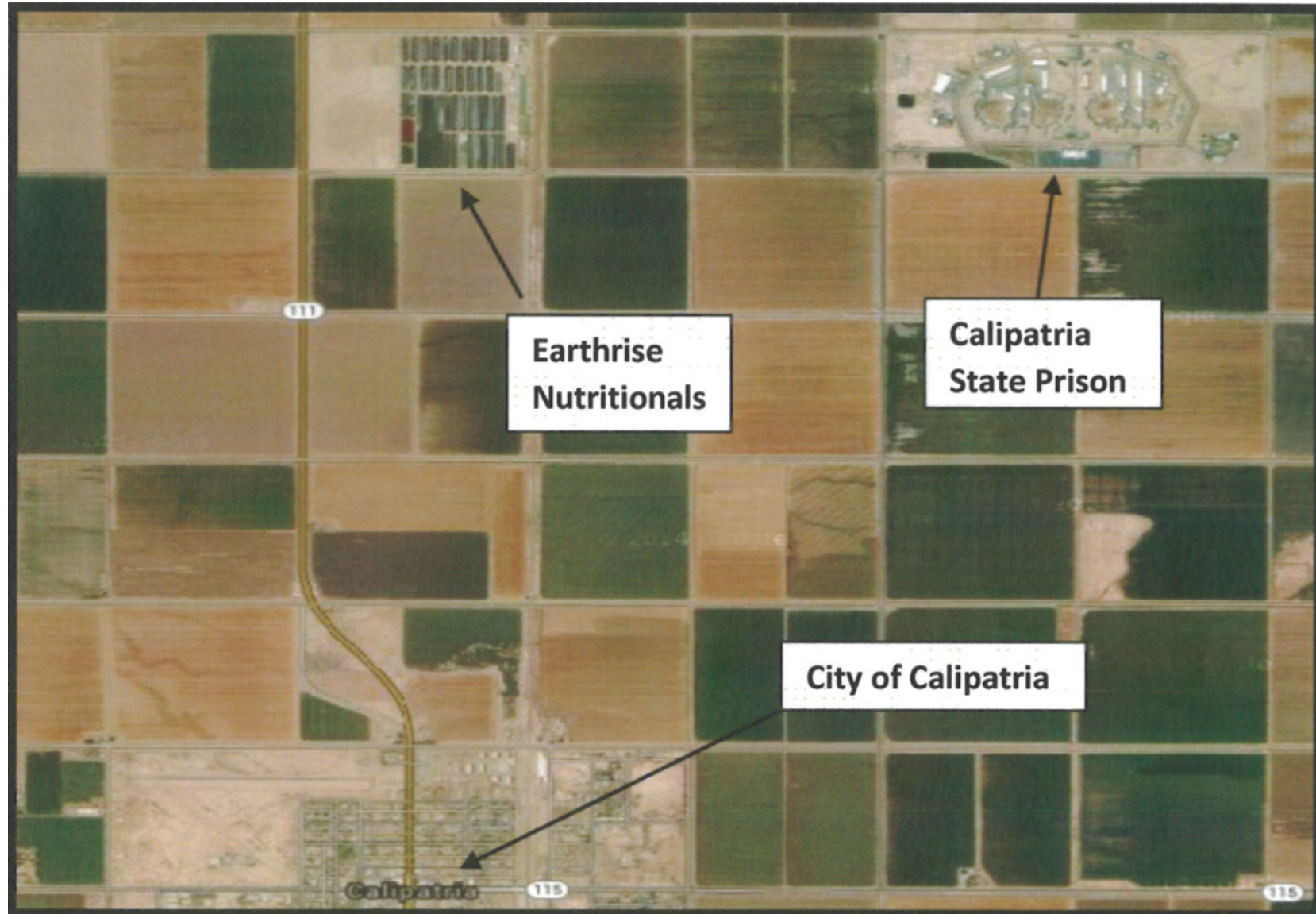
Attachment C—Schematic of Wastewater Production Process

