CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

Fresno Office
1685 "E" St.
Fresno, CA 93706-2007

Sacramento Office (Main)
11020 Sun Center Dr. #200
Rancho Cordova, CA
95670-6114

Redding Office
364 Knollcrest Dr. #205
Redding, CA 96002

Regional Board Website (https://www.waterboards.ca.gov/centralvalley)

[TENTATIVE] WASTE DISCHARGE REQUIREMENTS ORDER R5-2025-XXXX

ORDER INFORMATION

Order Type(s):	Waste Discharge Requirements (WDRs)
Status:	Tentative
Program:	Non-15
Region 5 Office:	Fresno
Discharger(s):	Constellation Brands U.S. Operations, Inc.
Facility:	Mission Bell Winery
Address:	12667 Road 24, Madera, CA 93637
County:	Madera County
Parcel Nos.:	Facility APN 046-010-015 (See Information Sheet, Table 1 for full list of APNs)
CIWQS Place ID:	240938
Prior Order(s):	95-164

CERTIFICATION

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

_____

PATRICK PULUPA,
Executive Officer

TABLE OF CONTENTS

Table of Contents

TABLE INDEX

GLOSSARY

Antidegradation Policy	Statement of Policy with Respect to Maintaining High Quality Waters in California, State Water Board Resolution 68-16
Basin Plan	Water Quality Control Plan for Tulare Lake Basin
bgs	Below Ground Surface
$BOD_{[5]}$	[Five-Day] Biochemical Oxygen Demand at 20°Celsius
BPTC	Best Practicable Treatment and Control
CEQA	California Environmental Quality Act, Public Resources Code section 21000 et seq.
CEQA Guidelines	California Code of Regulations, Title 14, section 15000 et seq.
COC[s]	Constituent[s] of Concern
DO	Dissolved Oxygen
DWR	California Department of Water Resources
EC	Electrical Conductivity
FDS	Fixed Dissolved Solids
FEMA	Federal Emergency Management Agency
gpd	Gallons per Day
HDPE	High Density Polyethylene
LAA	Land Application Area
lbs/ac/day	Pounds per Acre per Day
lbs/ac/yr	Pounds per Acre per Year
LCRS	Leachate Collection Recovery System
µg/L	Micrograms per Liter
µmhos/cm	Micromhos per Centimeter

Glossary

mgd	Million Gallons per Day
mgy	Million Gallons per Year
mg/L	Milligrams per Liter
msl	Mean Sea Level
MRP	Monitoring and Reporting Program
MCL	Maximum Contaminant Level per Title 22
N	Nitrogen
NCP	Nitrogen Control Plan
ND	Non-Detect
P&O Study	Prioritization and Optimization Study
RWD	Report of Waste Discharge
SCP	Salt Control Plan
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
USEPA	United States Environmental Protection Agency
VOC[s]	Volatile Organic Compound[s]
WDRs	Waste Discharge Requirements
WQO[s]	Water Quality Objective[s]

FINDINGS

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

Introduction

1. Constellation Brands U.S. Operations, Inc. (Discharger), a domestic business corporation registered in the State of New York., submitted a 1 March 2025 *Technical Report for the Report of Waste Discharge* (RWD) for its Mission Bell Winery (Facility) at 12667 Road 24, just southwest of the City of Madera in Madera County, as depicted on the Project Location Map in **Attachment A**. The RWD was prepared by Joshua Martinez, a California registered civil engineer with Summit Engineering, and a signed/stamped copy of the RWD was received on 25 March 2024.

2. The Facility is owned and operated by the Discharger and was previously regulated by Waste Discharge Requirements (WDRs) Order 95-164, which authorized the annual discharge of winery process wastewater to up to 296 acres of farmland/land application areas (LAAs) as a supplemental source of irrigation water to grow a crop (pasture grass). The Facility and LAAs cover about 520 acres in total.

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

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

    a. Attachment A – Project Location Map

    b. Attachment B – 1929 USGS Topographic Map

    c. Attachment C – 1995 Site Map

    d. Attachment D – Current Site Plan with Groundwater Monitoring Wells and January 2024 Groundwater Elevation Contours

    e. Attachment E – Current Land Application Areas

    e. Attachment F – Process Flow Diagram

    f. Attachment G – Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Report

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

    h. Information Sheet

5. Also attached is **Monitoring and Reporting Program Order R5-2025-xxxx** (MRP), which requires monitoring and reporting for discharges regulated under these WDRs. The Discharger shall comply with the MRP and subsequent revisions thereto as ordered by the Executive Officer or adopted by the Central Valley Water Board.

6. Wastewater disposal practices at the Facility have been modified, and operations have changed significantly since WDRs Order 95-164 was issued. Revised WDRs are needed for this Facility to ensure the discharge meets the requirements of current water quality plans and policies.

