CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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TENTATIVE WASTE DISCHARGE REQUIREMENTS ORDER R5-2025-XXXX

ORDER INFORMATION

Order Type(s):	Waste Discharge Requirements (WDRs)
Status:	Tentative
Program:	Non-15 Discharge to Land
Region 5 Office:	Fresno
Discharger:	O'Neill Beverages Co. LLC
Facility:	Reedley Winery and Distillery
Address:	8418 South Lac Jac Avenue, Parlier, CA 93648
County:	Fresno County
Parcel Nos.:	APNs 363-061-32 and 363-061-55 (Facility) (see Information Sheet, Table 1 for full list of APNs)
CIWQS Place ID:	252286
Prior Order(s):	R5-2014-0045

CERTIFICATION

I, PATRICK PULUPA, Executive Officer, hereby certify that the following is a full, true, and correct copy of the order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 12 December 2025.

_____
PATRICK PULUPA, Executive Officer

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GLOSSARY

amsl	above mean sea level
APN	assessor's parcel number
bsg	below site grade
BOD	biochemical oxygen demand (general term)
BOD_5	[5-day] biochemical oxygen demand at 20 degrees Celsius
BPTC	best practical treatment or control
CEQA	California Environmental Quality Act, Public Resources Code section 21000 et seq
CIMIS	California Management Information Systems
CV-SALTS	Central Valley Salinity Alternatives for Long-Term Sustainability
DO	dissolved oxygen
DWR	Department of Water Resources
EC	electrical conductivity
FDS	fixed dissolved solids
FEMA	Federal Emergency Management Agency
gpd	gallons per day
lb	pounds
lb/ac/day	pounds per acre per day
LAA(s)	land application area(s)
MCL	maximum contaminant level
mg[d]	million gallons [per day]
mgy	million gallons per year
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MRP	Monitoring and Reporting Program
MUN	municipal
NA	not applicable or not available
ND	not detected or non-detect
NPDES	National Pollutant Discharge Elimination System
P&O Study	Prioritization and Optimization Study of the Salt Control Program

GLOSSARY

RL	reporting limit
RWD	Report of Waste Discharge
sMCL	secondary maximum contaminant level
SPRRs	Standard Provisions and Reporting Requirements
TDS	total dissolved solids
Title 22	California Code of Regulations, Title 22
Title 23	California Code of Regulations, Title 23
Title 27	California Code of Regulations, Title 27
TKN	total Kjeldahl nitrogen
TN	total nitrogen
TSS	total suspended solids
US EPA	United States Environmental Protection Agency
WDRs	Waste Discharge Requirements
WQOs	Water Quality Objectives
µg/L	micrograms per liter
µmhos/cm	micromhos per centimeter

FINDINGS

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) finds that:

Introduction

1. The O'Neill Beverages Co. LLC (O'Neill or Discharger) owns and operates the Reedley Winery and Distillery (Facility) at 8418 South Lac Jac Avenue near Reedley in Fresno County. The Facility was previously regulated by Waste Discharge Requirements (WDRs) Order R5-2014-0045, adopted by the Central Valley Water Board on 28 March 2014. WDRs Order R5-2014-0045 authorized an average daily discharge of up to 0.61 million gallons per day (mgd) and 80 million gallons per year (mgy) of process wastewater to approximately 189 acres of adjacent farmland owned by the Discharger for irrigation.

2. On 28 March 2014, the Central Valley Water Board adopted Cease and Desist Order (CDO) R5-2014-0046 requiring the Discharger to address excessive wastewater applications to its land application area (LAA) and degradation of groundwater due to historical operations. CDO R5-2014-0046 required O'Neill to implement necessary improvements to its operations to comply with loading limits for biochemical oxygen demand (BOD), ensure application at reasonable agronomic rates, and comply with groundwater limitations. In addition, the CDO required O'Neill to delineate the horizontal and vertical extent of groundwater degradation beneath the Facility and LAA.

3. In April 2019, Kennedy/Jenks Consultants submitted a Report of Waste Discharge (RWD) on behalf of the Discharger for construction of new wastewater handling and storage measures and expansion of the LAA to address issues with overloading. A revised RWD was submitted by Provost and Pritchard Consulting Group (Provost & Pritchard) in December 2019 to include installation of a Biofiltro® pre-treatment system and further expansion of the LAA to approximately 325 acres. The December 2019 revised RWD also proposed a minor increase in the annual flow limit up to 85.58 mgy. The proposed increase is expected to provide flexibility to the system including capture and reuse of some stormwater. No change to the monthly average discharge limit or increase in production or distillation activities was proposed. The RWD was determined complete on 2 March 2020 following submittal of additional details on the pre-treatment system.

4. The Discharger, as the owner and operator of the Facility and LAA, is responsible for compliance with the WDRs prescribed herein.

5. The following materials are attached and incorporated as part of this Order:

    a. Attachment A – Facility Location Map

    b. Attachment B – Wastewater Pre-treatment System

c. Attachment C – Process Flow Diagram

d. Attachment D – Additional Monitoring Well Data and Graphs

e. Information Sheet

f. Standard Provisions & Reporting Requirements dated 1 March 1991 (1 March 1991 SPRRs)

[https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/std_provisions/wdr-mar1991.pdf]

6. Also attached is **Monitoring and Reporting Program Order (MRP) R5-2025-XXXX**, which requires monitoring and reporting of discharges regulated under these WDRs.

7. With construction of the pre-treatment system, including the Biofiltro® worm beds, Facility operations and waste disposal practices have changed since WDRs Order R5-2014-0045 was adopted. The revised WDRs herein are necessary to reflect existing operations at the Facility and ensure the discharge meets the requirements of current water quality plans and policies.

Regulatory History and Background

8. The Facility has been in operation since prior to the 1950s. WDRs for the Facility were first adopted in February 1959 (WDRs Order 59-096) for discharge of process wastewater and stillage on approximately 36.8 acres of land adjacent to the Facility. The WDRs were updated and replaced in January 1995 with WDRs Order 95-014, which required groundwater monitoring around the LAA. Previous owners of the Facility include Christian Brothers; Heublein, Inc.; and Golden State Vintners.

9. Golden State Vintners purchased the Facility from Heublein, Inc. in May 1995. In 1999 and 2000, the Central Valley Water Board issued Golden State Vintners several Notices of Violation (NOVs) for exceeding authorized flow limits and failure to use adequate land for disposal of stillage waste, leading to overapplication of process wastewater and stillage to the existing 36.8 acres LAA. In response, Golden State Vintners submitted a 6 June 2000 RWD to address expanded operations and increase the LAA to 96 acres.

10. A bottling plant was added to the Facility in 2001 that generates high salinity discharges. Discharges from the bottling plant are routed to a lined Title 27 Class II surface impoundment, which is regulated separately under WDRs Order R5-2021-0058.

11. O'Neill purchased the Facility and assumed operations in 2004, and has submitted updated RWDs in 2006, 2007, and 2011. These RWDs address continued expansion of Facility operations and additional operational changes, including re-routing high-salinity waste streams (e.g., cooling tower, boiler blow down, water softening ion exchange regenerant, etc.) to the Class II surface impoundment, the switch to sprinklers for land application (i.e., irrigation of crops), and further

expansion of the LAA to 156 acres.

12. Historical operations have resulted in significant groundwater degradation beneath the Facility and LAA. The file record provides documentation dating back to 2000 showing evidence of anaerobic conditions, as well as exceedances of water quality objectives (WQOs) in groundwater, particularly for salinity and metals in monitoring wells around the original 36.8-acre LAA.

Facility and Discharge

13. The Facility and LAA consist of approximately 325 acres in Township 15 South Range 23 East, Sections 16, 20, and 21, Mount Diablo Baseline and Meridian (MDB&M) as shown on **Attachment A**. The Facility processing areas occupy Assessor's Parcel Numbers (APNs) 363-061-32 and 363-061-55. The LAA and additional Facility structures including the pre-treatment system and additional warehouse space occupy APNs 363-061-05, 363-061-06, 363-061-13, 363-061-14, 363-061-15, 363-061-16, 363-061-18, 363-061-19, 363-061-22, 363-061-35, 363-061-53, 363-031-11, 363-051-20, 363-051-21, 363-280-06, and 363-280-23. Table 1 of the Information Sheet includes further details about the APNs.

14. Year-round Facility operations include receiving and crushing grapes, fermentation, blending, storage, bottling, and shipping. The highest waste flows generated at the Facility occur during the crush season, between mid-August through November. The Facility also includes a distillery that produces brandy, gin, and bourbon and operates about 110 days per year, primarily between August and November but may extend into April. Currently, the Facility can process up to 200,000 tons of grapes and produces about 20 million gallons of wine and spirits annually. However, actual production may decrease given current market trends.

15. Process wastewater generated at the Facility consists of equipment wash water, tank wash, spent regenerant from water softeners, bottling rinse water, cooling tower and boiler blow down, stillage, and stormwater from processing areas. As discussed previously, bottling rinse water and high salinity waste streams low in organics (i.e., boiler and cooling tower blow down, and water softening ion exchange regenerant) are segregated and discharged to the lined Title 27 Class II surface impoundment regulated separately under WDRs Order R5-2021-0058.

16. Source water for the Facility is provided by two supply wells (PW-1 and PW-3). PW-3 was installed in 2012 and is the primary supply well for Facility operations, with additional water provided by PW-1 as needed. Source water is sampled annually, and the results of the most recent sampling event (December 2024) are presented in **Table 1** below.

Table 1 – Source Water Quality

Constituent/Parameter	Units	PW-01 (12/3/2024)	PW-03 (12/3/2024)
Electrical Conductivity (EC)	µmhos/cm	522	415
Total Dissolved Solids (TDS)	mg/L	300	255
Fixed Dissolved Solids (FDS)	mg/L	310	245
Alkalinity (as CaCO3)	mg/L	215	179
Nitrate (as N)	mg/L	3.2	2.6
Chloride	mg/L	15	11
Sodium	mg/L	32	33
Magnesium	mg/L	16.4	11.9
Potassium	mg/L	5.9	5.4
Sulfate	mg/L	22.5	13.1
Boron	mg/L	<0.05	<0.05
Iron	mg/L	<0.1	<0.1
Manganese	mg/L	<0.03	<0.03

17. Residual solids generated from processing operations include pomace, grape stems, lees, skins, and seeds. In addition, spent diatomaceous earth is generated during the wine filtration process. These solids are stored on concrete pads and regularly removed by an offsite contractor. Organic material is generally distributed to local dairies as cattle feed, while spent diatomaceous earth is used offsite for composting or as a soil amendment. The new wastewater pre-treatment system also generates solid waste, including wood chips, worm castings, and settled sludge/screenings. Sludge and screenings are collected in bins and taken to the solids storage area before being sent offsite for reuse or disposal. Worm castings from the pre-treatment system are cleaned out, as needed, and sold for use as a soil amendment, animal feed, or to inoculate new systems. Substrate (i.e., wood chips) are dried out and then sold for use as landscape bark or returned to the worm beds.

18. Process wastewater contains a mixture of organic materials comprised of grape skins, seeds, and juice, plus rinse water, and chemical additives. Table 2 lists chemical additives currently in use at the Facility and the approximate quantity used annually.

Table 2 – Chemical Additives

Chemical	Quantity
12.5% Sodium hypochlorite	4,000 gallons
50% Sodium hydroxide	2,700 gallons
Winter blend caustic cleaner (4.6% KOH)	12,000 gallons
Summer blend caustic cleaner (46% NaOH)	16,000 gallons
Citric Acid	6,500 pounds
Soda Ash	19,600 pounds
Anhydrous Ammonium (pH adjustment)	Unknown
Magnesium Hydroxide (pH adjustment)	Unknown

19. Stormwater originating from the Facility and processing areas east of Lac Jac Avenue is directed into the wastewater collection system where it is commingled with process wastewater prior to treatment and discharge to the LAA; however, some stormwater runoff from paved areas east of Lac Jac Avenue is captured and discharged to an earthen stormwater basin just west of the Class II surface impoundment. Stormwater runoff from paved areas west of Lac Jac Avenue is captured and discharged to an onsite stormwater basin near the northwest corner of the site, directly north of Field Q.

20. Domestic wastewater generated at the Facility is handled by three separate on-site septic systems regulated by Fresno County. The primary septic system for the main Facility, just south of the winery buildings, consists of a 6,800-gallon septic tank with two leach fields totaling approximately 10,800 square feet. Flows to the primary septic system average from about 1,200 to 1,600 gallons per day (gpd). The design of the other two septic systems is unknown; however, both serve only a few employees and are expected to be smaller than the primary septic system. One is located adjacent to the warehouse buildings west of Lac Jac Avenue, and the other is adjacent to the guard house north of the processing area.

Wastewater Treatment and Reuse

21. The wastewater pre-treatment system consists of a new screening system with secondary containment sized to handle peak flows, three aboveground settling tanks, a lined processing sump (Sump #1), an equalization tank for pH adjustment, 12 concrete aboveground Biofiltro® worm beds, treated water tank, and two lined effluent storage sumps (Sumps #2 and #3) to provide equalization and temporary storage prior to land application. In addition, the system has a lined emergency overflow basin to capture excess flows during peak periods. The lined sumps and overflow basin have a combined storage capacity of about 1.0 million gallons (approximately one day of storage during peak flows) and are each equipped with a synthetic 60-mill high-density polyethylene (HDPE) liner. A site plan showing the

configuration of the pre-treatment system and process flow diagram are provided in **Attachments B and C**, respectively.

22. The pre-treatment system is designed to handle average daily flows of up to 0.625 mgd, with a peak daily flow of 1.15 mgd assuming a minimum hydraulic retention time of about four hours. During low flow periods, treated wastewater will be recycled back through the system to maintain proper moisture conditions within the worm beds.

23. According to the Discharger, the worm beds are divided into four zones that are operated in sequence. During peak flows, multiple zones may be utilized in a day to ensure an effective level of treatment. The beds are tilled regularly, about once a week. In addition, the worm beds are cleaned out and replaced, as needed, about once every two to three years.

24. Table 3 compares average wastewater quality from 2019 (before the Biofiltro® treatment system was installed) with the most recent year (2024) and four-year average since installation of the pre-treatment system (2021 through 2024).

Table 3 – Process Wastewater Quality

Constituent	Units	2019	2024	Four Year Average
pH	Std.	5.0	7.3	7.5
Electrical Conductivity (EC)	µmhos/cm	2,761	3,607	3,857
Biochemical Oxygen Demand (BOD)	mg/L	9,983	1,255	1,697
Total Dissolved Solids (TDS)	mg/L	4,235	2,739	3,082
Fixed Dissolved Solids (FDS)	mg/L	1,670	1,517	1,674
Nitrate as N	mg/L	1.2	2.5	5.3
Total Kjeldahl Nitrogen (TKN)	mg/L	192	118	115
Total Nitrogen (TN)	mg/L	194	121	122
Alkalinity	mg/L	458	1,439	2,053
Calcium	mg/L	85.6	50.6	65.1
Magnesium	mg/L	29.6	86.5	181
Potassium	mg/L	764	368	492
Sodium	mg/L	105	201	97.2
Chloride	mg/L	52.3	37.8	49.1
Sulfate	mg/L	677	55.8	122

Constituent	Units	2019	2024	Four Year Average
Boron	mg/L	1.5	1.4	1.2
Iron	mg/L	2.09	2.2	2.65
Manganese	mg/L	0.29	0.26	0.31

25. Based on effluent quality data, the pre-treatment system provides a high level of treatment, reducing average BOD_5 concentrations by about 80 to 90 percent and total nitrogen by about 30 percent. Further discussion and analysis including a monthly break-down of the changes in BOD_5 and total nitrogen concentrations before and after installation of the pre-treatment system are provided in the attached Information Sheet.

Land application

26. The LAA currently consists of approximately 179 acres of agricultural land planted with a mixture of alfalfa or double cropped with sudan grass and winter wheat, milo, or safflower. The 2019 revised RWD proposed a phased approach for expanding the LAA to 250 acres during Phase 1 and adding additional acres for Phase 2 to bring the total available LAA to 325 acres. The Discharger retracted Phase 2 expansion plans in February 2020. While the Discharger has sufficient land to expand the LAA as proposed, infrastructure improvements (i.e., irrigation lines, filters, and pumps) are still needed in order the utilize any of the additional acreage. These WDRs authorize the discharge to the 325 acres of LAA consistent with the proposed Phase 2 expansion.

27. The water balance provided in the 2019 revised RWD demonstrates that the annual flow limit of 85.85 mgy accounts for about 20 percent of the annual crop demand with approximately 300 mgy of supplemental irrigation water needed for the 250-acre LAA proposed for the Phase 1 LAA expansion. Both the normal year and 100-year wet year water balance(s) assume an 80 percent irrigation efficiency with a leaching fraction of eight to ten percent. According to the Discharger, supplemental irrigation water may be added, as needed, at the start of the pre-treatment system (i.e., Sump #1) to maintain proper conditions within the worm beds when wastewater flows are low, at the end of the system (i.e., Sumps #2 and #3), or directly to the LAA to meet crop demand. Supplemental irrigation flows to each of the sumps are metered and subtracted from the overall volume of water to determine the net flow of process wastewater sent to the LAA.

28. The 2019 revised RWD estimates overall average BOD_5 loading rates for Phase 1 in the range of 1.3 to 69 pounds per acre per day (lbs/ac/day), based on the expanded 250-acre LAA. Calculations assuming a minimum seven day resting period for the existing 179 acres shows the overall cycle average BOD_5 loading rates in the range of 50 to 128 lbs/ac/day depending on the season, with instantaneous daily loadings in excess of 900 lbs/ac/day during peak periods (i.e., crush/distillation season).