Attachment D—Summary of Chemical Testing Results

Attachment E—Well Locations and Groundwater Gradient

Monitoring and Reporting Program R7-2021-0011

ATTACHMENT A — SITE LOCATION MAP

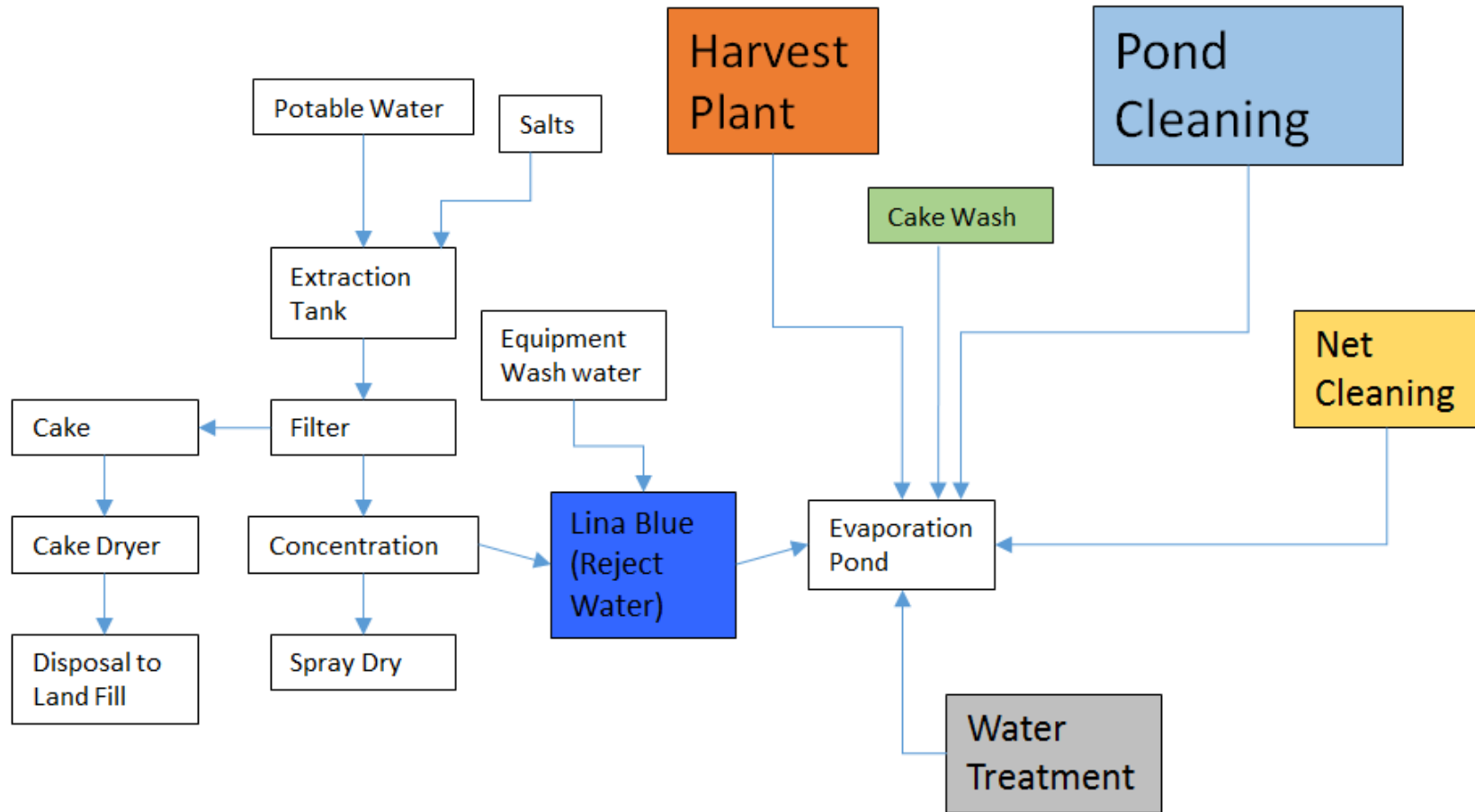


ATTACHMENT B — SITE LAYOUT MAP



Figure 2
Groundwater Monitoring and
EVP-8 Sampling Locations
Earthrise Nutritionals, LLC
Calipatria, California

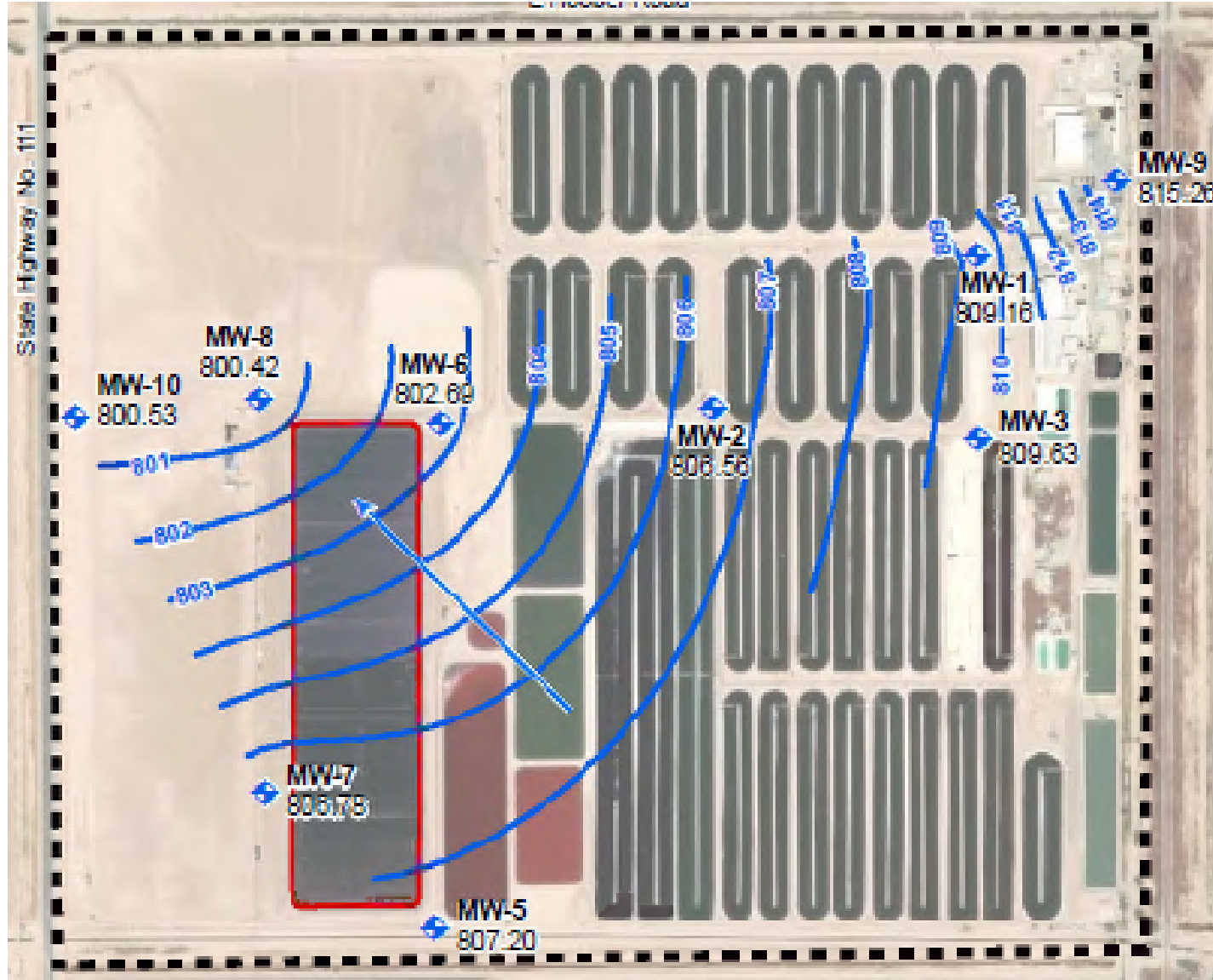
ATTACHMENT C — SCHEMATIC OF WASTEWATER PRODUCTION