Regulatory History and Background

7. The Facility site has a long operational history as a winery. Available records indicate operations dating back to the early 1900s, and some structures at the Facility date back to the 1930s. **Attachment B** is a copy of a portion of the 1929 United States Geological Survey (USGS) Madera Map, which shows structures at the current Facility location with the designation “Italian Swiss Colony,” as the historical wine company. The map depicts a railroad spur that runs southwest from Madera to the Facility and also shows an intermittent canal/creek flowing to the west/southwest that flowed near or through the current LAAs.

8. On 21 January 1966, United Vintners was issued the first WDRs for the Facility (Resolution 66-080). Subsequently, in 1969, the Facility was purchased by Heublein, Inc. (Heublein), which submitted a Site Evaluation Work Plan, a RWD, and Wastewater Management Plan in February 1990 in support of a “discharge to land of grape and fruit juice concentrate and distillery wastes.”

9. The most recent prior WDRs, Order 95-164, were issued to Canandaigua West, Inc. on 23 June 1995 and authorized the discharge of winery wastewater to about 296 acres of flood irrigated LAAs. In 1995, the LAAs were contained within four fields (Fields H, I, K and G) as shown on **Attachment C**. The Central Valley Water Board adopted Order No. R5-2010-0021 on 29 January 2010 amending WDRs Order 95-164 to reflect a change in ownership and operatorship of the Facility from Canandaigua West, Inc. to the Discharger.

10. Over the Facility’s history, Facility operations resulted in groundwater degradation and a history of odors causing nuisance conditions. The file record provides information dating back to 1958 listing objectionable odors being noted from the discharge of winery waste to land.

Existing Facility and Discharge

11. The Facility and LAAs are contained in seven assessor parcels as listed in Table 1. The Facility includes an office, maintenance area, winery processing buildings, treatment systems, and tank farms. Domestic wastewater needs at the Facility are served by an onsite septic system, which is permitted through the Madera County Department of Environmental Health.

Table 1 – Assessor Parcel Numbers (APNs)

Area	APN	Township, Range, Section	Acres
Facility & LAA Field I	046-010-015	11S 17E 34	210.41
Facility	046-010-009	11S 17E 34	19.79
LAA Field H	046-010-010	11S 17E 34	129.44
LAA Field K	045-190-011	11S 17E 33	143.05
LAA Field K	045-190-010	11S 17E 33	16.63
LAA Field K	045-190-015	11S 17E 33	1.23

12. Between 2002 and 2004, two 250,000-gallon lined storage ponds (Ponds 1 and 2) were constructed at the Facility and the primary method of irrigation was changed to a center pivot sprinkler system, as shown in **Attachment D**. Each pond is double lined and features a 60-mil high density polyethylene [HDPE] top layer, drainage mat, and a 60-mil HDPE base layer. Each pond has a drainage mat between the two liners, which drains any water to a leak detection trench. A pan lysimeter was installed beneath the base layer of the leach detection trench and a 6-inch diameter perforated pipe was installed within the leak detection trench that removes any wastewater to a solid 6-inch pipe serving as the lysimeter well.

13. The primary LAAs are identified as Fields H, I, and K. The center pivot sprinklers can irrigate approximately 217 acres. Available irrigable acreage for each of the primary LAAs is listed below.

    - Field H – 82-acres
    - Field I – 17-acres
    - Field K – 118-acres

14. Additional acreage (approximately 72 acres) is available outside the radius of the pivot sprinklers of the LAAs to distribute wastewater via flood irrigation, if necessary, as shown on Attachment E. The total combined LAA (sprinkler and flood) is 289 acres.

Wastewater Generation and Treatment

15. WDRs Order 95-164 indicated that in 1995 the Discharger estimated a maximum combined waste stream discharge of 330 million gallons annually of winery processing wastewater to the LAAs, and included flow limitations to the LAAs at the volumes and frequencies shown in Table 2. The flow limitations were based on (1) the maximum depth and drying time identified in Table 2 and the Central Valley Regional Water Board's Stillage Guidelines, adopted in 1983 and included in both Basin Plans; and (2) an LAA of 206 acres.

Table 2 – Flow Limitations

Time Period	Maximum Discharge (mgd)	Maximum Depth (inches)	Drying Time (days)
1 May to 30 September	2.94	3.7	6
1 October to 30 November	1.67	3.0	9
1 December to 30 April	1.00	2.5	13

16. Wastewater is generated from the cleaning and sanitation of winery and grape juice concentrate processing equipment, an ion exchange treatment system, and stillage operations. Four water softeners also discharge into the winery process wastewater stream. The individual waste streams are collected via area drains that discharge to a main lift station sump, where the individual wastewater streams are comingled or blended as shown on **Attachment F** (water softener locations are not currently shown).