29. Table 4 compares the estimated nitrogen loading from process wastewater sent to the existing and 250-acre expanded LAA. The estimated loading rate calculations consider the four-year average total nitrogen concentration in the discharge after the pre-treatment system was installed, and an annual max flow of 85.85 mgy. The estimated crop uptake was calculated based on 2023 plant tissue sampling.

Table 4 – Estimated Annual Nitrogen Loading and Uptake

Total Nitrogen (mg/L)	Estimated Loading 179 acres (lbs/ac/yr)	Estimated Loading 250 acres (lbs/ac/yr)	Estimated Crop Uptake (lbs/ac/year)
130	520	372	533

30. The estimated nitrogen loading to the existing LAA from process wastewater is very close to the estimated crop uptake at the proposed flow of 85.85 mgy if the Discharger only utilizes the existing 179 acres and could cause exceedances in some areas if not managed correctly. The 2024 Annual Report showed overall nitrogen loading to the LAA at current flows was within agronomic rates for most fields. However, Fields C and H saw nitrogen loading slightly exceeding crop uptake, and in 2023 nitrogen loading exceeded crop uptake in Fields A-East, E, and F. This Order requires the Discharger to submit a Wastewater and Nutrient Management Plan and account for residual nitrogen in soil as part of its field management. Expansion of the LAA to 250 acres as proposed in the 2019 revised RWD will improve operations and ensure application at agronomic rates.

31. Salinity in process wastewater is made up of organic and inorganic constituents. Total dissolved solids (TDS) is a measure of the overall concentration of salts in the discharge. Volatile organic salts typically break down in the environment leaving the inorganic portion, generally measured as fixed dissolved solids (FDS), which have the potential to percolate to groundwater if not taken up by plants. Therefore, estimated salt loading focuses on the inorganic portion or FDS in the discharge. Utilizing effluent concentration data, about 50 percent of the TDS in the discharge is present as inorganic FDS.

32. The salt balance focuses on the estimated salt load of FDS and potassium (which makes up about 30 percent of the FDS in the discharge) from process wastewater to the LAA. Table 5 compares salt loading for both the existing and proposed 250-acre LAA using the four-year average concentration of FDS and potassium in the discharge, after the pre-treatment system was installed, assuming an annual flow limit of 85.85 mgy.

Table 5 – Estimated Annual Salt Loading

Constituent	Average Concentration (mg/L)	Annual Flow (mgy)	Estimated Loading 179 acres (lbs/ac/year)	Estimated Loading 250 acres (lbs/ac/year)
FDS	1,597	85.85	6,388	4,573
Potassium	547	85.85	2,188	1,566

33. Even with expansion of the LAA to 250 acres, the annual salt load from process wastewater will likely exceed the crop uptake for FDS and potassium estimated at about 3,000 lbs/ac/year and 220 to 400 lbs/ac/year, respectively (from published references and tissue sampling). The Discharger implements several measures including participation in the Salt Control Program and implementation of a May 2020 Salinity Control Plan to minimize the overall salinity of its discharge (i.e., enhanced housekeeping to minimize spills and use of cleaners, sanitation controls, chemical replacement, and segregation and disposal of high-strength salinity waste streams [i.e., cooling water blow-down, boiler blow-down, and water softening ion exchange regenerant] to the lined Title 27 Class II surface impoundment).

Site-Specific Conditions

Topography, Climate, and Land Use

34. The Facility and LAA lay adjacent to the Kings River on the east side of the Central Valley. The area is primarily underlain by river channel deposits. An unlined canal (Smith Ferry Canal) bisects the LAA from north to south. Surface topography is relatively level with surface elevations between 340 and 350 feet above mean sea level (amsl). However, there is a drop in elevation of about 25 feet on eastern portion of the LAA adjacent to the Kings River. Some portions of the LAA lay at this lower elevation at about 320 feet amsl.

35. Federal Emergency Management Agency (FEMA) Map 06019C2680H updated 18 February 2009 shows the Facility and majority of the LAA are in Zone X outside of the 100-year flood plain. Portions of the future LAA specifically Field K and a small portion of Field L are in an area with a one percent chance of flooding to an average depth of about one foot. These areas are protected by field berms and levees and the Order contains specific setbacks and specifications to protect against potential runoff due to flooding.

36. According to the Web Soil Survey published by the United States Department of Agriculture, Natural Resources Conservation Service (USDA NRCS), soils in the vicinity of the Facility and LAA consists predominantly of Hanford fine sandy loam (36.6 percent), Hesperia fine sandy loam (12.3 percent), and Hanford fine sandy loam with hard substratum (12 percent). The permeability of these soils is slow to moderately rapid, ranging from about 0.13 to 3.75 inches/hour.

37. Additionally, the USDA NRCS indicates that the Hanford and Hesperia fine sandy

loams have a land capability classification of "1" with few limitations to restrict use. Hanford fine sandy loam with hard substratum has a land capability classification of "3s," with severe limitations due to shallow rooting depth, stones, and low water holding capacity.

38. Soil boring logs recorded during onsite drilling activities identify alternating layers of sands and silts with occasional layers of very dense soils and clays down to about 80 feet below site grade (bsg). A relatively thick layer of stiff soils and clays was observed between about 58 and 65 feet bsg in some borings.

39. MRP R5-2014-0145 required the Discharger to analyze soil samples at 0.5-, 2.5-, 5-, 7.5-, and 10-feet bsg at seven locations within the LAA and two background locations (BG-1 and BG-2). Soil samples are collected annually and analyzed for pH, cation exchange capacity (CEC), sodium, chloride, potassium, and nitrogen (i.e., nitrate as N, TKN, and ammonia). Average results for 2021 through 2024 for CEC, nitrate (as N), TKN, and the median pH results for each sample at 0.5-, 5-, and 7.5-feet bsg are shown in Table 6. Average results are accompanied by associated ranges, shown in brackets.

Table 6 – Soil Sampling Results 2021 – 2024

LAA/Field	Depth (feet bsg)	CEC (meq/100g)	Nitrate as N (mg/kg)	TKN (mg/kg)	pH (Std. units)
A-East	0.5	5.5 [1.6 - 11.8]	19 [7 - 37]	2363 [1650 - 3620]	7.1 [6.4 - 7.8]
A-West	0.5	5.5 [4.1 - 9.5]	48 [13 - 89]	2490 [2200 - 2670]	6.3 [5.7 - 7.4]
D	0.5	5.4 [2.3 - 8.2]	9.8 [3 - 21]	1910 [1220 - 2750]	7.7 [6.8 - 8.0]
E	0.5	8.8 [3.2 - 11.4]	32 [9 - 66]	1535 [1210 - 1920]	8.1 [7.7 - 8.4]
I	0.5	5.0 [1.4 - 7.6]	12 [6 - 25]	756 [609 - 932]	8.0 [7.3 - 8.3]
J-1	0.5	3.2 [1.2 - 4.9]	7.8 [3 - 19]	411 [340 - 532]	7.9 [7.7 - 8.2]
J-2	0.5	10.1 [6.3 - 18.8]	19 [4 - 39]	935 [762 - 1190]	7.4 [6.6 - 7.9]
BG-1	0.5	1.9 [0.8 - 3.9]	2.1 [nd - 3]	159 [109 - 227]	7.5 [6.8 - 8.4]
BG-2	0.5	2.9 [1.5 - 3.5]	5.2 [1 - 12]	366 [168 - 478]	6.7 [6.2 - 7.4]

LAA/Field	Depth (feet bsg)	CEC (meq/100g)	Nitrate as N (mg/kg)	TKN (mg/kg)	pH (Std. units)
A-East	5.0	2.1 [1.2 - 2.9]	11 [8 - 12]	190 [134 - 271]	6.7 [6.0 - 7.0]
A-West	5.0	2.8 [0.1 - 5.6]	7.3 [nd - 14]	379 [281 - 466]	7.3 [6.6 - 7.9]
D	5.0	2.7 [nd - 6]	12.4 [nd - 26]	191 [73 - 435]	7.4 [6.6 - 7.8]
E	5.0	5.8 [nd - 7.4]	37 [22 - 57]	220 [138 - 354]	8.6 [8.0 - 8.9]
I	5.0	5.7 [4.2 - 7.8]	6.1 [1 - 15]	112 [42 - 187]	8.2 [8.0 - 8.4]
J-1	5.0	1.3 [nd - 2.2]	5.5 [nd - 21]	84 [62 - 101]	8.3 [7.7 - 8.8]
J-2	5.0	5.6 [3.9 - 8.5]	13 [1 - 30]	214 [139 - 345]	7.2 [6.6 - 7.7]
BG-1	5.0	2.2 [0.5 - 3.4]	1.3 [nd - 3]	50 [32 - 73]	7.8 [7.6 - 7.9]
BG-2	5.0	5.2 [nd - 7.2]	7.3 [nd - 19]	82 [36 - 112]	7.2 [6.2 - 7.6]
A-East	7.5	2.2 [1 - 3.7]	10 [8 - 17]	183 [95 - 277]	6.5 [6.0 - 7.0]
A-West	7.5	1.9 [nd - 4.8]	8.9 [nd - 21]	350 [255 - 479]	7.4 [6.9 - 8.1]
D	7.5	2.8 [1.7 - 3.8]	8.8 [nd - 17]	122 [52 - 219]	7.8 [7.2 - 8.1]
E	7.5	0.9	67	197	7.8
I	7.5	3.9 [1.7 - 5.4]	21 [5 - 42]	77 [42 - 110]	8.3 [7.9 - 8.6]
J-1	7.5	2.2 [nd - 2.6]	5.8 [1 - 19]	65 [34 - 81]	8.5 [8.4 - 8.7]
J-2	7.5	3.7 [0.8 - 6.2]	16 [1 - 47]	149 [80 - 307]	7.8 [7.6 - 7.9]
BG-1	7.5	2.7 [1.7 - 4.1]	6.2 [nd - 16]	37 [27 - 53]	8.1 [7.8 - 8.5]

LAA/Field	Depth (feet bsg)	CEC (meq/100g)	Nitrate as N (mg/kg)	TKN (mg/kg)	pH (Std. units)
BG-2	7.5	3.3 [0.9 - 6]	4.8 [nd - 19]	51 [21 - 93]	7.6 [6.9 - 7.9]

40. Soil monitoring results indicate that background concentrations for nitrate and TKN are generally lower than those collected within the LAA. In addition, samples collected within the historical LAA (Fields A-East and A-West) show a lower pH range and elevated nitrate and TKN compared to samples collected in other parts of the LAA. Nitrate and TKN generally decrease with depth, while the pH generally increases. The CEC is generally elevated within the LAA compared to background samples; however, the CEC within the original LAA (Fields A-East and A-West) is generally lower when compared to the rest of the LAA except for sample J-1 which has a low CEC similar to background levels. Variability in soil constituent concentrations, where elevated (or low in the case of pH and CEC) particularly within the original 36-acre LAA, is likely due to historical overapplication of wastewater.

41. The climate in the Central Valley is characterized by hot dry summers and mild winters. The rainy season generally extends from November through April. Occasional rains occur during the spring and fall months, but summer months are dry. Based on publications from the Department of Water Resources (DWR) and the Western Regional Climate Center, annual rainfall for the Reedley area averages about 10.1 inches, with a 100-year return period wet year rainfall of about 23.6 inches. From the California Irrigation Management System (CIMIS), the mean referenced evapotranspiration rate (ETo) for the nearby Parlier station in 2024 was about 57.5 inches.

42. Land use in the vicinity of the Facility is primarily agricultural. The Kings River runs along the eastern boundary of the LAA, and the Riverview Elementary School adjoins the Facility to the south. Riverview Elementary has its own onsite well and septic system, which serves approximately 400 students and staff. In addition, the Reedley Community College's sports fields are located within 1,000 feet west of the LAA's eastern boundary. Crops in the area consist predominantly of grapes, fruit trees, and hay or grain crops. However, given the climate, soil conditions, and presence of high-quality groundwater, it is possible for salt sensitive crops to be grown in the area.

Supplemental Irrigation Water

43. Supplemental irrigation water is supplied by several irrigation supply wells as well as surface water from the Consolidated Irrigation District. Samples of the irrigation wells and surface water from the Consolidated Irrigation District are collected annually. A summary of the supplemental irrigation quality for 2024 is provided in **Table 7.**

Table 7 – Irrigation Water Quality

Constituent	Units	Irrigation Supply Wells	Consolidated Irrigation District
EC	µmhos/cm	256 – 538	420 – 498
Alkalinity (as $CaCO_3$)	mg/L	94 – 257	3.9 – 163
Chloride	mg/L	6.6 – 10.3	0.4 – 0.4
TDS	mg/L	165 – 350	235 – 290
FDS	mg/L	130 – 230	170 – 240
Nitrate (as N)	mg/L	0.2 – 2.9	0.05 – 0.5
Calcium	mg/L	21 – 54	1.7 – 2.2
Magnesium	mg/L	6.9 – 20	0.9 – 1.2
Potassium	mg/L	0.1 – 25	0.2 – 6.4
Sodium	mg/L	15 – 24	1.5 – 1.7
Sulfate	mg/L	4.9 – 14	0.9 – 31
Iron	mg/L	0.2 – 4.4	1.4 – 4.9
Manganese	mg/L	0.05 – 0.43	0.07 – 0.23

Regional Groundwater Occurrence and Quality

44. Information on regional depth to groundwater and groundwater elevation maps are available on the DWR Sustainable Groundwater Management Act Data Viewer (https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#gwlevels). The direction of regional groundwater flow is to the southwest, away from the Kings River. Groundwater elevation contours for spring 2022 and 2023 show groundwater flows generally to the south with depth-to-groundwater underlying the Facility between 60 and 70 feet bsg.

45. Staff reviewed the State Water Resources Control Board's (State Water Board) Groundwater Ambient Monitoring Program (GAMA) database (https://www.waterboards.ca.gov/gama/) and identified several up-gradient and down-gradient wells within about two miles of the Facility with nitrate (as N) data. These results, summarized in **Table 8**, are highly variable, with nitrate exceeding the WQO of 10 mg/L both up-gradient and down-gradient of the Facility and LAA. Most of the wells with nitrate in excess of the WQO are located at some distance away from the Kings River (approximately one mile and greater). Available well data from Riverview Elementary (screened between 220 and 250 feet bsg) immediately down-gradient of the Facility and LAA contains nitrate concentrations below the WQO, at around 5.9 mg/L in recent samples.

Table 8 – Regional Groundwater Quality for Nitrate

Well Number	Date	Screened Interval (feet bsg)	Gradient Position	Nitrate as N (mg/L)
AGW080025034	12/30/2024	Unknown	Up-gradient	17
AGW080016752	12/15/2020	Unknown	Up-gradient	16
AGW080023882	06/28/2023	Uknown	Up-gradient	2.3
S3-MACK-K39	07/25/2023	180 – 200	Up-gradient	5.8
AGW080024196	12/17/2024	Unknown	Up-gradient	0.34
AGW080014553	10/13/2020	Unknown	Down-gradient	2.7
AGW080018248	11/19/2021	Unknown	Down-gradient	14
AGW080014552	10/13/2020	Unknown	Down-gradient	5.8
Riverview Elementary	06/21/2024	220 – 240	Down-gradient	5.9
AGW080015713	12/16/2022	Unknown	Down-gradient	15
CA10000547_001	01/07/2016	Unknown	Down-gradient	33

Local Groundwater Conditions

46. Groundwater monitoring wells were first installed at the Facility, around the original LAA, in 1995. Over the years, additional monitoring wells have been added to cover the expanded LAA and to replace monitoring wells that have gone dry. The groundwater monitoring well network is currently comprised of about 26 monitoring points (monitoring wells MW-1 through MW-26) as well as five monitoring points around the lined Class II Surface Impoundment (monitoring wells SI-1 through SI-5). Several of these monitoring wells (MW-8, MW-9, MW-10, MW-11, MW-12, and MW-13 and SI-1, SI-2, and SI-3) are usually dry and have been replaced with newer monitoring wells under approval from the Central Valley Water Board, as follows:

    - SI-01, SI-02, and SI-03 were replaced with SI-04 and SI-05
    - MW-08 and MW-09 were replaced by MW-25
    - MW-10 and MW-11 were replaced by MW-26
    - MW-12 and MW-13 were replaced by MW-24

    One monitoring well, MW-23 A/B, consists of a nested pair, which monitors first-encountered groundwater (between 54 - 86 feet bsg; MW-23A) and a deeper zone (between 115 – 130 feet bsg; MW-23B) down-gradient of the Facility and LAA.

47. Monitoring wells are sampled quarterly. The general direction of local groundwater flow is to the west-southwest and away from the Kings River. Active monitoring wells are generally divided into three groups (see **Attachment A** for approximate monitoring well locations):

1. Up-Gradient consists of monitoring wells MW-15, MW-16, MW-17, MW-21, and MW-25;

2. Interior (located around the original 36.8-acre LAA) consists of monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-14, MW-19, MW-22, SI-4, and SI-5; and

3. Down-Gradient consists of monitoring wells MW-18,, MW-20, MW-22, MW-23A, MW-23B, MW-24, and MW-26.

Table 9 presents average groundwater quality results from the monitoring wells for several constituents for 2020 through 2024. Sample results in bold exceed WQOs. A "ND" with a value in parentheses indicates that the constituent was not detected in the sample, and the method detection limit is the value shown in parentheses. Additional analytical data and monitoring well construction details are included in **Attachment D**.