ATTACHMENT D — REPRESENTATIVE CHEMICAL DATA, DECEMBER 2019

Sample	MW-9	MW-7	MW-8	MW-10	EVP-8
Location	Up Gradient	Down Gradient	Down Gradient	Far Down Gradient	Pond Average
TDS	12,000	49,000	62,000	58,000	35,400
Nitrate	ND < 2.8	94	ND < 5.5	66	ND < 5.5
Phosphate	0.058	0.14	0.11	0.093	208
Calcium	540	2,000	1,300	2,100	61
Potassium	66	110	93	97	650
Magnesium	510	2,700	3,300	2,700	118
Sodium	2,900	9,300	10,000	9,400	16,200
Carbonate	ND < 4	ND < 4	ND < 4	ND < 4	15,400
Bicarbonate	400	190	230	180	5,760
Chloride	2,700	24,000	24,000	26,000	5,540
Sulfate	5,700	3,900	6,300	3,800	1,830

ATTACHMENT E — GROUNDWATER GRADIENT



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM R7-2021-0011

FOR
EARTHRISE NUTRITIONALS, LLC
OWNER/OPERATOR
MICROALGAE PRODUCTION FACILITY
CLASS II SURFACE IMPOUNDMENTS
CALIPATRIA, IMPERIAL COUNTY

This Monitoring and Reporting Program (MRP) is issued pursuant to Water Code section 13267 and incorporates requirements for groundwater and surface water detection monitoring, as well as special monitoring provisions relating to individual waste management units (WMUs). Monitoring requirements in this MRP are necessary to determine if the Earthrise Microalgae Production Facility (Facility) is in compliance with Waste Discharge Requirements (WDRs) Order R7-2021-0011 (Order) and to ensure early detection of any releases of waste constituents from the Facility. The Discharger shall not implement any changes to this MRP unless a revised MRP is issued by the California Regional Water Quality Control Board, Colorado River Basin Region (Regional Water Board) or its Executive Officer.

PART I: SAMPLING AND ANALYSIS GENERAL REQUIREMENTS

A. Sampling and Analysis General Requirements

1. As provided in Monitoring Specification D.3 of the Order, the Discharger shall submit a Sample Collection and Analysis Plan (SCAP) that incorporates the standard monitoring provisions below and describes the sampling and analysis protocols to be used for all monitoring activities. The SCAP must be received by the Regional Water Board within 90 days of adoption of the Order and this MRP.
2. Once the SCAP is approved, the Discharger may request changes to the approved SCAP, as needed, but shall use the procedures described in the approved SCAP until such changes are authorized by the Regional Water Board's Executive Officer.

B. Standard Monitoring Provisions

1. **Analytical Methods.** Specific methods of analysis for monitored waste constituents shall be identified in the SCAP. If the Discharger proposes to use methods other than those in the latest edition of the U.S. Environmental Protection Agency's (USEPA) *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods Compendium (SW-846)* or *Guidelines Establishing*

Test Procedures for Analysis of Pollutants, 40 Code of Federal Regulations part 136, the SCAP must explain the rationale for the change. The change must be approved by the Regional Water Board's Executive Officer prior to use.

2. **Monitoring Test Procedures.** The collection, preservation, and holding times of all samples shall be in accordance with protocols included in USEPA's SW-846 or 40 Code of Federal Regulations part 136, or as otherwise approved by the Regional Water Board. The Regional Water Board may, in its discretion, require methods more sensitive than those specified by USEPA.
3. **30-Day Sample Procurement Limitation.** For any given monitored medium, the samples collected from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be collected within a span not to exceed 30 days, unless a longer time period is approved by the Regional Water Board's Executive Officer, and shall be collected in a manner that ensures sample independence to the greatest extent feasible. The 30-day limit does not apply to media that (1) are resampled to confirm the results of the initial round of samples, or (2) are resampled due to errors in the original sampling and analysis, but the Discharger shall conduct the resampling as expeditiously as practical.
4. **Laboratory Certification.** Unless otherwise approved by the Regional Water Board's Executive Officer, all analyses shall be conducted by a laboratory accredited by the State Water Resources Control Board (State Water Board), Division of Drinking Water's Environmental Laboratory Accreditation Program (ELAP).
5. **Reporting Levels.** All analytical data shall be reported with method detection limits (MDLs) and with either the reporting level or limits of quantitation (LOQs) according to 40 Code of Federal Regulations part 136, Appendix B. The laboratory reporting limit for all reported monitoring data shall be no greater than the practical quantitation limit (PQL).
6. **QA/QC Data.** All quality control / quality assurance (QA/QC) data shall be reported, along with the sample results to which they apply, including the method, equipment, and analytical detection limits, the recovery rates, an explanation of any recovery rate that is less than 80%, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analyses, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recovery. 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.
7. **Instrumentation and Calibration.** All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated, as necessary, to ensure their continued accuracy. If

continuous monitoring equipment is out of service for a period greater than 24 hours, the Discharger shall obtain representative grab samples each day the equipment is out of service. The Discharger shall correct the cause(s) of failure of the continuous monitoring equipment as soon as practicable. The Discharger shall report the period(s) during which the equipment was out of service and if the problem has not been corrected, shall identify the steps which the Discharger is taking or proposes to take to bring the equipment back into service and the schedule for these actions.