17. A diversion valve at the main lift station routes wastewater to either Pond 1 or Pond 2, and then wastewater is discharged from the ponds to the LAAs as needed. Each pond is equipped with aeration and a rotary screen to remove solids from the combined waste stream prior to discharging into the ponds. Wastewater contained in Pond 1 is used for irrigating Fields I and K, and wastewater in Pond 2 is discharged to Field H. Stormwater for the Facility is collected via drains and directed to a lift station, then discharged to Pond 1 where it comingles with wastewater. All wastewater generated from the cleaning and sanitation of the wine/grape juice concentrate equipment at the Facility (not including ion exchange or stillage) shall be subject to rotary screen treatment prior to discharge to the Ponds. Solids collected from the rotary screens and generated during the making of grape juice concentrate and/or wine and are stored temporarily on a concrete pad prior to being hauled for disposal at a permitted facility. The concrete pad is sloped and equipped with curbs to keep leachate from flowing onto earthen surfaces. Two drains are present along the western edge of the concrete pad that return the leachate to the main lift station sump where it blends with other winery wastewater streams.

18. Grape juice concentrate is treated using an ion exchange unit. The ion exchange wastewater is analyzed separately from the effluent, and ion exchange effluent is typically dried in an onsite treatment system called the Combined Solar Technology (CST) SteamBoy evaporation treatment system. Dried solids are removed from the CST SteamBoy system and disposed of offsite at an approved disposal facility. However, the CST SteamBoy system was not operating from late 2022 through August 2024. During this time, the ion exchange effluent was blended with the other waste streams and discharged to the LAA.

19. The total and daily average discharge volumes of winery process wastewater to the LAAs over the past seven years are summarized in Table 3. The RWD included monthly average effluent volumes generated from 2018 through 2022 for the comingled waste streams but did not indicate the percentages of each waste stream (stillage, ion exchange, grape concentrate) in the total flow. Central Valley Water Board staff (Staff) added reported flow observations from 2023 through 2024. The average annual effluent discharge from 2018 through 2022 was 223.7 million gallons per year (mgy) and ranged from 185 to 253 mgy. Observed wastewater flows in 2023 and 2024 were much less, at 109.7 mgy and 109.4 mgy, respectively. Daily flow averaged 0.3 mgd in 2024. The Discharger indicated that, while grape juice concentrate was produced at the Facility, wine making did not occur in 2023 and 2024, leading to the decreased annual flows observed in these years.

Table 3 – Annual/Daily Flows 2018 –2024

Year	Total Discharge (million gallons)	Daily Average (million gallons)
2024	109.4	0.299
2023	109.7	0.300
2022	215.4	0.591
2021	184.9	0.507
2020	224.0	0.614
2019	241.0	0.660
2018	253.1	0.693

20. WDRs Order 95-164 did not include an annual flow limitation; rather, it included seasonal operational flow limitations based on guidelines for applying stillage waste to land, in accordance with the Basin Plan. It is appropriate for this Order to also include an annual flow limitation given that stillage is only anticipated to occur periodically at the Facility, and in some years not at all. The RWD indicates that the maximum combined wastewater discharge at the Facility is

330 mgy; however, this is not consistent with current operational flows, which have decreased significantly and consistently since 2018. Therefore, this Order establishes an annual flow limitation of 255 mgy, which is based on observed wastewater flows between 2018 and 2023. The annual limit is about one standard deviation (52 million gallons) greater than the average annual observed flow (205 mgy) during that timeframe.

Wastewater Quality

21. The Discharger currently monitors the quality of the blended process wastewater and the ion exchange wastewater. The blended wastewater includes winery processing wash water from the cleaning and disinfection of the winery processing equipment, discharge from four onsite water softeners, and at times, discharges from the ion exchange unit and stillage operations. The water softeners provide softened water for the boilers, packaging lines, and the "champagne line" (sparkling wine). Water softener discharge and stillage discharge quality are not individually monitored. Rather, wastewater from each of these processes is comingled at the central lift sump and sampled as one waste stream.

22. The RWD provided blended effluent results for 2022, and blended effluent results for 2023 through 2024 are available from the Facility's self-monitoring reports (SMRs). The average analytical results for the winery wastewater sampled from this period are shown in Table 4 below. Table 4 also includes 2018 through 2021 average annual effluent concentrations that reflect a period when the CST Steamboy was operational and ion exchange waste was segregated from discharge. The 2023 average wastewater results indicate lower constituent concentrations when compared to 2022 data and appear to be related to the heavy rainfall that occurred in the spring of 2023. Wine making operations did not occur in 2023 or 2024; however, 2024 effluent quality appears similar to 2022 observed effluent concentrations.