Table 9 – Average Groundwater Quality Data (2020 - 2024)

Monitoring Wells	EC (µmhos/cm)	Alkalinity as CaCO3 (mg/L)	Nitrate as N (mg/L)	Ammonia (mg/L)	Potassium (mg/L)	Manganese (mg/L)
WQOs (see 1 below)	**700**	**NA**	**10**	**NA**	**NA**	**0.05**
Up-Gradient						
MW-15	573	204	6.5	ND (0.1)	3.0	ND (0.01)
MW-16	354	132	3.5	ND (0.1)	2.5	ND (0.01)
MW-17	381	111	7.6	ND (0.1)	2.1	ND (0.01)
MW-21	388	127	3.2	ND (0.1)	2.8	ND (0.01)
MW-25	508	162	5.7	0.1	2.6	ND (0.01)
Interior						
MW-1	**1,971**	942	0.7	35.5	260	**1.95**
MW-2	**1,257**	559	ND (0.5)	24.3	123	**1.41**
MW-3	**2,200**	1,020	0.8	14.1	271	**2.51**
MW-4	**2,156**	832	0.9	29.4	327	**1.24**
MW-5	400	136	6.6	ND (0.1)	3.1	ND (0.01)
MW-6	**1,482**	595	**18.9**	ND (0.1)	46	**0.68**
MW-7	**822**	280	7.6	2.2	75	0.05
MW-14	**1,162**	545	0.6	30.4	146	**0.15**
MW-19	**1,156**	472	**20.3**	ND (0.1)	7.1	ND (0.01)
MW-22	**1,097**	342	**19.4**	ND (0.1)	5.9	ND (0.01)
SI-4	674	284	**11.2**	ND (0.1)	3.6	ND (0.01)

Monitoring Wells	EC (µmhos/cm)	Alkalinity as CaCO3 (mg/L)	Nitrate as N (mg/L)	Ammonia (mg/L)	Potassium (mg/L)	Manganese (mg/L)
SI-5	**806**	378	2.8	2.5	28.6	**1.69**
Down-Gradient						
MW-18	**851**	337	**15.4**	0.1	5.0	ND (0.01)
MW-20	**773**	252	**14.9**	ND (0.1)	4.6	ND (0.01)
MW-23A	327	114	**11.2**	ND (0.1)	2.2	ND (0.01)
MW-23B	604	252	ND (0.5)	ND (0.1)	4.9	ND (0.01)
MW-24	**980**	339	**18.4**	ND (0.1)	6.0	ND (0.01)
MW-26	**1,055**	352	**25.0**	ND (0.1)	5.3	ND (0.01)

1. WQOs for EC of 700 µmhos/cm recommended limit for protection of agricultural uses; WQO for Nitrate as N of 10 mg/L primary maximum contaminant level (MCL); WQO for manganese of 0.05 mg/L secondary MCL.

48. Based on available groundwater data:

a. Groundwater quality in the area is good with respect to salinity and nitrate, with EC levels below 700 µmhos/cm and nitrate (as N) below 10 mg/L in up-gradient monitoring wells.

b. Groundwater degradation appears to be centered in the interior of the property, around the original 36.8-acre LAA, with elevated EC, alkalinity, and potassium observed in most interior monitoring wells. Manganese is also present above the WQO in most interior monitoring wells. Nitrate in interior monitoring wells is generally at or near the detection limit (0.5 mg/L), while ammonia is present at concentrations greater than 10 mg/L in most interior monitoring wells, except MW-6, which has ammonia below detection levels but contains nitrate above the WQO, and MW-5, which generally has constituent concentrations similar to up-gradient monitoring wells.

c. Down-gradient monitoring wells generally show elevated salinity and nitrate above WQOs, though salinity concentrations are lower than observed in most interior monitoring wells and ammonia is non-detect. MW-23A, the furthest down-gradient monitoring well, has an average EC of 327 µmhos/cm, similar to most up-gradient monitoring wells. Average nitrate in MW-23A since 2020 is just above the WQO at 11.2 mg/L; however, more recent sampling since 2023 indicates that nitrate has decreased to about 6.9 mg/L, which similar to up-gradient monitoring wells. The reason for elevated nitrate (as N) in earlier samples is unknown, it could be related to construction of the monitoring well, local agricultural conditions, or regional changes in groundwater levels. Alkalinity and potassium concentrations in down-gradient monitoring wells are slightly above up-gradient concentrations though well below concentrations in interior monitoring wells, except MW-23A which is similar to up-gradient

monitoring wells. Manganese, iron, and arsenic are non-detect in all down-gradient monitoring wells.

49. Staff prepared concentration heat maps using Microsoft Excel's 3D Maps function to compare older groundwater data collected from 2008 to 2012 with more recent data collected in October 2020 and October 2024 (before and after the pre-treatment system became operational) to evaluate groundwater conditions in the area. Copies of the heat maps for specific constituents of concern (i.e., ammonia, nitrate (as N), alkalinity, and potassium) related to the discharge are provided in **Attachment D**. The heat maps show a relatively stable plume centered beneath the original 36-acre LAA and there is no evidence to indicate that the plume is expanding or migrating off-site.

50. Kennedy/Jenks Consultants submitted a *Groundwater Assessment Technical Report* (Report), dated 30 April 2020, which evaluated groundwater conditions in the vicinity of the Facility as part of the effort to define the horizontal and vertical extent of groundwater degradation due to historical operations at the Facility, and as required by CDO R5-2014-0046. The Report was signed and stamped by Peter J. Murphy (PG 7163). As part of the assessment, data were collected from existing monitoring wells, onsite irrigation wells, cone penetrometer testing (CPT), and sampling of nearby supply wells. These data were used to develop isoconcentration maps that delineate the extent of groundwater degradation related to the Facility's discharge. The findings from the Report are discussed below:

    a. Geochemical modeling shows that groundwater quality to the west of Lac Jac Avenue is, at most, only partially influenced by the discharge.

    b. The horizontal extent of ammonia and manganese degradation in shallow groundwater is limited to just south of SI-05. Monitoring points to the east, west and south of SI-05 (i.e., CPT-3, CPT-6, SI-04, and MW-23A) were all non-detect.

    c. The presence of elevated salinity (i.e., EC, TDS, and chloride) in monitoring wells west of MW-8 is likely attributable to an unidentified source and only partially, if at all, related to the discharge.

    d. In the vicinity of the original LAA, nitrate is not present or is present at very low concentrations because nitrogen is present as ammonia. The transition between ammonia and nitrate occurs south and west of the original LAA around MW-19 and SI-5.

    e. The vertical extent of groundwater impacts from LAA operations appears limited to the upper 30 feet of shallow groundwater based on sampling data from deeper monitoring points (i.e., CPT-3, CPT-5, EX-1 and MW-23B) inside and down-gradient of the original LAA.

Legal Authorities

51. The ability to discharge waste is a privilege, not a right, and adoption of this Order shall not be construed as creating a vested right to continue discharging waste. (Wat. Code, § 13263, subd. (g).)

52. This Order, in part, and its associated MRP are adopted pursuant to Water Code section 13267, subdivision (b)(1), which provides as follows:

> *[T]he regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste … shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports and shall identify the evidence that supports requiring that person to provide the reports.*

The reports required under this Order, as well as under the separately issued MRP, are necessary to verify and ensure compliance with the WDRs. The burden associated with such reports is reasonable relative to the need for their submission.

53. This Order is adopted pursuant to Water Code section 13263, subdivision (a), which provides, in pertinent part, as follows:

> *The regional board, after any necessary hearing, shall prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge…, with relation to the conditions existing in the disposal area or receiving waters upon, or into which, the discharge is made or proposed. The requirements shall implement any relevant water quality control plans that have been adopted, and shall 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.*

Compliance with section 13263, subdivision (a), including implementation of applicable water quality control plans, is discussed in the findings below.

Basin Plan Implementation

Beneficial Uses of Water

54. This Order implements the Central Valley Water Board's *Water Quality Control Plan for the Tulare Lake Basin* (Basin Plan), which designates beneficial uses for surface water and groundwater and establishes WQOs necessary to preserve such

beneficial uses. (See Wat. Code, § 13241 et seq.)

55. The Facility is within the Consolidated Hydrologic Area (No. 551.70), as depicted on interagency hydrologic maps prepared by the State Water Board. Local drainage is to the Kings River. Per the Basin Plan, beneficial uses of underlying groundwater in the vicinity of the Facility are municipal and domestic supply (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial process supply (PRO).

Water Quality Objectives

56. The Basin Plan establishes a numeric WQO for total coliform organisms in groundwater and narrative WQOs for chemical constituents, tastes and odors, and toxicity in groundwater.

57. The numeric WQO for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in MUN designated groundwater.

58. The narrative WQO for chemical constituents in groundwater generally provides that groundwater shall not contain constituents in concentrations that adversely affect beneficial uses. The Basin Plan specifies that MUN designated waters must, at a minimum, meet the MCLs specified in California Code of Regulations, title 22 (Title 22). The Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

59. The narrative WQO for tastes and odors in groundwater provides that groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

60. The narrative WQO for toxicity in groundwater provides that groundwater shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses.

61. Quantifying a narrative WQO requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numeric limitations to implement the narrative objective. In establishing a specific numeric interpretation of a narrative WQO, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as *Water Quality of Agriculture* by Ayers and Westcot (1985) and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an electrical conductivity (EC) of less than 700 µmhos/cm. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with groundwater EC

up to 3,000 µmhos/cm, if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop. The list of crops in Finding 42 is not intended as a definitive inventory of crops that are or could be grown in the area affected by the discharge.

Salt Control and Nitrate Control Programs

62. The Central Valley Water Board adopted Basin Plan amendments incorporating new programs to address ongoing salt and nitrate accumulation in the Central Valley at its 31 May 2018 Board Meeting (Resolution R5-2018-0034). The Basin Plan amendments became effective on 17 January 2020 and were revised by the Central Valley Water Board in 2020 to make targeted revisions requested by the State Water Board with Resolution R5-2020-0057. The revisions to the Basin Plan amendments became effective on 10 November 2021.

    (https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2020-0057_res.pdf).

63. Under the Salt Control Program, dischargers that are unable to comply with stringent salinity requirements may instead be subject to performance-based requirements, as determined appropriate by the Central Valley Water Board, and participate in a basin-wide effort known as the Prioritization and Optimization Study (P&O Study) to develop a long-term salinity strategy for the Central Valley. The Discharger was issued an identification number for the Salt Control Program **(CV-SALTS ID 2427)**. In 2021, the Discharger elected to participate in the P&O Study (Alternative Approach) and is currently in good standing with the program. To maintain existing salt discharges and minimize salinity impacts this Order sets an annual performance-based limit for FDS of **2,100 mg/L** on the discharge sent to the LAAs. This limit considers the four-year annual average FDS concentration in the discharge of 1,674 mg/L, and includes a 25 percent contingency to account for drought conditions and water conservation efforts. With the expansion of the LAA to 250 acres this limit will keep salinity mass loading similar to existing levels.

64. The Nitrate Control Program is a prioritized program, the Facility is within Groundwater Basin 5-022.08 (San Joaquin Valley – Kings), which is a Priority 1 Basin. Notices to Comply for dischargers in Priority 1 basins were sent in May 2020. These notices provided dischargers with a choice to select an individual permitting approach (Pathway A) or a collective permitting approach (Pathway B). Under the collective approach, dischargers would jointly form "Management Zones" that fulfill the requirements for the Nitrate Control Program. In response to the Notice to Comply, the Discharger selected Pathway B and joined the Kings Water Alliance.

65. Under the Nitrate Control Program, dischargers that cause or contribute to nitrate pollution in groundwater must qualify for a limited term "exception" from meeting nitrate limits in groundwater. Compliance time schedules must be as short as practicable and are not to exceed 35 years. The Central Valley Water Board will only grant exceptions on finding that all elements of the Board's Exceptions Policy are

met. For nitrate, the Exceptions Policy dictates that exceptions will not be considered unless an adequate supply of clean, safe, reliable and affordable source of drinking water is available for those who have been adversely affected by the non-compliant discharge.

66. Management Zones in Priority 1 Basins were required to submit Management Zone Implementation Plans (MZIPs). The Kings Water Alliance submitted an MZIP on 5 September 2023. The MZIP was deemed complete by the Board's Executive Officer in November 2023. The MZIP contains a proposal for how dischargers within the Kings Water Alliance Management Zone will meet requirements for the Nitrate Control Plan and the Exceptions Policy.

67. To meet the requirements of the Nitrate Control Plan, the Kings Water Alliance Management Zone MZIP includes sector-based Nitrate Reduction Programs, including one for Non-15 dischargers such as O'Neill. The MZIP proposes that the Dischargers prepare and submit a facility-specific Nitrate Reduction Work Plan that would characterize the facility's impact on groundwater, quantify the facility's nitrate loading to the Upper Zone of groundwater, estimate the necessary improvements to the facility's discharge to comply with the Management Zones' Groundwater Protection Target(s) and/or other developed compliance metrics, and provide an implementation schedule that will ensure the facility complies with the Nitrate Control Program.

68. The Kings Water Alliance Management Zone MZIP proposes to meet the requirements of the Exceptions Policy by, among other things, continuing an interim drinking water program that performs outreach to residents potentially affected by nitrate contamination, offering free nitrate well testing, and providing free replacement water to households whose wells are found to exceed the nitrate drinking water standard.

69. The MZIP will serve as the basis for permit amendments for all dischargers in the Management Zone. The Board proposes to consider a package of permit amendments for all dischargers in the Management Zone in a single permitting action, where the Board will also make findings as to whether the requirements of the Exception Policy are met by the proposals in the MZIP. In the interim, the Discharger is subject to a Conditional Prohibition that requires that the discharger continue to participate in funding and implementing the drinking water program described in the MZIP.

70. As these strategies are implemented, the Central Valley Water Board may find it necessary to modify the requirements of these WDRs to ensure the goals of the Salt and Nitrate Control Programs are met. As such, this Order may be amended or modified to incorporate any newly applicable requirements. More information regarding this regulatory planning process can be found on the Central Valley Water Board's CV-SALTS website (https://www.waterboards.ca.gov/centralvalley/water_issues/salinity).

Special Considerations for High Strength Wastewater

71. For the purpose of this Order, "high strength wastewater" is defined as wastewater that contains concentrations of readily degradable organic matter that exceeds typical concentrations for domestic sewage. Such wastes contain greater than 500 mg/L BOD_5. Typical high strength waste includes septage, some food processing (e.g., slaughterhouse) wastes, winery waste, and rendering plant waste.

72. Excessive application of high strength wastewater to land can create objectionable odors, soil conditions that are harmful to crops, and degradation of underlying groundwater with nitrogen species and metals, as discussed below. Such groundwater degradation can be prevented or minimized through implementation of best management practices such as planting crops to take up nutrients or maximizing oxidation of BOD to prevent nuisance conditions.

73. Regarding BOD, excessive application can deplete oxygen in the vadose zone and lead to anoxic conditions. At the ground surface this can result in nuisance odors and fly breeding. Below the ground surface, when insufficient oxygen is present, anaerobic decay of organic matter can create reducing conditions that convert metals naturally present in the soil from relatively insoluble (oxidized) forms into more soluble reduced forms. This condition can be exacerbated by acidic soil and/or wastewater. If the reducing conditions do not reverse as the percolate travels down through the vadose zone, these dissolved metals (primarily iron, manganese, and arsenic) may degrade groundwater quality. Many aquifers contain enough dissolved oxygen to reverse the process, but excessive BOD_5 loading over extended periods may cause pollution and impact beneficial uses.

74. Typically, irrigation with high strength wastewater results in high BOD_5 loading on the day of application. It is reasonable to expect some oxidation of BOD_5 at the ground surface within the evapotranspiration zone, and below the root zone in the vadose (or unsaturated) zone. The maximum BOD_5 loading rate that can be applied to land without creating nuisance conditions or leaching of metals can vary significantly depending on soil conditions and operation of the land application system.

75. *Pollution Abatement in the Fruit and Vegetable Industry*, published by the United States Environmental Protection Agency (US EPA), recommends BOD_5 loading rates in the range of 36 to 600 lbs/acre/day to prevent nuisance, but indicates higher loading may be appropriate under certain conditions. The studies that supported this report did not evaluate actual or potential groundwater degradation associated with those rates. There are few studies that have attempted to determine maximum BOD_5 loading rates for protection of groundwater quality. Those that have been done are not readily adapted to the varying soil, groundwater, and climate conditions prevalent throughout the Central Valley

76. The California League of Food Processors' *Manual of Good Practice for Land Application of Food Processing/Rinse Water* (*Manual of Good Practice*) proposes

risk categories associated with particular BOD_5 loading rates as follows:

a. Risk Category 1: (less than 50 lbs/acre/day; depth to groundwater greater than 5 feet). Indistinguishable from good farming operations with good distribution important.

b. Risk Category 2: (less than 100 lbs/acre/day; depth to groundwater greater than 5 feet). Minimal risk of unreasonable groundwater degradation with good distribution more important.

c. Risk Category 3: (greater than 100 lbs/acre/day; depth to groundwater greater than 2 feet) Requires detailed planning and good operation with good distribution very important to prevent unreasonable degradation, as well as use of oxygen transfer design equations to consider site specific application cycles and soil properties and special monitoring.