8. **Field Test Instruments.** Field test instruments (such as those used to test pH, dissolved oxygen, and electrical conductivity) may be used provided that:
 - a. The user is trained in proper use and maintenance of the instruments;
 - b. The instruments are field calibrated prior to monitoring events at the frequency recommended by the manufacturer;
 - c. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
 - d. Field calibration reports are submitted.
9. **Records Retention.** The Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, for a minimum of five years from the date of the sampling or measurement. This period may be extended by request of the Regional Water Board's Executive Officer at any time. Records of monitoring information shall include:
 - a. The date, exact place, and time of sampling or measurement(s);
 - b. The individual(s) who performed the sampling or measurement(s);
 - c. The methods used for groundwater purging/sampling;
 - d. The date(s) analyses were performed;
 - e. The individual(s) who performed the analyses;
 - f. The analytical techniques or method used; and
 - g. All sampling and analytical results, including:
 - i. units of measurement used;
 - ii. minimum reporting limit for the analyses;
 - iii. results less than the reporting limit but above the method detection limit (MDL);
 - iv. data qualifiers and a description of the qualifiers;
 - v. quality control test results (and a written copy of the laboratory quality assurance plan);

- vi. dilution factors, if used; and
- vii. sample matrix type.

PART II: SITE-SPECIFIC MONITORING REQUIREMENTS

This part describes the site-specific monitoring program requirements to be implemented for the Facility and is organized by the type of monitoring to be performed. The methods used shall be as described in the approved SCAP.

The site-specific monitoring program of this MRP includes:

Table 1. Summary of Site-Specific Monitoring

Section	Monitoring Program
A	Groundwater Monitoring
B	Unsaturated Zone Monitoring
C	Surface Water Monitoring
D	Surface Impoundment Monitoring
E	Evaluation Monitoring

A. Groundwater Monitoring

The Discharger shall operate and maintain a groundwater monitoring system that complies with the applicable provisions of California Code of Regulations, title 27, sections 20415 and 20420. Monitoring shall be performed in accordance with the locations, frequencies, and parameters described below:

1. Monitoring Well Locations

Upgradient wells are considered background monitoring points. Downgradient wells where no releases have been detected are used for detection monitoring. The groundwater monitoring network shall consist of the following monitoring wells and any new monitoring wells added at the Facility (as approved by the Regional Water Board's Executive Officer):

Table 2. Monitoring Wells Summary

Wells	Gradient Direction	Monitoring Status	Frequency
MW-9	Up	Detection	Annually

Wells	Gradient Direction	Monitoring Status	Frequency
MW-5 MW-6 MW-7 MW-8 MW-10	Down	Detection	Annually
MW-1 MW-2 MW-3	Cross	Groundwater Elevation Only	Annually

2. Parameters/Constituents Monitored

Groundwater samples shall be collected from the detection monitoring wells and any additional wells added as part of the approved groundwater monitoring system. The collected samples shall be analyzed for the Monitoring Parameters and Constituents of Concern specified below in accordance with the specified methods and frequencies.

“Monitoring Parameters” and “Constituents of Concern” shall have the meaning specified in California Code of Regulations, title 27, section 20164. “Monitoring Parameters” means the group of constituents specified below and includes physical parameters, waste constituents, reaction products, and hazardous constituents that provide a reliable indication of a release from a waste management unit. “Constituents of Concern” (COCs) include a larger group of waste constituents and mean any waste constituents, reaction products, and hazardous constituents reasonably expected to be in or derived from waste contained in a waste management unit.

Various Constituents of Concern are included as Monitoring Parameters, although the full list of Constituents of Concern are not included as Monitoring Parameters and need only be sampled for once every 5 years, as specified below.

a. Monitoring Parameters

“Monitoring Parameters” shall consist of the (1) Field Monitoring Parameters and (2) Laboratory Monitoring Parameters specified below:

- i. Field Monitoring Parameters – During each groundwater monitoring event,² the following field parameters shall be measured:

² Pursuant to Cal. Code Regs., tit. 27, § 20415(e)(13).

Table 3. Field Parameters Monitoring

Parameter	Unit
pH	pH units
Groundwater elevation ³	Feet relative to sea level, plus 1000 feet (USGS Datum)
Specific conductance	Micromhos/cm
Temperature	Degrees F
Turbidity	Nephelometric Turbidity Units (NTU)
Dissolved oxygen	Milligrams per liter (mg/L) and percent saturation
Oxidation-Reduction Potential (ORP)	Millivolts (mV)

- II. Laboratory Monitoring Parameters – Once per year (annually), groundwater samples shall be analyzed at a laboratory for the following constituents (at a minimum):

Table 4. Laboratory Monitoring Parameters Monitoring

Constituents	Units	Sample Type	Reporting Freq.
Total Dissolved Solids	mg/L	Grab	Annually
Nitrate and Nitrite	mg/L	Grab	Annually
Phosphate	Mg/L	Grab	Annually
Major Cations (Calcium, Magnesium, Potassium and Sodium)	mg/L	Grab	Annually
Major Anions (Chloride, Sulfate, Bicarbonate)	Mg/L	Grab	Annually

³ Annual measurement of groundwater elevations is approved pursuant to title 27, section 20380(e), allowing engineered alternatives provided they achieve the goals of the monitoring program.

b. **Additional Constituents of Concern, Required Every Five Years (5-Year COCs)**

In addition to the Monitoring Parameters listed above, the groundwater shall be analyzed at a laboratory every five years, with the next 5-year monitoring event to be performed in 2023, for the following 5-Year COCs (and any additional COCs required by the Regional Water Board's Executive Officer):

Table 5. List of 5-Year COCs

Constituent
1. Total Petroleum Hydrocarbons

The results of the 5-Year COC sampling shall be reported in the Annual Monitoring Report for the year in which the samples were collected.

Note that the broader term "COCs" includes both the Monitoring Parameters and 5-Year COCs.

B. Unsaturated Zone Monitoring

An unsaturated zone monitoring system is not required for this Facility for the reasons described in Finding 48 of the Order.

C. Surface Water Monitoring

Perennial streams are not located at the Facility and the occurrence of surface water should be limited to (1) immediately after significant storm events, and (2) if seeps develop along the perimeter of a waste management unit.

1. **Observed Surface Water Monitoring.** If surface water is observed at the Facility, the source of the surface water shall be identified, and observations of the following shall be included in the next Annual Monitoring Report:
 - a. Flow rate and source of water;
 - b. Floating and suspended materials of waste origin: Presence or absence, source, and size of affected area;
 - c. Discoloration and turbidity: Description of color, source, and size of affected area;
 - d. Evidence of odors: Presence or absence, characterization, source, and distance of travel from source; and

- e. Weather conditions: Wind direction and estimated velocity, total precipitation during the previous five (5) days and on the day of observation.
2. **Stormwater Monitoring.** After each significant storm event, the remaining freeboard (in vertical feet) and storage capacity (in gallons and/or acre-feet) of each stormwater retention basin shall be identified. If the remaining storage capacity of a stormwater retention basin drops below the volume needed to retain a 100-year storm event, the Discharger shall take steps to remove water from the stormwater basin until the remaining capacity is at least enough to hold a 100-year storm event. Any stormwater-related actions shall be reported in the next Monitoring Report.
 3. **Seep Monitoring.** If a seep is identified in proximity to a waste management unit:
 - a. The location, flow rate, and other characteristics (such as color and odor) shall be orally reported to the Regional Water Board within **48 hours**, and a written report concerning the seep shall be submitted to the Regional Water Board **within seven (7) days**.
 - b. Flow from the seep shall be contained to preclude the seep from adversely affecting surface waters.
 - c. A sample of the seepage shall be collected and tested for the Field Monitoring Parameters described in Part II.A.2.a.i.
 - d. If the Field Monitoring Parameters indicate the seepage is not groundwater, or if it is unlikely the source of the seep is groundwater, the sample shall be analyzed for the Monitoring Parameters and 5-Year COCs described in Part II.A.2.a and b.
 - e. The results of all testing shall be reported to the Regional Water Board **within seven (7) days** of receipt of the written laboratory report.
 - f. Seeps that continue to exist for more than one reporting period shall be sampled during each reporting period and the results shall be included in the Annual Monitoring Report.

D. Surface Impoundment Monitoring

1. Waste Capacity Monitoring

The following shall be monitored at least weekly and included in the Annual Monitoring Report:

- a. The water level and freeboard in each surface impoundment cell, and the available storage capacity of the impoundment cells.
- b. The volume of wastewater discharged into the surface impoundments in gallons, per week.
- c. Observations of erosion, settlement, and/or subsidence along the visible areas of the surface impoundment(s), including the top of the berm, outer slopes, and upper region of the inner slope. Repairs shall be performed as needed and documented in the inspection logs.

2. Impoundment Monitoring

- a. Samples of wastewater shall be collected from each of the eight surface impoundments annually and analyzed for the following:

Table 6. Surface Impoundment Monitoring

Constituents	Units	Sample Type	Reporting Freq.
pH	mg/L	Grab	Annually
Total Dissolved Solids	mg/L	Grab	Annually
Specific Conductance	Micromhos/cm	Grab	Annually
Major Cations (Ca, K, Mg and Na)	mg/L	Grab	Annually
Major Anions (Cl, SO ₄ , HCO ₃ and CO ₃)	mg/L	Grab	Annually
Nitrate and Nitrite	mg/L	Grab	Annually
Phosphate	mg/L	Grab	Annually

3. Sludge Monitoring

- a. Sludge samples shall be collected for each surface impoundment that has sludge present. Grab samples of sludge shall be collected and analyzed for the following:

Table 7. Sludge Monitoring

Constituents	Units	Sample Type	Reporting Freq.
Antimony	mg/kg	Grab	Annually
Arsenic	mg/kg	Grab	Annually
Barium	mg/kg	Grab	Annually
Beryllium	mg/kg	Grab	Annually
Cadmium	mg/kg	Grab	Annually
Total Chromium	mg/kg	Grab	Annually
Cobalt	mg/kg	Grab	Annually
Copper	mg/kg	Grab	Annually
Lead	mg/kg	Grab	Annually
Mercury	mg/kg	Grab	Annually
Molybdenum	mg/kg	Grab	Annually
Nickel	mg/kg	Grab	Annually
Selenium	mg/kg	Grab	Annually
Silver	mg/kg	Grab	Annually
Thallium	mg/kg	Grab	Annually
Vanadium	mg/kg	Grab	Annually
Zinc	mg/kg	Grab	Annually

4. LCRS Monitoring

- a. The Facility shall monitor the height of liquid in each LCRS sump at least **weekly** to an accuracy of one-quarter (1/4) inch. The Discharger shall record the data in the weekly monitoring logs and include the data in the Annual Monitoring Report.
- b. The Discharger shall remove fluids from the LCRS sumps as often as needed to prevent the liquid in the sump from backing up into the collection portion of the LCRS. The removed liquid may be discharged back into the surface impoundment for that sump. The volume removed shall be measured and used to identify the leakage rate into each sump. The removal dates, volumes, and calculated leakage rates shall be included in the Annual Monitoring Report.
- c. If an automated sump-pump is installed, an alarm shall also be installed to indicate if the sump fills beyond the upper limit of the sump-pump settings. Automated systems shall also include a means of monitoring changes in

the height of liquid in the sump and measuring the frequency and volume of pumping. This data shall be converted to a daily leakage rate and summarized in the Annual Monitoring Report. Automated sump pumps shall be tested at least annually to ensure they are functioning properly.