The *Manual of Good Practice* recommends allowing a 50 percent increase in BOD_5 loading rates in cases where sprinkler irrigation is used but recommends that additional safety factors be used for sites with heavy and/or compacted soils.

77. Although it has not been subject to a scientific peer review, the *Manual of Good Practice* provides science-based guidance for BOD_5 loading that, if fully implemented, is considered a best management practice to prevent groundwater degradation due to reduced metals.

78. Projected average cycle BOD_5 loading rates to the existing LAA range between 50 and 128 lbs/ac/day depending on the season with instantaneous daily loadings in excess of 900 lbs/ac/day during the crush and distillation season as discussed in Finding 28. These WDRs establish a cycle average BOD_5 loading rate of 150 lbs/acre/day for the majority of the LAA consistent with the use of sprinkler irrigation in areas with good soil conditions to prevent odor conditions from occurring and minimize the potential groundwater degradation from reduced metals. The WDRs also set a lower cycle average BOD_5 loading rate of 100 lbs/ac/day to those areas within the original 36.8-acre LAA with reduced assimilative capacity due to historical overloading (i.e., Fields A-East and A-West) provided that sprinkler irrigation methods are employed; otherwise, a cycle average BOD_5 loading rate of 50 lbs/ac/day shall apply to Fields A-East and A-West.

Antidegradation Policy

79. State Water Board Resolution 68-16, *Statement of Policy with Respect to Maintaining High Quality Waters of the State* (Antidegradation Policy), which is incorporated as part of the Basin Plan, prohibits the Central Valley Water Board from authorizing degradation of "high quality waters" unless it is shown that the discharge(s) causing such degradation will be consistent with the maximum benefit to the people of California, will not unreasonably affect beneficial uses, and will not result in water quality worse than applicable WQOs. Any discharge to high quality waters must meet requirements that will result in the best practicable treatment or

control (BPTC) necessary to assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the State will be maintained.

80. The Antidegradation Policy applies when an activity discharges to high quality waters and will result in some degradation of such high-quality waters. "High quality waters" are defined as those waters where water quality is more than sufficient to support beneficial uses designated in the Basin Plan. Whether a water is high-quality is established on a constituent-by-constituent basis, which means that an aquifer can be considered a high-quality water with respect to one constituent, but not for others (SWRCB Order No. WQ 91-10). If the activity will not result in discharge of waste to high-quality waters, the Antidegradation Policy does not apply.

81. As discussed previously, the Discharger has a groundwater monitoring well network consisting of 32 monitoring wells (23 active monitoring wells) which monitors the quality of first-encountered groundwater in and around the Facility and LAA. A search of the National Water Quality Monitoring Council Water Quality Portal identified one well within about two miles of the site with pre-1968 data. Given that the Facility has been in operation since the 1950's, compliance with the Antidegradation Policy will be determined based partly on pre-1968 water quality and up-gradient groundwater, as it likely represents the earliest record of groundwater quality with the least amount of impact from historical Facility operations. Table 10 below compares the four-year average effluent concentration since the pre-treatment system was installed with pre-1968 data, and monitoring data from up-gradient monitoring wells (MW-15, MW-16, MW-17, MW-21, and MW-25) and down-gradient monitoring wells (MW-18, MW-19, MW-20, MW-22, MW-23A, and MW-24). Available constituent WQOs are also presented in Table 10 for reference.

Table 10 – Constituents with Potential for Degradation

Parameters	**Effluent Quality**	**Pre-1968 (see 1 below)**	**Up-Gradient**	**Down-Gradient**	**WQOs** (reference)
BOD (mg/L)	1,721	---	---	---	none
EC (µmhos/cm)	3,972	572	354 – 573	326 – 1,156	700 (Ag)
TDS (mg/L)	3,082	383	261 – 363	503 – 725	500 (sMCL)
Alkalinity as $CaCO_3$ (mg/L)	2,053	246	111 – 204	114 – 472	none
Potassium (mg/L)	547	3.6	2.1 – 3.0	2.2 – 7.1	none
Nitrate as N (mg/L)	8.2	2.9	3.2 – 7.6	11.8 – 20.3	10 (MCL)
Ammonia	120	---	ND (0.1)	ND (0.1)	--
Iron (mg/L)	2.65	ND (0.1)	ND (0.03)	ND (0.03)	0.3 (sMCL)

Parameters	Effluent Quality	Pre-1968 (see 1 below)	Up-Gradient	Down-Gradient	WQOs (reference)
Manganese (mg/L)	0.31	---	ND (0.01)	ND (0.01)	0.05 (sMCL)
Arsenic (µg/L)	---	---	ND (2)	ND (2)	10 (MCL)

1. Pre-1968 groundwater USGS Well 363410119272601 sampled 1963.

a. Organics. Organics, measured as BOD_5, in the discharge is highly variable and can range from 200 to 15,000 mg/L. This has led to historical overloading of the LAA resulting in groundwater degradation for reduced metals including iron, manganese, and arsenic beneath the original 36.8-acre LAA. As discussed in previous Findings and Attachment D, monitoring wells inside of the LAA show concentrations of these metals above WQOs as well as elevated concentrations of TKN and ammonia, which are indicative of reducing conditions. However, data from down-gradient monitoring wells show lower concentrations for these constituents at or below the detection limit indicating that groundwater degradation due to historic organic overloading is generally limited to the interior portion of the LAA.

With the new pre-treatment system, BOD_5 concentrations in the effluent average about 1,700 mg/L, a significant reduction in organic loading from the discharge compared to past discharges. This Order requires the Discharger to comply with a cycle average BOD_5 loading rate of 150 lbs/ac/day for the majority of the LAA and sets a reduced cycle average loading rate of 100 lbs/ac/day on applications to interior fields within the LAA, which were previously overloaded, if sprinkler irrigation methods are used. This order also sets a cycle average BOD_5 loading rate of 50 lbs/ac/day for Fields A-East and A-West if methods other than sprinkler irrigation are used. In addition, this Order includes Provision J.6, which requires the Discharger to prepare and implement a Wastewater and Nutrient Management plan to ensure compliance with BOD_5 loading limits and application of wastewater at agronomic rates. Therefore, further groundwater degradation with regard to metals is not anticipated to occur as a result of this Order.

b. Nitrate. For nutrients such as nitrate, the potential for groundwater degradation depends on the quality of the wastewater, rates of application, and the ability of the vadose zone below the LAA to support nitrification and denitrification. Receiving water is considered high quality with respect to nitrate as N, with concentrations of less than 10 mg/L in both pre-1968 data and recent up-gradient water quality data. Effluent data indicates process wastewater contains high concentrations of nitrogen species primarily as TKN, which consists of organic and ammonia as nitrogen. TKN has the potential to mineralize and convert to nitrate (with some loss via ammonia volatilization). Concentrations vary by season, being particularly high between August and November during the crush and distillation season and lower the rest of the year.

As discussed in the Findings above, the Discharger has caused groundwater

degradation for nitrate in the past and could continue to contribute to nitrate degradation in groundwater if the discharge is not properly managed. To ensure that the discharge will not further degrade groundwater quality for nitrate, this Order includes Provision J.6, which requires the Discharger to prepare and implement a Wastewater and Nutrient Management plan to ensure nitrogen loading can be done at reasonable agronomic rates.

For the protection of groundwater quality, this Order requires the Discharger to apply wastewater evenly over the entire LAA consistent with reasonable agronomic rates. This Order also requires effluent and groundwater monitoring for nitrate and participation in the Kings Water Alliance Management Zone activities as part of the Nitrate Control Program. Therefore, further degradation with respect to nitrate is not anticipated to occur as a result of this Order.

c. Salinity. Available groundwater data for the area shows variable groundwater quality with respect to salinity, likely due to influence from the Kings River. The data shows high quality groundwater with respect to salinity, with EC and TDS better than applicable WQOs. However, as discussed in earlier Findings, salinity concentrations in interior monitoring wells within the LAA are elevated with EC and TDS significantly above WQOs. In addition, average potassium concentrations in interior monitoring wells range from 44 mg/L to 270 mg/L and are several times greater than up-gradient and pre-1968 groundwater quality data.

Effluent salinity concentrations in the discharge (specifically EC, TDS, and potassium) exceed receiving water concentrations (i.e., groundwater), as such, the discharge may degrade groundwater quality for salinity. Based on the effluent quality data, a large portion of the TDS in the discharge (about 50 percent) is made up of volatile dissolved solids which will break up in the soil and not percolate to groundwater.

This Order includes an annual flow limit (85.85 mgy) and an annual performance-based salinity limit of 2,100 mg/L as FDS. When combined with Discharger's salinity control program and expansion of the LAA to 325 acres, these measures are expected to reduce the annual salt loading from the discharge and support participation in the P&O Study. In addition, this Order includes other requirements such as segregation and disposal of high salinity waste streams in a lined Class II surface impoundment, as well as treatment and storage of process wastewater in lined structures prior to land application. Therefore, further degradation for salinity is not anticipated to occur as a result of this Order.

82. The Discharger implements, or will implement, as required by this Order the following measures, which the Central Valley Water Board has determined constitutes BPTC. These measures will minimize the extent of water quality impacts resulting from the Facility's discharges:

a. Lined containment structures;

b. Treatment to reduce organics and nutrients in the wastewater;

c. Segregation and disposal of high salinity waste streams in a lined Class II surface impoundment;

d. Wastewater application at agronomic rates;

b. Compliance with BOD_5 loading limits;

d. Compliance with a Performance-Based Effluent Limit for FDS; and

e. Participation in and compliance with the Salt and Nitrogen Control Programs.

83. The discharge authorized by this Order is consistent with the maximum benefit to the people of the state. The Facility aids in the economic prosperity of the area through direct employment of approximately 171 full and 55 seasonal employees and providing a local market for suppliers including farmers and truckers and numerous aligned businesses as well as local and county governments.

84. Based on the foregoing, the adoption of this Order is consistent with the Antidegradation Policy.

California Environmental Quality Act

85. On 19 March 2015, Fresno County adopted a Mitigated Negative Declaration (MND) and conditional use permit evaluating an expansion of the Facility and its land application areas to increase the total processing capacity by 12.5 million gallons and allow crushing and receiving of up to 200,000 tons of grapes annually. The MND determined that the proposed expansion would have a less than significant impact on water quality with mitigation measures including land application of process wastewater for irrigation of crops on adjacent Discharger owned farmland and compliance with requirements set forth by the Central Valley Water Board. The MND sufficiently evaluated the aspects of the project being approved by this Order and the Central Valley Water Board is not aware of any changes to the project, the circumstances under which the project is being carried out, or new information that might necessitate additional environmental evaluation. Additionally, the issuance of this Order, which prescribes requirements and monitoring of waste discharges at an existing facility, with negligible or no expansion of its existing use, is exempt from the procedural requirements of the California Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq., pursuant to California Code of Regulations, title 14, section 15301.

Other Regulatory Considerations

Water Code Section 13149.2

86. These WDRs regulate a facility that may impact a disadvantaged community and/or tribal community and includes an alternative compliance path that allows the

Discharger time to come into compliance with certain WQOs (i.e., salinity and nitrate).The Discharger has selected the Alternative Salinity Permitting Approach for the Salt Control Program, which provides an alternative approach for compliance with salinity limits through implementation of specific requirements (i.e., support facilitation and completion of the Salinity P&O Study). The Discharger has also selected the Management Zone Approach for the Nitrate Control Program, which provides and alternative approach for compliance with the WQO for nitrate. The Central Valley Water Board has satisfied the outreach requirements set forth in Water Code section 189.7 by conducting outreach in affected disadvantaged and tribal communities through its notice and comment procedures. Additionally, the Central Valley Water Board sent a 17 September 2025 letter to potentially impacted disadvantaged and tribal communities for planned program actions, including preparation of this Order, to solicit consultation. Pursuant to Water Code section 13149.2, and as discussed in the following finding, the Central Valley Water Board reviewed readily available information and information raised to the Board by interested persons concerning anticipated water quality impacts in disadvantaged or tribal communities resulting from adoption of these WDRs. The Board also considered environmental justice concerns within the Board's authority previously raised by interested persons with regard to those impacts.

87. The Central Valley Water Board anticipates that the issuance of these WDRs will result in water quality impacts within the scope of the Board's authority. Specifically, these WDRs authorize the discharge of wastewater with salinity and nitrogen concentrations that may cause limited degradation or exceedances of applicable WQOs in the near term. The BPTC measures required by this Order, as described above, are intended to minimize and, in the longer term, mitigate the impacts of the Facility's discharge on nearby disadvantaged communities in Fresno County. Although this Order may result in limited increases to salinity and nitrate concentrations in groundwater in the near-term, the Salt and Nitrate Control Programs are intended to achieve long-term balance and restoration, where possible, of salt- and nitrate- impacted groundwater basins across the region.

Human Right to Water

88. Pursuant to Water Code, section 106.3, subdivision (a), it is "the established policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." Although this Order is not subject to Water Code section 106.3, as it does not revise, adopt or establish a policy, regulation or grant criterion, (§ 106.3, subd. (b)), it nevertheless promotes the policy by requiring discharges to meet MCLs for drinking water (excluding salinity and nitrate), which are designed to protect human health and ensure that water is safe for domestic use. For salinity and nitrate this Order requires compliance with the Salt and Nitrate Control Programs. Although the Basin Plans' Exceptions Policy for Salinity, Nitrate, and/or Boron allows participants in these Programs to obtain limited-term exceptions from the MCLs, these Programs are consistent with the Human Right to Water Policy because their over-arching management goals and priorities include short-term provision to

provide safe drinking water to impacted users and long-term restoration of impacted groundwater basins and sub-basins where reasonable, feasible, and practicable.

Threat-Complexity Rating

89. For the purposes of the California Code of Regulations (CCR), title 23 (Title 23), section 2200, the Facility has a threat and complexity rating of 2-B as defined below:

    a. Threat Category "2" reflects waste discharges that can impair receiving water beneficial uses, cause short-term violations of water quality objectives, cause secondary drinking water standard violations, and cause nuisances.

    b. Complexity Category "B" reflects any discharger not included in Category A with either (1) physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or (2) any Class II or Class III waste management units.

Title 27 Exemption

90. This Order, which prescribes WDRs for discharges of wastewater to land, is exempt from the prescriptive requirements of California Code of Regulations, title 27, section 20005 et seq. (See Cal. Code Regs., tit. 27, § 20090, subd. (b).)

Stormwater

91. Activities at the Facility fall under the Standard Industrial Classification (SIC) Code 2084 for Wines, Brandy, & Brandy Spirits. As discussed in Finding 19, all water associated with industrial activities at the Facility is managed onsite in a stormwater pond or is combined and treated with the process wastewater and discharged to the LAA under these WDRs. Since all stormwater is managed and controlled onsite, the Discharger is not required to obtain coverage under the *Statewide General Permit for Storm Water Discharges Associated with Industrial Activities*, State Water Board Order 2014-0057-DWQ, NPDES General Permit CAS000001 (Industrial General Permit) at this time.

Groundwater Well Standards

92. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (DWR Well Standards), as described in California Well Standards Bulletin 74-90 (June 1991) and Water Well Standards: State of California Bulletin 74-81 (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to Water Code section 13801, apply to all monitoring wells used to monitor the impacts of wastewater storage or disposal governed by this Order.

Statistical Data Analysis

93. Statistical data analysis methods outlined in the US EPA's Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance are appropriate for determining compliance with the Groundwater Limitations of this Order. Depending on the circumstances, other methods may also be appropriate.

Scope of Order

94. This Order is strictly limited in scope to those waste discharges, activities, and processes described and expressly authorized herein. This Order is also strictly limited in applicability to those individuals and/or entities specifically designated as "Discharger."

95. Pursuant to Water Code section 13264, subdivision (a), the Discharger is prohibited from initiating the discharge of new wastes (i.e., other than those described herein), or making material changes to the character, volume and timing of waste discharges authorized herein, without filing a new RWD per Water Code section 13260.

96. Failure to file a new RWD before initiating material changes to the character, volume or timing of discharges authorized herein, shall constitute an independent violation of these WDRs.

Procedural Matters

97. All of the above, as well as the information in the attached Information Sheet (incorporated herein), was considered by the Central Valley Water Board in prescribing the WDRs set forth below.

98. The Discharger, interested agencies, and other interested persons were notified of the Central Valley Water Board's intent to prescribe the WDRs in this Order, and provided an opportunity to submit their written views and recommendations at a public hearing. (See Wat. Code § 13167.5)

99. At a public meeting, the Central Valley Water Board heard and considered all comments pertaining to the discharges regulated under this Order.

100. The Central Valley Water Board will review and revise the WDRs in this Order as

necessary.

REQUIREMENTS

IT IS HEREBY ORDERED that pursuant to Water Code sections 13263 and 13267 WDRs Order R5-2014-0045 is rescinded (except for enforcement purposes) and that the Discharger and their agents, employees and successors shall comply with the following:

A. Standard Provisions

Except as expressly provided herein, the Discharger shall comply with the Standard Provisions and Reporting Requirements dated 1 March 1991 (SPRRs), which are incorporated herein.

B. Discharge Prohibitions

1. Discharge of waste to surface waters or surface water drainage courses is prohibited.

2. Waste Classified as "hazardous" (per Title 22, § 66261.1 et seq.) shall not be discharged to the LAA under any circumstance.

3. Bypass or overflow the Facility's wastewater treatment and containment structures in prohibited.

4. Discharge of wastes other than the Facility's winery process wastewater and stillage at a location or in a manner different from that described in the Findings and authorized herein is prohibited.