- d. If leakage rates exceed the reporting threshold (RT), the Discharger shall follow the steps in Part II.E.3 – Excessive Leachate Production. Unless a Facility-specific RT is approved by the Regional Water Board, the default RT shall be half the volume of the sump per day.
- e. The Discharger shall test each LCRS annually pursuant to California Code of Regulations, title 27, section 20340(d) to demonstrate proper operation. Except for the first annual test, the results of this testing shall be compared to earlier tests made under comparable conditions.
- f. A workplan describing proposed changes to the LCRS monitoring system shall be submitted to the Regional Water Board for review and approval prior to implementing any proposed changes.

5. Wind Monitoring

- a. The Facility shall install a wind monitoring device in a location that will provide representative data regarding wind speeds at EVP-2. The wind monitoring system shall record wind speeds whenever the sprayer system is in operation. The Discharger shall include in the Annual Monitoring Report a summary of sprayer usage, average wind speeds, and wind gust data during sprayer operation. This data can be summarized in either tables, words or graphs.

E. Evaluation Monitoring

1. Notification of a Release

Should the Discharger discover a release from the Facility, the Discharger shall:

- a. Initial Notification. Notify the Regional Water Board by phone or e-mail **within 24 hours**, and by mail **within seven days**, when the Discharger determines from monitoring results that there is measurably significant evidence of a release. (Cal. Code Regs., tit. 27, § 20420(j)(1).)
- b. Retest. The Discharger may immediately initiate the verification procedure specified in Part III.B.3 to verify that there is a “measurably significant” evidence of a release of particular constituent.⁴ (Cal. Code Regs., tit. 27, § 20420(j)(2).)

⁴ Under California Code of Regulations, title 27, section 20420(k)(7), the Discharger may also demonstrate that a source other than the waste management unit caused the release.

- c. Notice to Nearby Landowners. The Discharger shall, **within 14 days** of confirming measurably significant evidence of a release, notify all persons who own the land or reside on the land that directly overlies any portion of the plume of contamination, if sampling of detection monitoring wells indicates contaminants have migrated off-site. (40 C.F.R. § 258.55(g)(1)(iii).)

2. Evaluation of a Release

If the Discharger determines that a previously unknown release from the Facility has occurred, the following actions shall be taken:

- a. Non-Statistical COC Scan. If the detection was made based upon sampling and analysis for Monitoring Parameters, the Discharger shall 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 scan does not involve statistical testing, the Discharger will only need to collect and analyze a single water sample from each monitoring point in the affected medium. (Cal. Code Regs., tit. 27, § 20420(k)(1).)
- b. Amended ROWD for Evaluation Monitoring Program (EMP). The Discharger shall, **within 90 days** of confirming a measurably significant evidence of a release, submit an amended Report of Waste Discharge (ROWD) proposing an evaluation monitoring program that meets the requirements of California Code of Regulations, title 27, sections 20420(k)(5) and 20425. 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. (Cal. Code Regs., tit. 27, §§ 20420(k)(5) and 20425(b).) For releases from MSW landfill units, the evaluation monitoring program shall also include any additional proposals necessary to comply with 40 C.F.R. § 258.55, particularly the additional monitoring wells required by 40 C.F.R. § 258.55(g)(1)(ii). Additionally, the Discharger shall add any 5-Year COC for which there is a confirmed measurably significant release to the list of Monitoring Parameters.
- c. Preliminary EFS. The Discharger shall, **within 180 days** of confirming a measurably significant evidence of a release, submit to the Regional Water Board a preliminary engineering feasibility study (EFS) report for a corrective action program that meets the requirements of California Code of Regulations, title 27, sections 20420(k)(6) and 20430. At a minimum, the feasibility study shall contain a detailed description of the corrective

action measures that could be taken to achieve background concentrations for all COCs.

- d. Additional EMP Required Actions. The Discharger shall, **within 90 days** of establishing an evaluation monitoring program (i.e., from the date of Regional Water Board approval of the program), complete and submit the following:
 - i. A report with the results and assessment/delineation of the release based on the approved evaluation monitoring program. (Cal. Code Regs, tit. 27 § 20425(b).)
 - ii. 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). (Cal. Code Regs., tit. 27, § 20425(c).)
 - iii. An amended ROWD 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. (Cal. Code Regs., tit. 27, § 20425(d).)⁵

3. Excessive Leachate Production

- a. If leakage rates in any LCRS exceed the reporting threshold (RT), the Discharger shall report this to the Regional Water Board within **48 hours** and propose further actions to evaluate whether repairs are needed. Unless a Facility-specific RT is approved by the Regional Water Board, the default RT shall be one half of the volume of the sump per day.

PART III: EVALUATION OF MONITORING DATA

Part III of this MRP provides the requirements for the analysis of detection, evaluation, and corrective action monitoring data collected from monitoring wells associated with the Facility.

A. Water Quality Protection Standard

For each waste management unit, the Water Quality Protection Standard (WQPS) consists of all COCs (under title 27, section 20395), the concentration limit for each COC (under title 27, section 20400), and the points of compliance for each

⁵ The Discharger shall (for releases from MSW landfill units) discuss the results of the updated engineering feasibility study, prior to the final selection of a remedy, in a public meeting with interested and affected parties. (40 C.F.R. § 258.56(d).)

monitored medium (under title 27, section 20405) for the duration of the compliance period (under title 27, section 20410).

1. **Constituents of Concern (COCs)**

- a. The COCs are as defined above in Part II.A.2 and include both Monitoring Parameters and 5-Year COCs.