5. Discharge of high salinity waste streams including bottling wash water, boiler and cooling tower blow down, and water softening ion exchange regenerant to the pre-treatment system or location other than the Title 27 Class II Surface Impoundment is prohibited.

6. Waste constituents shall not be discharged or otherwise released from the Facility (including during treatment and storage activities) in a manner that results in:

    a. Violations of the Groundwater Limitations of this Order; or

    b. Conditions of "nuisance" or "pollution," as defined per Water Code section 13050.

7. Storage of residual solids on areas not equipped with secondary containment or a paved leachate collection system is prohibited.

8. Discharge of toxic substances into any wastewater treatment system or the LAA, such that biological treatment mechanisms are disrupted, is prohibited.

9. Discharge of process wastewater to the onsite septic/leach field system is prohibited.

10. Discharge of domestic wastewater to the process wastewater treatment system, lined ponds, and/or LAA is prohibited.

C. Conditional Discharge Prohibitions

1. During Phase I of the Salt Control Program, the Discharger is prohibited from discharging salts at concentrations exceeding the salinity numeric value of 700 µmhos/cm (calculated as a monthly average) and 900 µmhos/cm (as an annual average) unless the Discharger is implementing the Phase I requirements of the Salt Control Program Alternative Permitting approach (i.e., full participation in the P&O Study).
2. The Discharger is prohibited from discharging nitrate and other forms of nitrogen speciation (e.g., total inorganic nitrogen and total Kjeldahl nitrogen) unless the Discharger is implementing the requirements of the Nitrate Control Program's Management Zone Approach.

D. Flow Limitation

1. Discharge of process wastewater measured at EFF-01 shall not exceed:

    a. A monthly average daily flow limit of 0.61 mgd; nor

    b. A cumulative annual flow limit of 85.85 mgy.

E. Performance Based Salinity Limit

1. To comply with the Salt Control Program, the Discharger has selected the Alternative Salinity Permitting Approach (i.e., Path 2, participation in the P&O Study). Therefore, as discussed in the Findings, these WDRs establish a performance-based effluent limitation for FDS of **2,100 mg/L**. As required per the MRP, the Discharger shall evaluate the annual average effluent FDS concentration in the discharge [monitored at EFF-01] with this performance-based salinity limit.

F. Discharge Specifications

1. Waste discharges shall remain within the permitted waste treatment/ containment structures and LAA at all times.

2. All treatment systems and equipment shall be maintained and operated to optimize discharge quality.

3. All conveyance, treatment, storage, and disposal systems shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

4. All wastewater and solids shall be contained in or stored on an engineered lined surface with a hydraulic conductivity standard of 1.0×10^{-6} centimeters per second or less using one of the following:

   a. A compacted clay liner, with a minimum clay thickness of two feet.

   b. A Portland cement concrete liner, designed to minimize cracking and infiltration.

   c. A synthetic liner, consisting of a 40 thousandths of an inch (mil) synthetic geomembrane or a 60-mil high-density polyethylene liner installed over a prepared base or a secondary clay or concrete liner.

   d. An equivalent engineered alternative.

   The Discharger shall regularly inspect the condition of the engineered liner(s) to ensure the integrity of the liner is maintained and leakage is minimized. Necessary repairs shall be completed within a reasonable timeframe consistent with the severity of the impairment and potential impact to water quality.

5 Objectionable odors shall not be perceivable beyond the limits of the Facility property where the waste is generated, treated, and/or discharged at an intensity that creates or threatens to create nuisance conditions. As a means of ensuring compliance with this discharge specification, the Discharger shall comply with the following:

   a. The dissolved oxygen (DO) content in the upper one foot of any wastewater treatment storage pond (or sump) shall not be less than 1.0 mg/L for three consecutive sampling events. Notwithstanding the DO monitoring frequency specified in the monitoring and reporting program, if DO concentrations in the pond(s) is below 1.0 mg/L for any single sampling event, the Discharger shall implement daily DO sampling until the minimum DO concentration is achieved for at least three consecutive days. The Discharger shall report the findings to the Central Valley Water Board in accordance with Section B.1 of the SPRRs. Written notification shall include a specific plan to resolve the low DO results within 30 days of the first date of violation.

6. The Discharger shall design, construct, operate, and maintain all ponds sufficiently to protect the integrity of containment dams and berms and prevent overtopping and/or structural failure. Unless a California registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond shall never be less than two feet

(measured vertically from the lowest possible point of overflow). As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain in each pond a permanent staff gauge or similar mechanism with calibration marks that clearly show the water level at design capacity and enable determination of available operational freeboard.

9. All ponds and open containment structures shall be managed to prevent breeding of mosquitoes. Specifically:

   a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.

   b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.

   c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

   d. The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.

10. Newly constructed or rehabilitated berms or levees (excluding internal berms that separate ponds or control the flow of water within a pond) shall be designed and constructed under the supervision of a California registered civil engineer.

11. The Discharger shall monitor residual solids accumulation in the sumps(s) annually and shall periodically remove solids as necessary to maintain adequate storage capacity.

G. Land Application Area Specifications

For the purposes of this Order, "land application areas" or "LAA" refers to the discharge areas described in the Findings and shown in **Attachment A**.

1. Crops shall be grown on the LAA. Crops shall be selected based on nutrient uptake, consumptive use of water, and irrigation requirements to maximize uptake of nutrients.

2. Application of waste constituents to the LAA shall be at reasonable agronomic rates to preclude creation of nuisance or unreasonable degradation of groundwater, considering the crop, soil, climate, and irrigation management system. The annual nutritive loading of the LAA, including the nutritive value of process wastewater, supplemental irrigation water, and organic and chemical fertilizers shall not exceed the annual crop demand.

3. BOD_5 loading to the LAA, calculated as a cycle average as determined by the methods described in the attached MRP, shall not exceed **150 lbs/ac/day**, except for Fields A-East and A-West which shall not exceed a cycle average BOD_5 loading rate of **100 lbs/ac/day** provided the Discharger is using sprinkler irrigation methods; otherwise, a cycle average BOD_5 loading rate of **50 lbs/ac/day** shall apply to Fields A-East and A-West.

4. The Discharger shall ensure that all water is applied and distributed with reasonable uniformity across the LAA and in each field block. The perimeter of the LAA shall be graded to prevent ponding along public roads and prevent runoff or overspray onto adjacent properties not owned or controlled by the Discharger.

5. Wastewater from the Facility shall not be applied within:

   a. 50 feet of a domestic water supply well,

   b. 50 feet from any surface water or surface water drainage course, or

   c. 25 feet from a property line or public right-of-way unless the irrigation system is designed to prevent runoff or overspray, in which case a minimum setback of 5 feet shall be maintained.

6. Hydraulic loading of combined effluent and supplemental irrigation water shall be managed to:

   i. Provide water only when water is needed and in amounts consistent with crop needs;

   ii. Maximize crop nutrient uptake;

   iii. Maximize breakdown of organic waste constituents in the root zone; and

   iv. Minimize the percolation of waste constituents below the root zone.

   The Central Valley Water Board recognizes that some leaching of salts is necessary to manage salt in the root zone of the crops. Leaching shall be managed to minimize degradation and maintain or reduce, to the extent practicable, concentrations of saline constituents and nitrate (and other forms of nitrogen speciation) in receiving waters.

7. The resulting effect of the discharge on soil pH shall not exceed the buffering capacity of the soil profile.

8. Land application of wastewater shall be managed to minimize erosion.

9. The LAA shall be managed to prevent breeding of mosquitos. More specifically:

    a. All applied irrigation water must infiltrate completely within 24 hours;

    b. Ditches not serving as wildlife habitat should be maintained free of emergent, marginal, and floating vegetation; and

    c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitos shall not be used to store process wastewater.

10. Irrigation of the LAA shall occur only when appropriately trained personnel are on duty.

11. Discharge to the LAAs shall not be initiated when the ground is saturated. (e.g., during or after significant precipitation).

12. Any irrigation runoff (tailwater) shall be confined to the LAA or returned to the process wastewater system and shall not enter any surface water or surface water drainage course.

13. The LAA shall be inspected periodically to determine compliance with the requirements of this Order. If an inspection reveals noncompliance or threat of noncompliance with this Order, the Discharger shall temporarily stop land application use immediately and implement corrective actions to ensure compliance with this Order.

H. Groundwater Limitations

Release of waste constituents from any portion of the Facility shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or natural background groundwater quality, whichever is greater:

1. Constituents in concentrations that exceed either the Primary or Secondary MCLs established in Title 22 of the California Code of Regulations, excluding salinity provided the Discharger complies with Salt Control Program requirements (see Conditional Prohibitions C.1).

2. Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses, (e.g., by creating off-tastes and/or odor, producing detrimental physiological responses in human, plant, animal, or aquatic life [i.e., toxicity]).

I. Solids Disposal Specification

1. For the purpose of this Order, residual solids include the solid, semisolid, and liquid organic matter removed by screens and filters during the treatment process.

2. Residual solids (including worm castings) shall be removed from any screens, pits, and ponds as needed to ensure optimal operation, prevent nuisance conditions, and maintain adequate storage and treatment capacity.

3. Any handling and storage of residual solids shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order.

4. If removed from the site, residual solids shall be disposed of in a manner consistent with Title 27, division 2. Removal for reuse as animal feed, feedstock, or land disposal at facilities (i.e., landfills, composting facilities, soil amendment sites operated in accordance with valid waste discharge requirements issued by a Regional Water Board) will satisfy this specification.

5. Any proposed change in residual solids use or disposal practice shall be reported in writing to the Executive Officer at least 90 days in advance of the change.

J. Provisions

1. The Discharger shall comply with the separately issued **Monitoring and Reporting Program Order (MRP) R5-2025-XXXX**, which is part of this Order, and any revisions thereto as ordered by the Executive Officer. The submittal dates of Discharger self-monitoring reports shall be no later than the submittal date specified in the MRP.

2. A copy of this Order (including Information Sheet, Attachments, and SPRRs) and the MRP, shall be kept at the Facility for reference by operating personnel. Key operating personnel shall be familiar with the contents.

3. The Discharger shall comply with the applicable provisions of the Salt and Nitrate Control Programs adopted in Resolution R5-2018-0034 (and revised per Resolution R5-2020-0057), developed as part of the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative, to address ongoing salt and nitrate accumulation in the Central Valley.

4. The Discharger shall participate in the Kings Water Alliance Management Zone Nitrate Control Program activities. This includes collaborating with the Management Zone to collect necessary monitoring data to refine the

MZIP's preliminary nitrogen load estimate and support development of the Management Zone Groundwater Protection Values and Groundwater Protection Targets.

5. Per the Kings Water Alliance MZIP, O'Neill is identified as a Group 1 Discharger. Upon approval of the MZIP, the Discharger will be required to submit a Nitrate Reduction Work Plan. Details regarding the timeline for submitting the Work Plan will be include in a future resolution approving the MZIP.

6. **By [1 Year]**, the Discharger shall submit a **Wastewater and Nutrient Management Plan** that describes how the Discharger will manage the LAA and apply wastewater in accordance with these WDRs. At a minimum, the Wastewater and Nutrient Management Plan must include the following:

   a. Procedures for monitoring Facility operations and discharge.

   b. Practicable measures to ensure reasonable even application of wastewater across the entire LAA. The Plan shall also detail how the Facility will not discharge wastewater to the LAA when soils are saturated (e.g., during and after significant precipitation events).

   c. An action plan to deal with objectionable odors and/or nuisance conditions.

   d. Details on how wastewater and irrigation water are managed and blended (if applicable).

   e. A detailed map of the LAA to be used each year to facilitate tracking annual wastewater applications and nutrient loading to the fields.

   f. Management practices that will ensure wastewater, irrigation water, and fertilizers/compost are applied to the LAA at agronomic rates, including but not limited to adjusting wastewater application and spreading based on consideration of soil available nutrients.

   g. Measures to mitigate past and future impacts to the buffering capacity of soils (e.g., soil lime treatment) at the LAA to ensure that optimal soil conditions and nutrient availability are maintained to allow for maximum plant uptake.

7. The Discharger shall submit a report detailing the installation of necessary infrastructure improvements and planning to allow wastewater applications to additional fields up to 325 acres of the available LAA, as needed. This report shall be submitted **at least 60 days before** wastewater is applied to the additional LAA fields.

8. **By [1 Year]**, the Discharger shall submit and implement an **Ammonia Evaluation and Minimization Plan,** prepared by a qualified professional, evaluating the use of anhydrous ammonia for pH control at the Facility. The report shall include, at a minimum, the following elements:

    a. Annual Chemical Usage:

        - Quantify the annual amounts of anhydrous ammonia used for pH adjustment over the previous three years.

    b. Process Evaluation:

        - Assess the dosing procedures and controls for ammonia addition.
        - Evaluate the relationship between chemical dosing and ammonia concentrations in the pretreatment system effluent.

    c. Minimization Measures

        - Identify and evaluate feasible measures to minimize ammonia discharge to groundwater, such as:
            - Improved dosing procedures and controls.
            - Use of alternative chemicals/processes for pH control.
        - Recommend corrective actions and implementation schedule.
        - Outline procedures for ongoing evaluation and adjustment of ammonia minimization practices.

8. The Discharger shall submit the technical reports and work plans required by this Order for consideration by the Executive Officer and incorporate comments the Executive Officer may have in a timely manner, as appropriate. Unless expressly stated otherwise in this Order, the Discharger shall proceed with all work required by the foregoing provisions by the due dates specified.

9. In accordance with the California 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 registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for investigations and studies, that describe the conduct of investigations and studies, or that 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 bear the professional's signature and stamp.

10. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports. On or before each

report due date, the Discharger shall submit the specified document to the Central Valley Water Board or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharger shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

11. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger when the operation is necessary to achieve compliance with the conditions of this Order.

12. The Discharger shall use the best practicable cost-effective control technique(s), including proper operation and maintenance, to comply with this Order.

13. As described in the SPRRs, the Discharger shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.

14. In the event of any change in control or ownership of the Facility or the LAA, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.

15. To assume operation as a Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of 1 March 1991 SPRRs Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. In addition, the new owner/discharger shall also submit documentation indicating its participation (or intent to participate) in the Management Zone Approach (Path B) for the Nitrate Control Program (i.e., by participating in the Kings Water Alliance Management Zone). Failure to submit the request shall be

considered a discharge without requirements, a violation of the Water Code. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.

16. In order to secure rescission of WDRs that are no longer necessary because the discharge to land permitted under this Order has ceased, the Discharger must contact the Central Valley Water Board Compliance and Enforcement Unit to coordinate appropriate wastewater treatment, storage, and conveyance closure requirements.

17. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

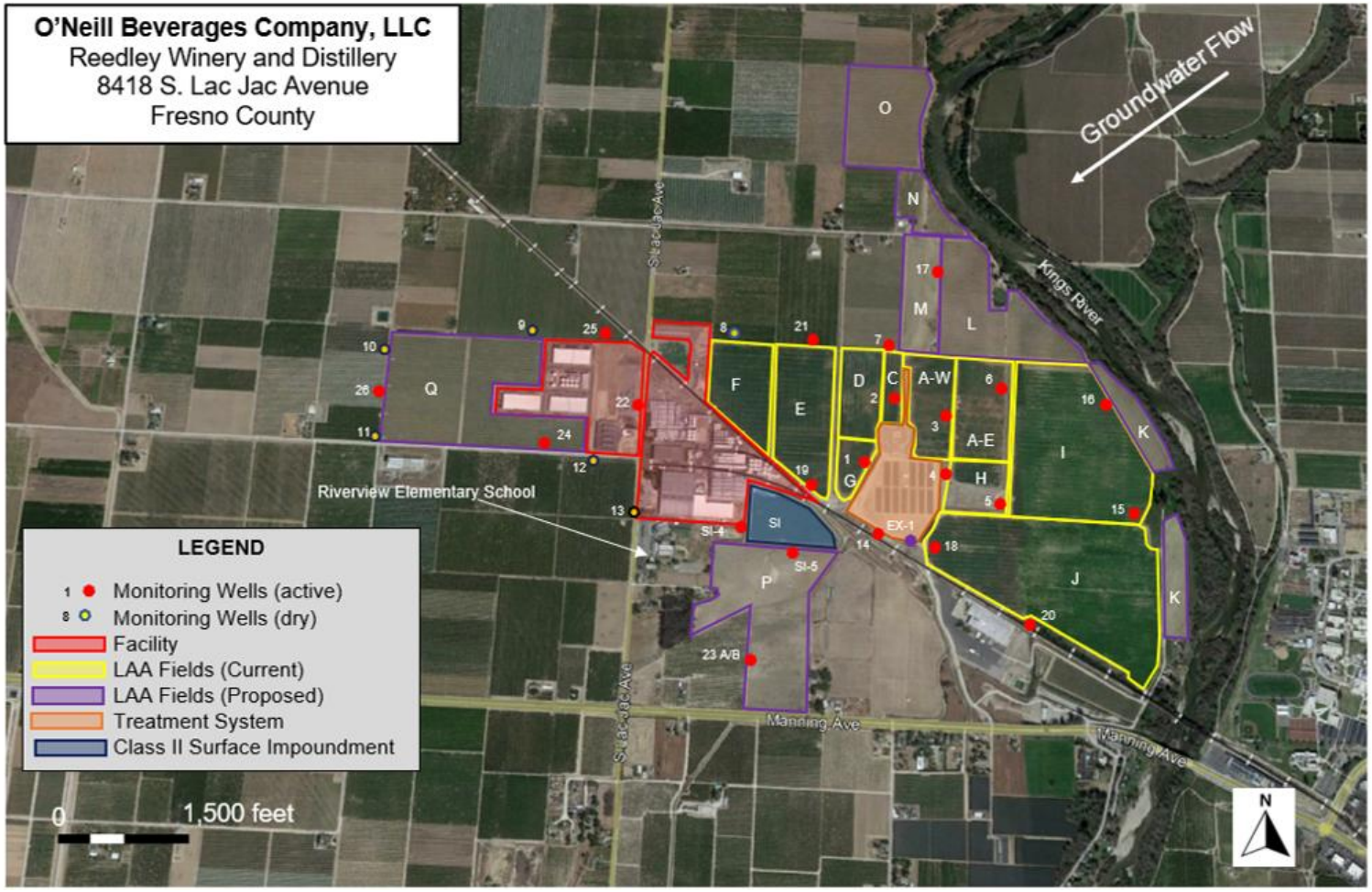
ENFORCEMENT

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

ADMINISTRATIVE REVIEW

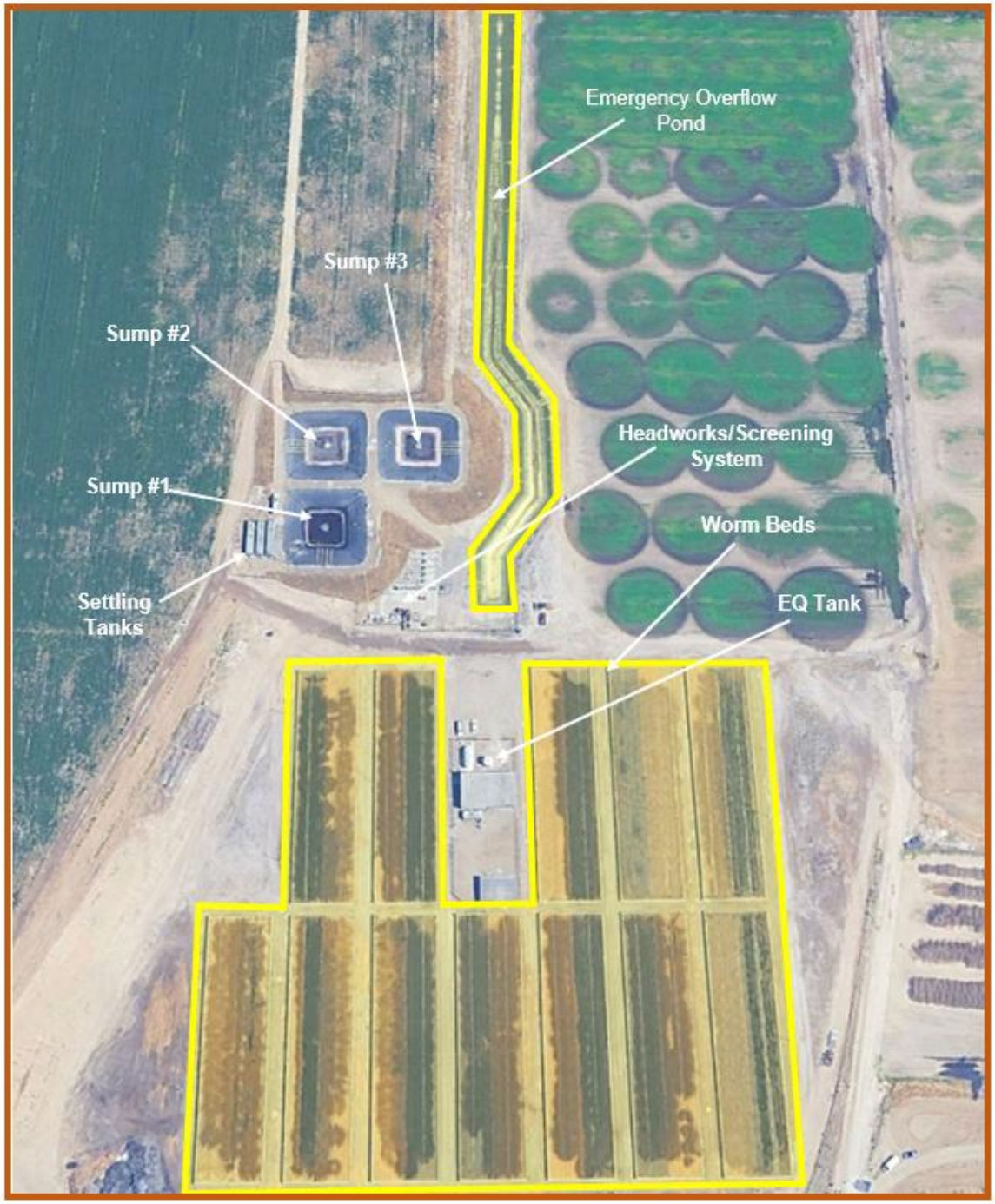
Any person aggrieved by this Central Valley Water Board action may petition the State Water Board for review in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 et seq. To be timely, the petition must be received by the State Water Board by 5:00 pm on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

ATTACHMENT A – FACILITY LOCATION MAP



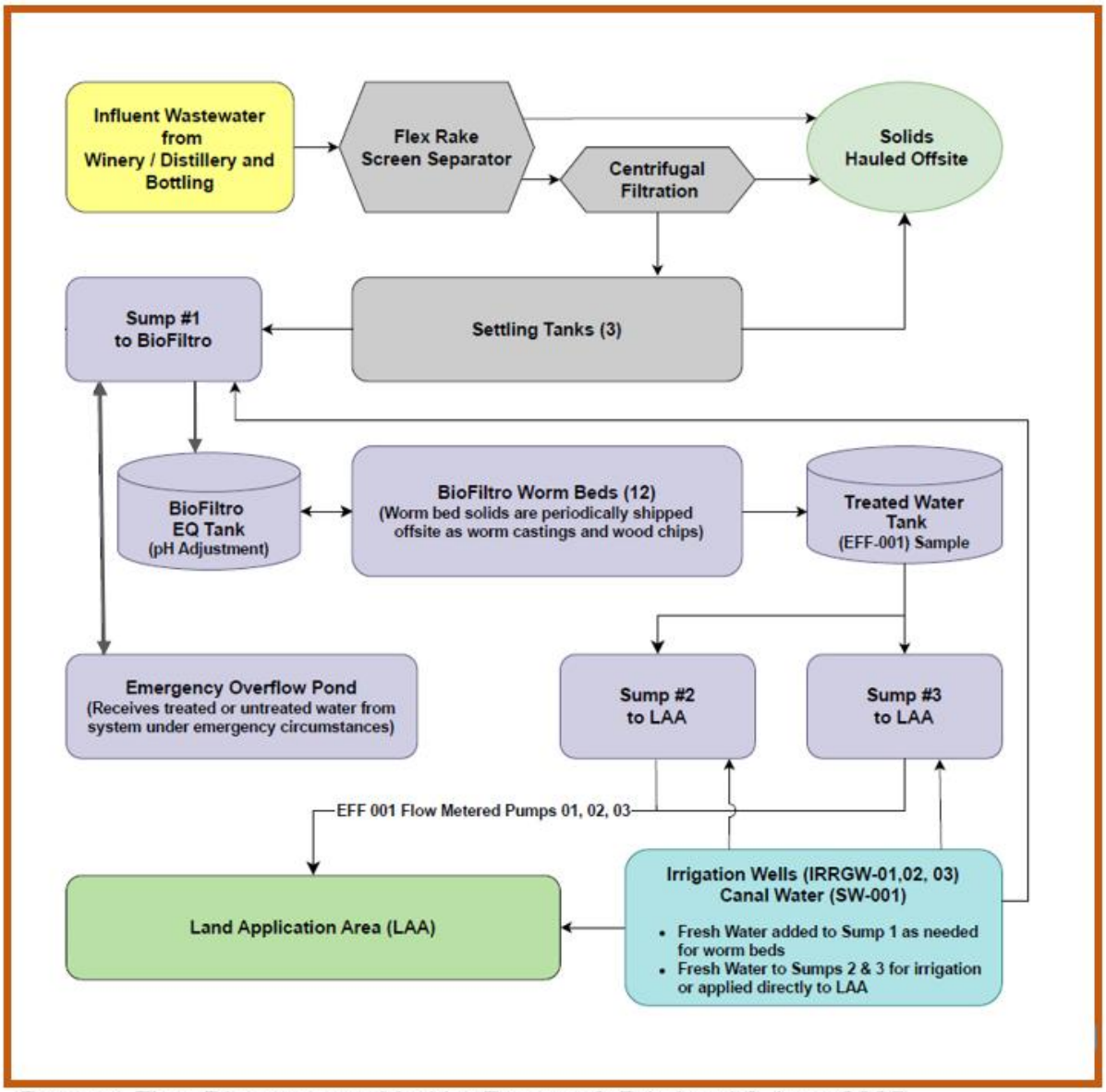
Aerial Photo from Google Earth 21 May 2024; modified by Central Valley Water Board staff

ATTACHMENT B – WASTEWATER PRE-TREATMENT SYSTEM



Aerial Photo from Google Earth 21 May 2024; modified by Central Valley Water Board staff

ATTACHMENT C – PROCESS FLOW DIAGRAM



Process Flow Diagram provided by Provost & Pritchard 2 June 2025

ATTACHMENT D – ADDITIONAL MONITORING WELL DATA AND GRAPHS

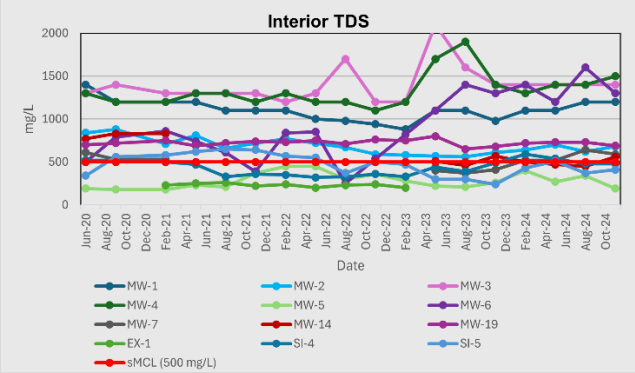
Groundwater monitoring wells were first installed at the Facility in 1995 to monitor groundwater conditions around the original 36-acre historical land application area. Over the years, the monitoring well network has been expanded to cover additional land application areas (LAA) and replace monitoring wells that have gone dry. The groundwater monitoring well network currently consists of 26 monitoring wells (MW-1 through MW-26) six of which are usually dry (MW-8 through MW-13). There are also five additional monitoring wells used to monitor for leaks around the lined Class II surface impoundment (SI-1 through SI-5), and two deeper monitoring wells, one in the center of the LAA (EX-1) and one down-gradient of the Facility and LAA (MW-23B) used to monitor groundwater conditions in the deeper aquifer. The approximate location of each monitoring well is shown in Attachment A. Well construction details and dates of installation are provided in **Table 1**.

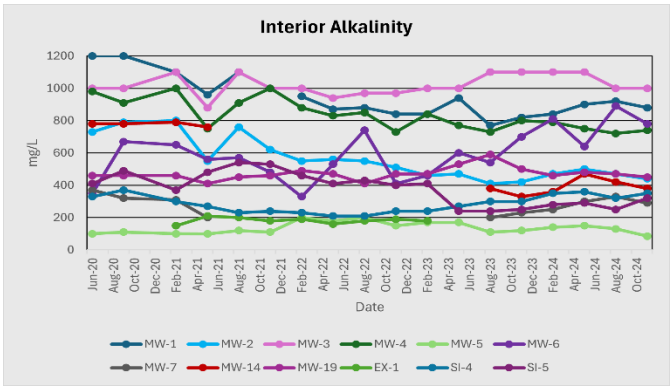
Active monitoring wells around the Facility and LAA are generally divided into three zones:

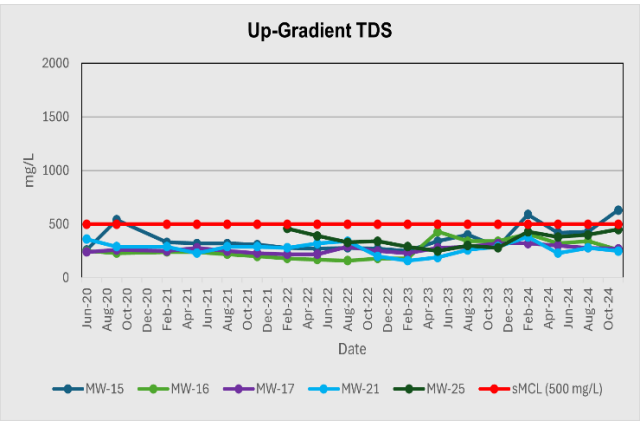
1. Up-gradient monitoring wells consist of MW-15, MW-16, MW-17, MW-21, and MW-25;
2. Interior monitoring wells (around the historical LAA and Class II surface impoundment) consist of MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-14, MW-19, MW-22, SI-4, SI-5 and EX-1; and
3. Down- and/or Cross-gradient monitoring wells consist of MW-18, MW-20, MW-23A, MW-23B, MW-24, and MW-26.

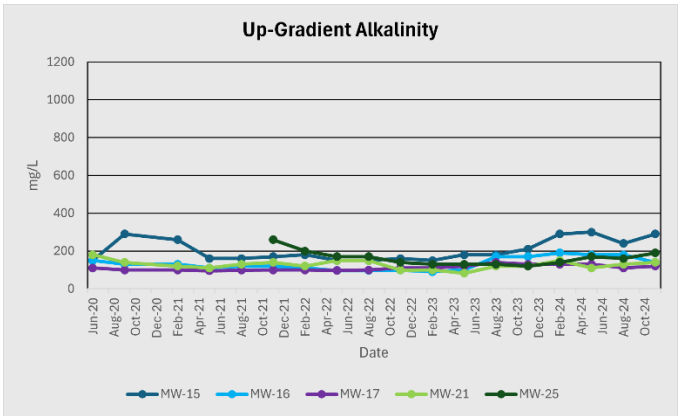
Recent data on depth-to-water and average groundwater quality for 2020 to 2024 are presented in **Tables 2 and 3**.

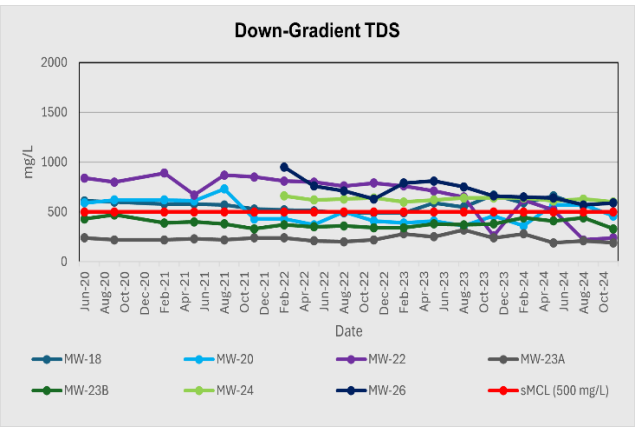
The following graphs present total dissolved solids (TDS) and alkalinity concentrations in groundwater between 2020 and 2024. Elevated concentrations of TDS and alkalinity are observed in most interior monitoring wells. Down-gradient monitoring shows slightly higher concentrations of TDS and alkalinity compared to up-gradient concentrations, with TDS still generally above the WQO of 500 mg/L, though it is an order of magnitude lower when compared to interior monitoring wells. Time-series comparisons indicates that concentrations are generally decreasing or stable since installation of the Biofiltro pre-treatment system, except at MW-6, an interior monitoring well, which shows a general increase in TDS and alkalinity concentrations since 2020.