2. **Concentration Limits**

- a. **Default Limits.** The following concentration limits shall apply, unless the Regional Water Board approves a Concentration Limit Greater than Background (CLGB), as provided in Part III.A.2.b below:
 - i. **Non-natural Constituents.** For COCs that are not naturally occurring, the concentration limit shall be the detection limit of the laboratory testing procedure.
 - ii. **Naturally Occurring Constituents.** For naturally occurring COCs, the concentration limit shall be the background concentration determined through either inter-well or intra-well comparisons.
- b. **CLGB.** Use of a CLGB may be proposed by the Discharger provided it is justified through a statistical analysis of relevant data (including the background dataset) and a demonstration that background concentrations would not be technologically or economically feasible for the COCs for a given monitoring well. (Cal. Code Regs., tit. 27, § 20400, subd. (c).) A concentration limit greater than background will only be considered for COCs present in monitoring wells associated with corrective action monitoring. (Cal. Code Regs., tit. 27, § 20400, subd. (h).)
- c. **Procedure for Approval of Concentration Limits.** The Discharger shall submit a report proposing applicable background concentrations for each COC under Part III.A.2.a in the next Annual Monitoring Report. The Regional Water Board will review proposed concentration limits from the Discharger and approve, modify, or disapprove each proposed limit. (Cal. Code Regs., title 27, § 20400.) Following initial approval of the concentration limits, the Discharger shall reevaluate and propose any updates to the concentration limits **every five years** thereafter.

3. **Compliance Period**

- a. The compliance period for each waste management unit includes the active life of each waste management unit, the closure period, the post-closure

maintenance period, and any compliance period under California Code of Regulations, title 27, section 20410.

4. Points of Compliance

- a. All monitoring wells established for the detection monitoring program shall constitute the points of compliance for the WQPS.

B. Statistical and Non-Statistical Analysis of Data

1. General Requirements

- a. California Code of Regulations, title 27, section 20415(e) describes a range of statistical and non-statistical data analysis methods that can be used to evaluate data collected during monitoring. In addition, USEPA published *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (EPA 530/R-09-007) in 2009.
- b. The Discharger shall evaluate the data obtained during a monitoring period using either a statistical or non-statistical method described in title 27 or may propose another method for approval by the Regional Water Board's Executive Officer, as long as it achieves the goal of the monitoring program at least as well as the most appropriate method described in title 27, section 20415.
- c. The Discharger shall propose data analysis methods to be used in evaluating water quality monitoring data for each COC. (Cal. Code Regs., tit. 27, § 20415(e)(7).) The specifications for each data analysis method shall include a detailed description of the criteria to be used for determining "measurably significant" (as that term is defined in title 27, section 20164) evidence of any release from the waste management unit and for determining compliance with the WQPS.
- d. Monitoring reports shall describe the statistical or non-statistical method used for each COC at each monitoring point.

2. Background Values

- a. Pursuant to California Code of Regulations, title 27, section 20415(e)(10), the Discharger shall in a technical report justify the use of a procedure for determining the background value for each COC.
- b. Inter-well comparisons may be used where upgradient and downgradient wells intercept the same aquifer and are expected to have similar concentrations of naturally occurring constituents. Intra-well comparisons shall be used where uncontaminated background wells are not present, or

the chemical composition of upgradient and downgradient wells are significantly different.

- c. In establishing background values for COCs, the Discharger shall ensure that sampling methods used comply with California Code of Regulations, title 27, section 20415(e)(12), including that the number and kinds of samples collected must be appropriate for the form of data analysis employed and, in the case of statistical data analysis, follow generally accepted statistical principles. The sampling method (including the sampling frequency and the interval of time between successive samples) shall be appropriate for the medium from which samples are taken (e.g., groundwater, surface water, and soil-pore liquid). (See also Cal. Code Regs., tit. 27, § 20415(e)(6).) For groundwater, sampling shall be scheduled to include the times of expected highest and lowest elevations of the potentiometric surface.
- d. At the Earthrise facility, the anion and cation composition of the water in the production ponds is very different from the anion and cation chemistry of the groundwater. A comparison of the anion and cation composition of the groundwater versus the wastewater shall be incorporated into the determination of whether a significant release has occurred at the Facility.

3. Determination of Measurably Significant Evidence of a Release

- a. Initial Determination of Measurably Significant Evidence of a Release. The Discharger shall use a statistical or nonstatistical data analysis method that complies with California Code of Regulations, title 27, section 20415(e)(7)-(10) to compare the concentration of each COC with its respective background concentration to determine whether there has been measurably significant evidence of a release from the waste management unit. Whenever a COC is detected at a detection monitoring point at a concentration that exceeds the concentration limit from the WQPS, the Discharger shall preliminarily conclude that there is measurably significant evidence of a release and follow the notification procedures in Part II.E.1. (Cal. Code Regs., tit. 27, § 20420(i).)
- b. Confirmation of a Measurably Significant Evidence of a Release. If there is a preliminary indication of a release, within **30 days** of such indication (Cal. Code Regs., tit. 27, § 20415(e)(8)(E)(3)), the Discharger may implement a verification procedure/retest option in accordance with California Code of Regulations, title 27, section 20415(e)(8)(E).⁶

⁶ Under California Code of Regulations, title 27, section 20420(k)(7), the Discharger may also demonstrate that a source other than the waste management unit caused the release.

- i. **Retest Method.** The verification procedure shall include either: (1) a single “composite” retest (i.e., a statistical analysis that augments and reanalyzes the data from the monitoring point that indicated a release), or (2) 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). (Cal. Code Regs., tit. 27, § 20415(e)(8)(E).) The Discharger may use an alternate method with prior approval by the Regional Water Board that complies with the requirements of title 27, section 20415(e)(8)(E) in addition to the performance standards of title 27, section 20415(e)(9).
- ii. **Retest Samples.** 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. (Cal. Code Regs., tit. 27, § 20415(e)(8)(E)(7).)
- iii. **Retest Reporting.** The Discharger shall report to the Regional Water Board the results of both the initial statistical test and the results of the verification procedure, as well as all concentration data collected for use in these tests, within **seven days** of the last laboratory analysis of the samples collected for the verification procedure. (Cal. Code Regs., tit. 27, § 20415(e)(8)(E)(6).)