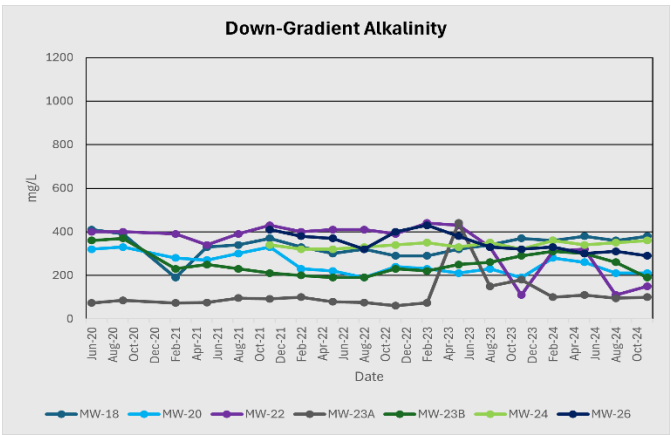






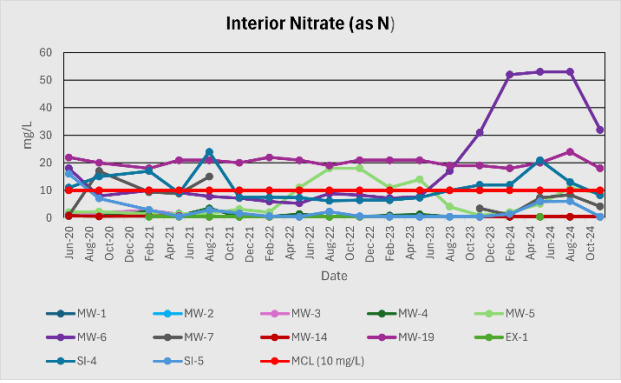


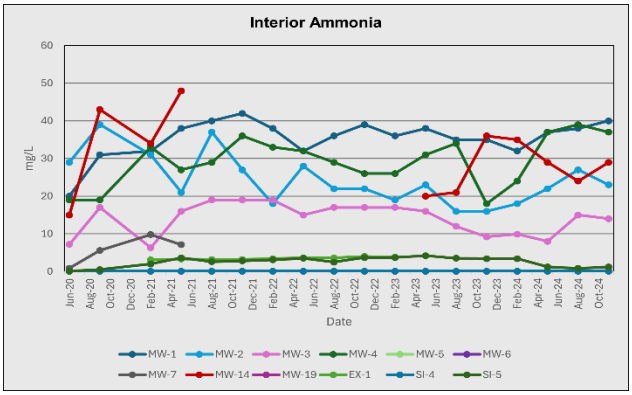


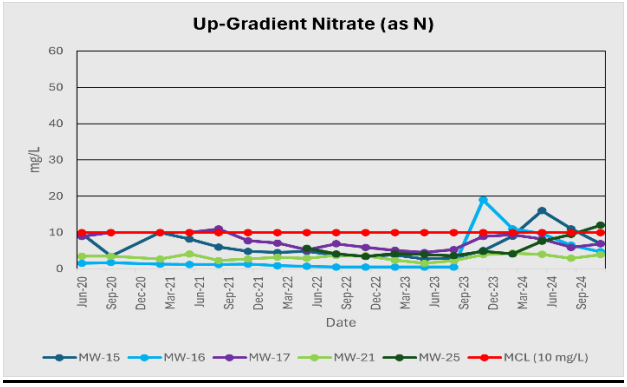


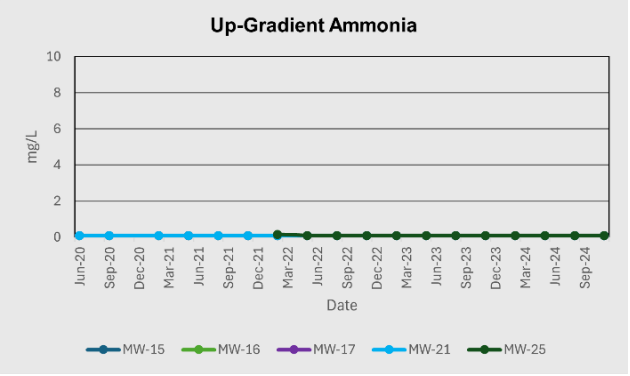
The next set of graphs present concentrations for nitrate (as N) and ammonia in groundwater over time (between 2020 and 2024). Nitrate is depressed in most interior monitoring wells, though ammonia concentrations are high, indicative of reducing conditions.
Down-gradient monitoring shows no ammonia; however, nitrate is present at higher concentrations compared to up-gradient monitoring wells and is generally above the WQO of 10 mg/L. Though overall, nitrate concentrations in most down-gradient monitoring wells is generally lower than the corresponding concentrations for ammonia seen in most interior monitoring wells. Time-series comparisons show that concentrations of nitrate are generally decreasing or stable over time, except in MW-6 (interior monitoring well) which shows a sharp

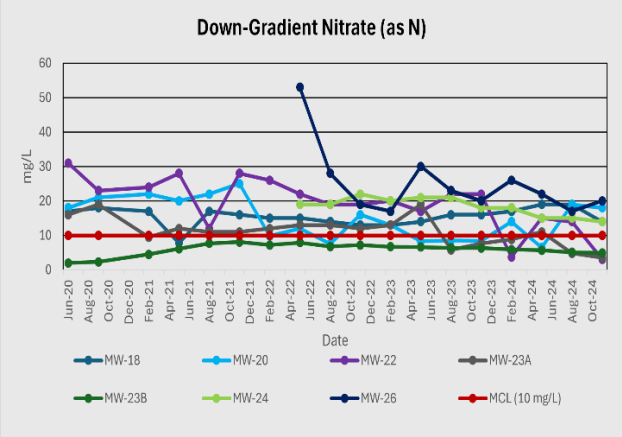
increase in nitrate in recent sampling events, though November 2024 was significantly lower and ammonia has been non-detect.

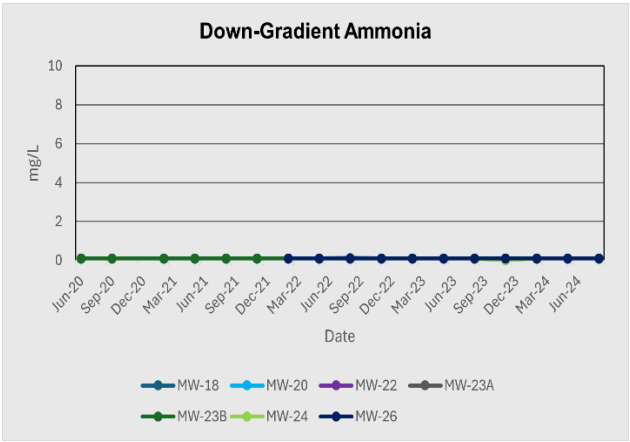






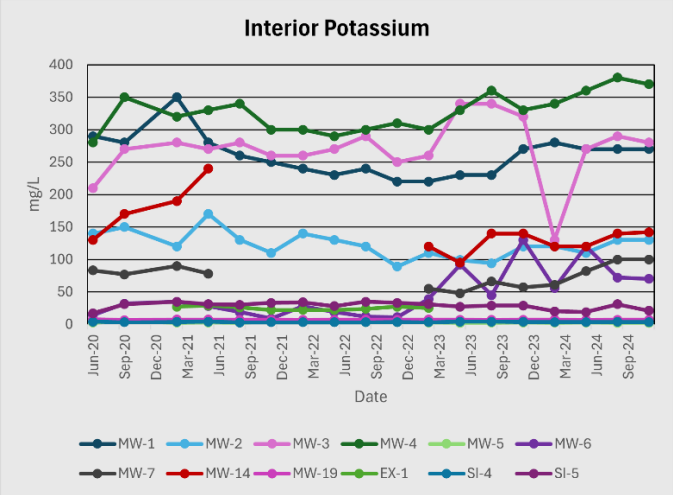


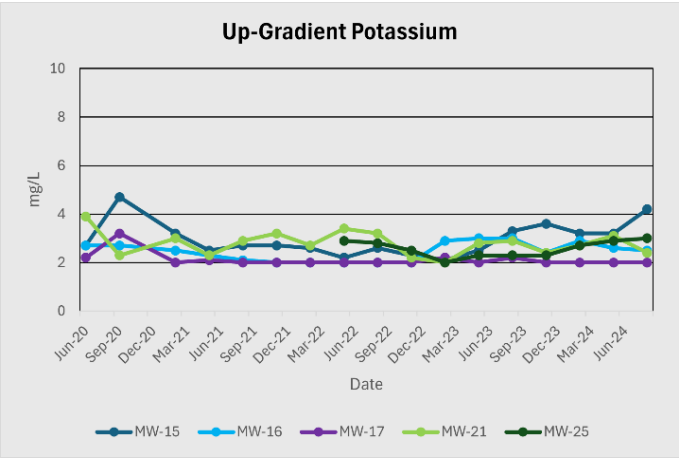


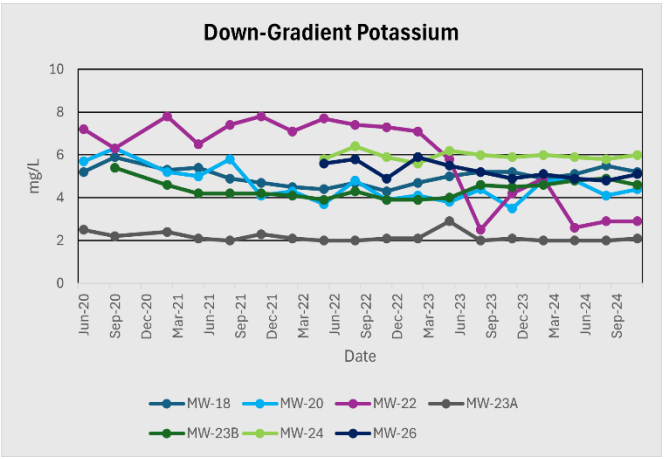


Another constituent of concern in the discharge is potassium. The following graphs present concentrations for potassium in groundwater between 2020 and 2024. As you can see in the graphs, potassium concentrations in most interior monitoring wells are extremely high compared to up-gradient concentrations. Potassium in down-gradient monitoring wells is slightly above up-gradient concentrations but remains relatively similar and well below concentrations seen in interior monitoring wells. A time-series comparison shows that potassium concentrations in groundwater are generally decreasing or stable over time, except

MW-4 and MW-6 (both interior monitoring wells) which show a slight increase in potassium since 2020.







Central Valley Water Board staff also prepared the following concentration Heat Maps comparing average groundwater concentrations from 2008 to 2012 with data from October 2020 and October 2024 to compare changing groundwater conditions before and after the pre-treatment system began operating. The Heat Maps focus on constituents of concern including ammonia, nitrate (as N), alkalinity, and potassium, and show a relatively stable area of degradation that appears to contract slightly between October 2020 and October 2024. The data does show an increase in constituent concentrations in some monitoring wells particularly MW-6, located on the northeast edge of the original LAA. However, MW-5, located on the southeast edge of the original LAA, does not show a similar increase. This despite being down-gradient of one of the new LAA fields (Field I), with constituent concentrations comparable to upgradient levels.

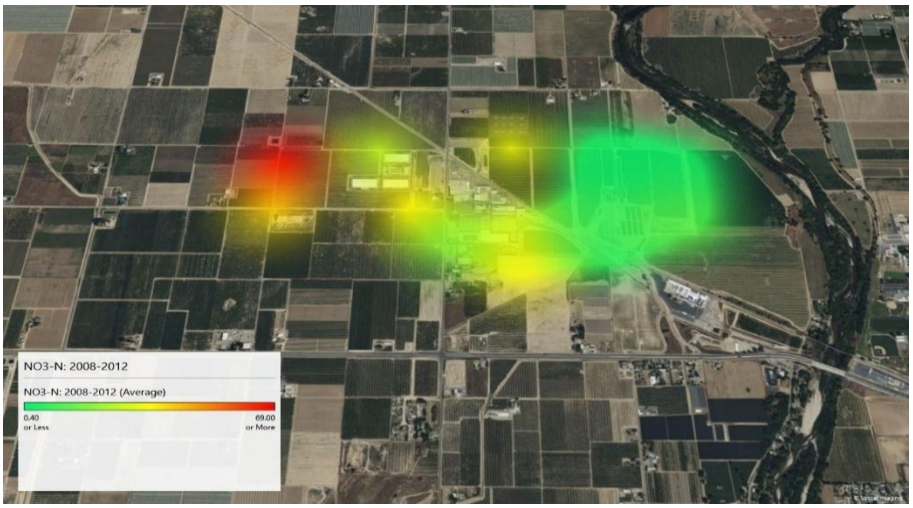
Ammonia in groundwater:

2008-2012 Average

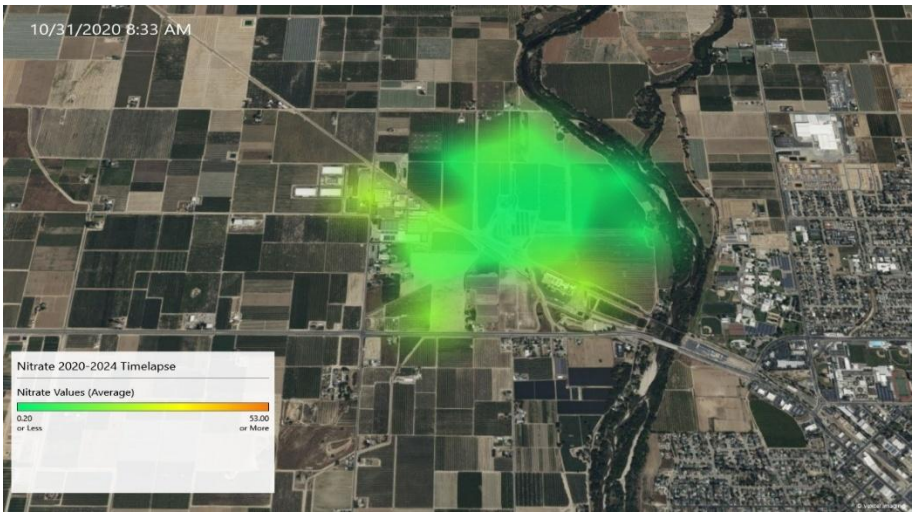
October 2020

October 2024

Nitrate (as N) in groundwater:



2008-2012 Average



October 2020

October 2024

Alkalinity in groundwater:

2008-2012 Average

October 2020

October 2024

Potassium in groundwater:

2008-2012 Average

October 2020

October 2024

TABLES

Table 11. Well Construction Details

Well	Date Installed	Total Depth	Top of Screen	Bottom of Screen	Status
MW-1	5/10/1995	67	45	65	Active
MW-2	5/10/1995	65	40	65	Active
MW-3	5/10/1995	55	35	55	Active
MW-4	5/10/19995	60	39	60	Active
MW-5	1/3/2021	65	40	65	Active
MW-6	1/3/2021	61	35	60	Active
MW-7	12/29/2000	66	40	65	Active
MW-8	12/28/2000	66	40	65	Dry
MW-9	12/19/2000	66	40	65	Dry
MW-10	12/20/2000	66	40	65	Dry
MW-11	12/20/2000	66	40	65	Dry
MW-12	12/19/2000	66	40	65	Dry
MW-13	12/18/2000	64	40	65	Dry
MW-14	1/2/2001	60	35	60	Active
MW-15	5/16/2007	51	25	50	Active
MW-16	5/17/2007	55	25	55	Active
MW-17	8/27/2015	70	39	69	Active
MW-18	8/26/2015	90	60	90	Active
MW-19	8/25/2015	85	55	85	Active
MW-20	6/13/2019	62	29	59	Active

Well	Date Installed	Total Depth	Top of Screen	Bottom of Screen	Status
MW-21	6/12/2019	88	55	85	Active
MW-22	7/8/2019	86	55	85	Active
MW-23A	7/12/2019	86	56	86	Active
MW-23B	7/19/2019	135	115	130	Active
MMW-24	9/27/2021	99	74	99	Active
MW-25	9/24/2021	97	72	97	Active
MW-26	9/27/2021	99	74	99	Active
SI-1	12/8/2000	65	40	65	Dry
SI-2	1/2/2001	65	40	65	Dry
SI-3	1/2/2001	65	40	65	Dry
SI-4	7/12/2019	88	56	86	Active
SI-5	6/11/2019	88	56	86	Active
EX-1	4/30/2005	101	81	91	Active

Table 12. Depth-To-Water (2024)

Well	Date	Depth-to-Water (feet bsg)	Well	Date	Depth-to-Water (feet bsg)
MW-1	3/18/2024	55.27	**MW-15**	3/18/2024	32.60
	6/12/2024	55.86		6/12/2024	29.67
	9/12/2024	55.92		9/12/2024	32.33
	12/16/2024	57.98		12/16/2024	34.51
MW-2	3/18/2024	52.71	**MW-16**	3/18/2024	33.30
	6/12/2024	52.70		6/12/2024	29.65
	9/12/2024	52.97		9/12/2024	32.66
	12/16/2024	55.15		12/16/2024	35.15
MW-3	3/18/2024	49.52	**MW-17**	3/18/2024	47.79
	6/12/2024	48.37		6/12/2024	46.41
	9/12/2024	49.38		9/12/2024	47.90
	12/16/2024	51.78		12/16/2024	49.92
MW-4	3/18/2024	51.57	**MW-18**	3/18/2024	68.50
	6/12/2024	51.39		6/12/2024	68.32
	9/12/2024	51.66		9/12/2024	68.62
	12/16/2024	53.98		12/16/2024	71.00
MW-5	3/18/2024	58.88	**MW-19**	3/18/2024	65.41
	6/12/2024	57.91		6/12/2024	67.00

Well	Date	Depth-to-Water (feet bsg)	Well	Date	Depth-to-Water (feet bsg)
	9/12/2024	58.27		9/12/2024	67.48
	12/16/2024	60.59		12/16/2024	68.54
MW-6	3/18/2024	48.95	**MW-20**	3/18/2024	42.71
	6/12/2024	46.91		6/12/2024	41.11
	9/12/2024	48.47		9/12/2024	42.60
	12/16/2024	51.05		12/16/2024	44.92
MW-7	3/18/2024	64.20	**MW-21**	3/18/2024	66.25
	6/12/2024	64.33		6/12/2024	67.70
	9/12/2024	64.68		9/12/2024	68.27
	12/16/2024	Dry		12/16/2024	69.08
MW-8	3/18/2024	Dry	**MW-22**	3/18/2024	64.63
	6/12/2024	Dry		6/12/2024	66.83
	9/12/2024	Dry		9/12/2024	67.70
	12/16/2024	Dry		12/16/2024	68.24
MW-9	3/18/2024	Dry	**MW-23A**	3/18/2024	68.54
	6/12/2024	Dry		6/12/2024	70.05
	9/12/2024	Dry		9/12/2024	69.41
	12/16/2024	Dry		12/16/2024	71.85
MW-10	3/18/2024	Dry	**MW-23B**	3/18/2024	69.45

Well	Date	Depth-to-Water (feet bsg)	Well	Date	Depth-to-Water (feet bsg)
	6/12/2024	Dry		6/12/2024	71.15
	9/12/2024	Dry		9/12/2024	71.70
	12/16/2024	Dry		12/16/2024	72.66
MW-11	3/18/2024	Dry	**MW-24**	3/18/2024	69.13
	6/12/2024	Dry		6/12/2024	71.61
	9/12/2024	Dry		9/12/2024	72.64
	12/16/2024	Dry		12/16/2024	72.89
MW-12	3/18/2024	Dry	**MW-25**	3/18/2024	67.92
	6/12/2024	Dry		6/12/2024	70.17
	9/12/2024	Dry		9/12/2024	71.12
	12/16/2024	Dry		12/16/2024	71.64
MW-13	3/18/2024	Dry	**MW-26**	3/18/2024	70.11
	6/12/2024	Dry		6/12/2024	73.48
	9/12/2024	Dry		9/12/2024	74.94
	12/16/2024	Dry		12/16/2024	73.62
MW-14	3/18/2024	52.69	**SI-4**	3/18/2024	62.37
	6/12/2024	53.09		6/12/2024	64.05
	9/12/2024	53.10		9/12/2024	64.55
	12/16/2024	55.42		12/16/2024	65.67

Well	Date	Depth-to-Water (feet bsg)	Well	Date	Depth-to-Water (feet bsg)
SI-5	3/18/2024	65.60			
	6/12/2024	66.96			
	9/12/2024	67.20			
	12/16/2024	68.73			

Table 13. Groundwater Monitoring Well Data (2020-2024)

Wells	TDS (mg/L)	TKN (mg/L)	Chloride (mg/L)	Sodium (mg/L)	Sulfate (mg/L)	Iron (mg/L)	Arsenic (µg/L)
Up-Gradient	**Wells**						
MW-15	363	ND (1)	33	51	37	ND (0.03)	ND (2)
MW-16	261	ND (1)	9.6	40	23	ND (0.03)	ND (2)
MW-17	266	ND (1)	15	28	25	ND (0.03)	ND (2)
MW-21	274	ND (1)	9.8	25	46	ND (0.03)	ND (2)
MW-25	358	1.01	20	33	54	ND (0.03)	ND (2)
Interior Wells							
MW-1	**1,104**	38	34	88	8.7	0.09	**15.3**
MW-2	**685**	25	25	50	60	0.10	**13.4**
MW-3	**1,400**	15	40	104	83	**0.36**	8.8
MW-4	**1,339**	30	38	76	258	0.17	3.9
MW-5	283	ND (1)	12	41	22	ND (0.03)	ND (2)
MW-6	**916**	ND (1)	36	78	77	ND (0.03)	2.9
MW-7	**512**	2.7	19	43	86	ND (0.03)	ND (2)
MW-14	**595**	34	19	44	7.5	**1.84**	2.4
MW-19	**723**	ND (1)	28	66	55	ND (0.03)	ND (2)
SI-4	433	ND (1)	11	55	23	ND (0.03)	ND (2)
SI-5	467	5.8	16	34	35	ND (0.03)	ND (2)

Wells	**TDS (mg/L)**	**TKN (mg/L)**	**Chloride (mg/L)**	**Sodium (mg/L)**	**Sulfate (mg/L)**	**Iron (mg/L)**	**Arsenic (µg/L)**
EX-1	230	3.7	6.6	16	6.3	ND (0.03)	2.4
Down-Gradient	**Wells**						
MW-18	**566**	1.03	27	58	32	ND (0.03)	ND (2)
MW-20	496	ND (1)	32	66	49	ND (0.03)	ND (2)
MW-22	**670**	ND (1)	75	64	53	ND (0.03)	ND (2)
MW-23A	233	ND (1)	8.7	21	15	ND (0.03)	ND (2)
MW-23B	384	ND (1)	18	33	23	ND (0.03)	ND (2)
MW-24	**628**	ND (1)	45	64	55	ND (0.03)	ND (2)
MW-26	**709**	ND (1)	20	103	96	ND (0.03)	ND (2)

Concentrations in bold exceed Water Quality Objectives (TDS [500 mg/L], iron [0.3 mg/L], and manganese [0.05 mg/L]).

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARDCENTRAL VALLEY REGION

TENTATIVE WASTE DISCHARGE REQUIREMENTS R5-2025-XXXX
For
O'NEILL BEVERAGES CO., LLC
O'NEILL WINERY AND DISTILLERY
FRESNO COUNTY

INFORMATION SHEET

Background

The O'Neill Beverages Co., LLC (O'Neill or Discharger) owns and operates the Reedley Winery and Distillery (Facility) at 8418 South Lac Jac Avenue near Reedley in Fresno County. The Facility has been in operation as a winery since prior to the 1950s. The Facility was first regulated under Waste Discharge Requirements (WDRs) Order 59-98 adopted by the Central Valley Regional Water Quality Control Board (Central Valley Water Board) in February 1959 for the discharge of process wastewater and stillage to approximately 36.8 acres of land adjacent to the Facility. O'Neil assumed ownership of the Facility in 2004. Previous owners include Christian Brothers, Heublein, Inc., and Golden State Vintners.

The Facility is currently regulated under WDRs R5-2014-0045, which authorizes a discharge of up to 0.61 million gallons per day (mgd) and 80 million gallons per year (mgy) to approximately 189 acres of Discharger owned farmland for irrigation of crops. Historical operations have resulted in significant groundwater degradation beneath the Facility and LAA. On 28 March 2014, the Board also adopted a Cease and Desist Order (CDO) R5-2014-0046 requiring O'Neill to address overloading of its land application areas (LAA) and degradation of groundwater. CDO R5-2014-0046, required O'Neill to implement necessary improvements in its operations to comply with loading limits for biochemical oxygen demand (BOD_5), ensure application at reasonable agronomic rates, and comply with groundwater limitations in the Order. In addition, the CDO also required O'Neill to delineate the horizontal and vertical extent of groundwater degradation beneath the Facility and LAA.

In April 2019 Kennedy/Jenks Consultants submitted a Report of Waste Discharge (RWD) on behalf of the Discharger for construction of new wastewater handling and storage measures and expansion of the LAA to address issues with overloading. A revised RWD was submitted by Provost and Pritchard Consulting Group (Provost & Pritchard) in December 2019 to include installation of a Biofiltro® pre-treatment system and further expansion of the LAA. The December 2019 revised RWD also proposed to expand operations at the Facility with a phased increase in the annual flow limit.

a. Phase 1 would include construction of the pre-treatment system and allow a minor increase in the annual flow limit up to 85.58 mgy and expand the LAA to 250 acres.

b. Phase 2 would double the size of the pre-treatment system, increase the annual flow limit to 168 mgy, and further expand the LAA to 325 acres.

The December 2019 revised RWD was prepared and signed by Donald Ikemiya (RCE 56630) and Timothy J. Jeffcoach (RCE 90275) with Provost & Pritchard. Central Valley Water Board staff determined the revised RWD incomplete and requested additional information on the pre-treatment system and justification including an antidegradation analysis for the anticipated Phase 2 expansion. On 3 February 2020, Provost & Pritchard submitted the information requested on the pre-treatment system and removed the request for the Phase 2 expansion.

Facility and Discharge

Year-round Facility operations include receiving and crushing grapes, fermentation, blending, storage, bottling, and shipping. The Facility also includes a distillery. The distillery operates about 110 days per year primarily between August and November but may extend through April to produce distilled spirits (e.g., brandy, gin, and bourbon). The highest waste flows occurring during the crush and distillation season from mid-August through November. The Facility's current capacity can process up to 200,000 tons of grapes and produces about 20 million gallons of wine and spirits annually. However, processing and production may decrease in the future based on changes in the market.

Process wastewater consists of equipment wash water, tank wash, spent regenerant from water softeners, bottling rinse water, cooling tower blow down, boiler blow down, stillage, and stormwater from processing areas. Bottle rinse water from the bottling plant is disposed of separately in a lined Title 27 Class II Surface Impoundment regulated separately under WDRs Order R5-2021-0058. In 2006, O'Neill began segregating other additional high salinity waste streams (i.e., boiler blow down, cooling tower blow down, and water softening ion exchange regenerant) and sending it to the lined Title 27 Class II Surface Impoundment for disposal as well.

All other process wastewater, including stillage wastewater after temperature pre-treatment via the cooling tower, is treated and sent to the LAA for irrigation of crops. The LAA is divided into several fields. Existing fields comprise areas that currently receive process wastewater under WDRs R5-2014-0045. New fields consist of several new parcels owned by the Discharger that were identified in the 2019 revised RWD as part of the expanded LAA. According to the Discharger infrastructure improvements (i.e., new pumps, pipelines, etc.) are still needed to make use of the additional fields for land application of process wastewater. Table 1 identifies the various fields and their approximate acreage.

Table 1 Land Application Areas (LAAs)

Field	Acreage	Accessor Parcel Number (APN)
Existing Fields		
A-East	12.5	363-061-15
A-West	11.1	363-061-15
C	2.9	363-061-16
D	9.4	363-061-16
E	19	363-061-16 and 363-061-18
F	13.4	363-061-16
G	3.9	363-061-18
H	2.6	363-061-15
I	46.4	363-061-14
J	57.6	363-061-19, 363-061-22, and 363-061-53
Existing Acreage	**178.8**	
New Fields	**(see 1 below)**	
K	13.2	363-061-13
L	24.3	363-061-06
M	9.5	363-061-05
N	6.6	363-031-11
O	21.5	363-031-11
P	29	363-280-06 and 363-280-23
Q	42	363-051-20 and 363-051-21
New Acreage	**146.1**	
Total Acreage	**324.9**	

1 New fields are not currently equipped to receive process wastewater.

Wastewater Treatment

Construction of the pre-treatment system took place between 2018 and 2020 with the pre-treatment system becoming operational in October 2020.

The pre-treatment system consists of a new screening system, containment structures, and Biofiltro® worm beds intended to provide a high level of treatment. The worm beds

were constructed of reinforced concrete and filled with wood chips to provide a substrate for the worms. Process wastewater is screened and mixed in settling tanks before being sent to one of three lined sumps (Sump #1) and then to an equalization tank for pH adjustment. After pH adjustment the wastewater is evenly sprayed on the worm beds. Effluent discharged from the worm beds collects in an underdrain system and is captured in an effluent storage tank before being directed to two lined sumps (Sumps #2 and #3) and sent to the LAA. The pre-treatment system has a designed flow of 0.625 mgd with peak flows up to 1.5 mgd. Table 2 provides a monthly breakdown comparing average monthly BOD_5 and total nitrogen (TN) concentrations in the discharge before and after the pre-treatment system was installed.

Table 2 Monthly Breakdown

Month	2019		2024		Four Year Average	
	BOD_5	**TN**	**BOD_5**	**TN**	**BOD_5**	**TN**
January	13,692	517	2,930	147	1,753	80
February	6,850	106	2,257	79	1,620	63
March	6,680	55	769	80	1,289	58
April	8,728	18	640	33	1,765	78
May	8,942	63	151	46	166	232
June	6,533	311	24	20	446	36
July	8,290	28	17	9	120	24
August	11,672	51	293	7	1,442	28
September	13,350	114	1,323	184	4,020	217
October	12,870	402	1,236	166	2,245	209
November	6,385	141	4,248	514	3,084	257
December	9,780	171	1,170	173	2,421	184
Average	**9,481**	**165**	**1,254**	**122**	**1,697**	**122**

The Table shows an overall decrease in BOD and TN concentrations after the pre-treatment system was installed.

Vadose Zone Monitoring

As part of the evaluation for the March 2014 CDO, O'Neill installed a vadose zone monitoring system within its LAA to evaluate soil conditions within the vadose zone prior to constructing its pre-treatment system. Vadose zone monitoring was conducted between 2014 and 2018. Drainage and suction lysimeters were placed in several of the LAA fields including Fields A-East and A-West (original LAA). The vadose zone monitoring consistently showed reduced BOD_5 concentrations in the percolate ranging from about an 85 to 98 percent reduction within 5 feet. However, BOD_5 removal in the original LAA was on the lower end of the range. In addition, elevated iron and manganese above their respective secondary maximum contaminant level (sMCLs) were detected at higher concentrations in percolate samples taken from the original LAA compared to other fields. The results of the vadose zone monitoring shows that the fields within the original LAA have a reduced assimilative capacity to handle higher BOD_5 loading compared to other fields within the LAA.

Groundwater Conditions

Regional groundwater flow is to the west-southwest away from the Kings River, and depth to first encountered groundwater ranges from about 30 to 70 feet below site grade (bsg) depending on the proximity to the river. The Discharger has a groundwater monitoring well network that consists of about 26 monitoring wells, six of which are typically dry, to monitor groundwater in and around its LAA and five additional monitoring wells around the lined Class II surface impoundment to monitor for evidence of leaks. Groundwater monitoring is conducted on a quarterly basis.

Groundwater conditions are discussed in Findings 44 to 50 and Attachment D of the Order.

Antidegradation

Antidegradation analysis and conclusions are discussed in Findings 79 to 84 of the Order.

Discharge Prohibitions, Effluent Limitations, Discharge Specification, and Provisions

This Order sets a monthly average flow limit of 0.61 mgd and an annual flow limit of 85.85 mgy on the effluent discharged from the pre-treatment system measured at EFF-01. The Order also specifies an annual Performance-Based Effluent Salinity Limit of 2,100 mg/L as FDS on the discharge to the LAA monitored at EFF-01.

The Order also contains the following provisions including:

- Provisions J.3 and J.4 requiring compliance with the Salt and Nitrate Control Programs and conditions; and
- Provision J.6 requiring the Discharger to prepare and implement a Wastewater and Nutrient Management Plan.

Groundwater limitations establish that the release of waste constituents from any portion of the Facility shall not cause or contribute to the exceedance of water quality objectives (WQOs) in the receiving water. If the Facility's discharge contains waste at a level greater than a WQO but the groundwater receiving the waste remains below the WQO, the limitation would not be violated. However, if the same discharge contains waste at a level greater than the WQO and causes the receiving water to exceed a WQO, the groundwater limitation would be violated. Similarly, if the same discharge contains waste above the WQO and the receiving water is above the objective, the Facility's discharge would be contributing to an exceedance of the WQO and would be violating the receiving water limitation, if the receiving water natural background concentration is less than the WQO.

In the scenario where the level of waste in the Facility's discharge is below the WQO and the receiving water exceeds the WQO, the limitation would not be violated. Where natural background conditions exceed the WQO, compliance would be evaluated considering the established natural background concentration instead of the WQO. Only discharges causing or contributing to the exceedance of the WQO or natural background concentration (if greater than the WQO) in the groundwater would be in violation of the limitation.

The Basin Plan contains the following in Section 3 Water Quality Objectives:

> "The objectives contained in this plan, and any State or Federally promulgated objectives applicable to the basins covered by the plan, are intended to govern the levels of constituents and characteristics in the main water mass unless otherwise designated…"

Any analysis of the above factors to determine exceedances of groundwater limitations would consider this and other guidance from the Basin Plan (e.g., hydrogeologic and background characterization studies, regional groundwater flow and dilution, operation of the facility's groundwater interceptor ditch system, etc.).

Monitoring Requirements

Section 13267 of the California Water Code authorizes the Central Valley Water Board to require monitoring and technical reports as necessary to investigate the impact of waste discharges on waters of the State. Water Code Section 13268 authorizes assessment of civil administrative liability where appropriate. The Order includes influent, effluent, source water, land application area, solids, and groundwater monitoring requirements. This monitoring is necessary to characterize the discharge and evaluate any impacts to groundwater and compliance with the requirements and specifications in the Order.

Salt and Nitrate Control Programs Regulatory Considerations

As part of the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative, the Central Valley Water Board adopted Basin Plan amendments (Resolution R5-2018-0034) incorporating new programs for addressing ongoing salt and

nitrate accumulation in the Central Valley at its 31 May 2018 Board Meeting. These Basin Plan amendments became effective on 17 January 2020 and were subsequently revised by the Central Valley Water Board in 2020 to make targeted revisions required by the State Water Board through adoption of Resolution R5-2020-0057, which became effective 10 November 2021.

For the Salt Control Program, the Discharger (**CV-SALTS ID 2427**) submitted a Notice of Intent (NOI) selecting the Alternative Approach (Path 2) electing to participate in the Priority and Optimization Study (P&O Study). The Facility is currently in good standing with the Salt Control Program and is up to date on its fees.

For the Nitrate Control Program, dischargers may comply with the new nitrate program either individually (Path A) or collectively with other dischargers (Path B). The Facility is in the Kings Groundwater sub-basin 5-022.08 (a Priority 1 basin). As a Priority 1 basin the Discharger was issued a Notice to Comply for the Nitrate Control Program on 29 May 2022. The Discharger selected Path B and is listed as a participating member currently in good standing with the Kings Water Alliance Management Zone.

The CV-SALTS initiative will result in regulatory changes that will be implemented through conditional prohibitions and modifications to many WDRs regionwide, including the WDRs that regulate discharges from the Facility. More information regarding the CV-SALTS regulatory planning process can be found at the following link: https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/

Reopener

The conditions of discharge in the Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. The Order sets limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.

Legal Effect of Rescission of Prior WDRs or Orders on Existing Violations

The Central Valley Water Board's rescission of prior waste discharge requirements and/or monitoring and reporting orders does not extinguish any violations that may have occurred during the time those waste discharge requirements or orders were in effect. The Central Valley Water Board reserves the right to take enforcement actions to address violations of prior prohibitions, limitations, specifications, requirements, or provisions of rescinded waste discharge requirements or orders as allowed by law.