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. The Discharger shall then follow the procedures identified in Part II.E.2.

PART IV: REPORTS TO BE FILED WITH THE REGIONAL WATER BOARD

Part IV provides a description of the reports required to be submitted to the Regional Water Board for the Facility.

A. Required Reports

1. **Annual Monitoring Reports** – For each monitored medium, all monitoring results shall be reported annually. Annual Monitoring Reports shall include, at a minimum, the following:
 - a. **Topographic Map.** A topographic map (or copy of an aerial photograph), at an appropriate scale, identifying the maximum lateral extent of wastes in the Facility, the locations of observation stations, monitoring points, background monitoring points, the groundwater elevation contours with interpreted groundwater flow direction and gradient.

- b. **Groundwater Elevations.** The method and time of groundwater elevation measurements, a description of the method used to purge the well and collect groundwater samples, and quality assurance/quality control (QA/QC) procedures used.
- c. **Field Logs.** Field logs used during well purging and sampling. At a minimum, the field logs should include the following:
 - I. The well number,
 - II. The sampling date and time,
 - III. The method of monitoring Field Monitoring Parameters and calibration of equipment used to monitor Field Monitoring Parameters,
 - IV. The purge method (if a pump is used, include the depth of pump placement in each well and the pumping rate), and
 - V. The purge and sample collection information such as: date each well was purged; well recovery time; method of disposal of the purged water; an estimate of the volume of water purged from each well; the results of all field analyses; depth to groundwater prior to purging, at the conclusion of purging, and when the sample was collected; the method of measuring the water level; and field personnel names and signature.
- d. **Data Tables.** Cumulative tabulated monitoring data for all monitoring points and constituents (including the Monitoring Parameters and 5-Year COCs). 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 "<" next to the reporting limit (e.g., <0.10). Upon request of Regional Water Board staff, data files shall be provided electronically in a file format approved by the Regional Water Board. Any electronic files submitted to the Regional Water Board in accordance with Order R7-2021-0011 and this MRP, shall not be password protected. If a 5-year COC event was performed, then these parameters shall be presented in tabular format. All analytical data obtained during the previous year shall be presented in tabular form. Upon request of the Regional Water Board, the data shall be provided electronically in a file format and media acceptable to the Regional Water Board.
- e. **Graphical Display.** A graphical display for all data collected for each monitoring point and background monitoring point. Each graph shall plot the concentration of one or more constituents over time for a given monitoring point. For any given constituent, the scale for all plots should be the same to facilitate comparison and identification of trends. On the

basis of any outliers noted in the plotted data, the Regional Water Board may direct the Discharger to carry out a preliminary investigation, in accordance with Part II.F of this MRP, to determine whether a release is indicated. Trend analyses shall include identification of current trends, a comparison to previously identified trends, and a discussion of any significant changes in the trends. This shall be prepared for groundwater and any unsaturated/vadose zone monitoring points (including subdrains, lysimeters, or landfill gas).

Each graph shall plot the concentration of one or more constituents at an appropriate scale that allows changes in concentrations to be discerned, including the use of a semi-log scale for concentrations that change by more than three orders of magnitude.

- f. **Summary of Groundwater Conditions.** A written summary of the monitoring results and any changes to the groundwater monitoring system since the previous report. The written summary shall include a discussion of the groundwater flow rate and direction,⁷ the appearance of trends or other information that may indicate a potential change in the hydrogeologic conditions beneath and adjacent to the Facility.
- g. **Evaluation of Groundwater Data.** An evaluation of the groundwater monitoring data analyzed according to the methods described in Part III of this MRP, and whether the analysis indicates a release of waste constituents or waste degradation products from the Facility.
- h. **Leachate Evaluation.** A summary of leachate data for each applicable waste management unit, including any laboratory results and measurements of the height of liquids in LCRS sumps. The Discharger shall also calculate the leakage rate.
- i. **Sludge Evaluation.** A summary of sludge data for each applicable waste management unit.
- j. **Waste Volumes.** A summary of all required information concerning waste volumes for each applicable waste management unit.
- k. **Background Concentration Limits Update.** Reevaluate background concentration limits (required every five years per Part III.A.2.c) and propose any appropriate changes.
- l. **Leachate Data Summary.** A summary of leachate data for each applicable waste management unit, consisting of the monthly total volume of leachate collected during the reporting year from the LCRS

⁷ 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. (Cal. Code Regs., tit 27, § 20415(e)(15).)

and any other leachate collection systems to demonstrate the effectiveness of the leachate collection and removal system. This summary shall contain a brief discussion of the leachate sampling results and volume produced and how the leachate was disposed of during the reporting period. This summary shall also include a table consisting of the last five years of leachate data collected at the Facility.

- m. **Site Conditions Summary.** Include a comprehensive discussion regarding the condition of the Facility, including, but not limited to, interim cover areas, the current operational area, maintenance roads, the erosion and drainage control measures implemented to control run-on and run-off during the rainy season, the condition of monitoring wells, piezometers, and any other monitoring device located at the Facility. The discussion should also highlight any areas of noncompliance observed and repaired during the previous year and should be documented with photographs and inspection reports.
- n. **Compliance Summary.** Include a comprehensive discussion of the compliance issues during the reporting period (the past year), and of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the Order or this MRP.

B. Report Schedule

Annual monitoring reports shall be submitted to the Regional Water Board by February 15 of the year following the reporting period.

C. Standard Reporting Procedures

1. 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.
2. In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner as to clearly illustrate whether the Facility is operating in compliance with the WDRs. Where appropriate, the Discharger shall include supporting calculations (e.g., for monthly averages).
3. The results of any analysis taken more frequently than required at the locations specified in this MRP shall be reported to the Regional Water Board.