Table 4 – Average Effluent Analytical Results

Constituent	Units (see 1 below)	Frequency	2018	2019	2020	2021	2022	2023	2024
pH (Median)	s.u.	1/Week	6.4	7.1	7.3	6.8	7.8	7.2	7.1
EC	µmhos/cm	1/Week	1,977	1,913	2,033	1,908	1,901	1,618	2,017
BOD_5	mg/L	1/Month	2,173	2,349	2,149	2,048	1,793	827	1,609
TDS	mg/L	2/Year	1,733	1,956	1,893	1,761	1,642	1,343	1,614
Chloride	mg/L	1/Month	132	180	230	231	210	254	244

Constituent	Units (see 1 below)	Frequency	2018	2019	2020	2021	2022	2023	2024
Nitrate as Nitrogen	mg/L	2/Year	3.5	3.6	3.2	3.1	4.3	3.2	4.9
Total Kjeldahl Nitrogen	mg/L	2/Year	139	88	66	46	40	27	78
Total Nitrogen	mg/L	2/Year	143	92	69	49	45	29	83

1. s.u. = standard units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter.

23. Analytical results of ion exchange samples analyzed in 2022 and 2023 are summarized in Table 5 and indicated elevated EC, BOD_5, TDS, sulfate, and total nitrogen concentrations.

Table 5 – Ion Exchange Analytical Results (2022 through 2024)

Constituent	Unit (See 1 below)	2022 Results	2023 Results	2024 Results
pH (median)	s.u.	8.0	8.2	8.0
EC	µmhos/cm	14,763	4,508	6,918
BOD_5	mg/L	1,212	1,114	1,072
COD	mg/L	1,820	1,951	1,647
VDS	mg/L	3,217	1,538	1,681
TDS	mg/L	5,938	2,423	2,875
Total Nitrogen	mg/L	1,486	1,034	899
Nitrate as Nitrogen	mg/L	6.6	3.9	5.0
TKN	mg/L	1,402	1,030	904
Hardness	mg/L	729	188	245
Calcium	mg/L	161	39	55.6
Magnesium	mg/L	78	21	25.8
Sodium	mg/L	43	14	27
Potassium	mg/L	1,325	163	252

Constituent	Unit (See 1 below)	2022 Results	2023 Results	2024 Results
Copper	mg/L	0.1	0.015	0.106
Iron	mg/L	2.2	0.8	3.8
Manganese	mg/L	0.5	0.04	0.21
Zinc	mg/L	0.3	0.06	0.26
Calcium Carbonate	mg/L	1,865	1,994	--
Hydroxide	mg/L	627	312	108
Carbonate	mg/L	740	488	271
Bicarbonate	mg/L	688	297	1,021
Chloride	mg/L	89	72	57
Sulfate	mg/L	3,858	1,531	1,761

1. µmhos/cm = micromhos per centimeter, mg/L = Milligrams per liter.

24. The RWD provided chemical usage from 2018 through 2023 as shown below in Table 6.

Table 6 – Annual Chemical Use In Gallons (2018 – 2023)

Chemical	2018	2019	2020	2021	2022	2023
Anhydrous Ammonia R-Grade	99,583	135,166	90,057	40,005	30,000	24,432
Blend HD Spec Cleaner 550-KOH	19.974	12,066	21,600	15,148	9,337	8,048
Blend NC Foam Cleaner	220	660	770	See 1 below	275	220
Phosphoric Acid 38%	660	110	660	110	384	110
Phosphoric Acid 75%	See 1 below	440	660	330	See 1 below	See 1 below
Sodium Hydroxide 50%	544	5,500	6,435	4,791	1,018	1,727
Sodium Hypochlorite 12.5%	1,410	1,614	1,215	878	432	See 1 below
Sulfuric Acid	See 1 below	1,000	See 1 below	See 1 below	See 1 below	See 1 below

1 – The RWD notes the chemical was not used or the amount used is unknown.

Constituent Loading

25. The RWD provided loading estimates for BOD_5, salt (TDS), and nitrogen to the LAAs. The annual average is the average of the monthly cycle average and peak month BOD_5 loading is the highest cycle average recorded during that year. The annual average and peak month loading rates in pounds per acre per day (lbs/ac/day) reported for 2018 through 2023 are shown in Table 7 below.

Table 7 – BOD_5 Loading Estimate for 2018 through 2023

Year	Annual Average BOD_5 Loading (lbs/ac/day)	Peak Month BOD_5 Loading (lbs/ac/day)
2018	316	592
2019	279	500
2020	216	378
2021	321	558
2022	331	889
2023	61	119

26. Neither MRP 95-164 nor WDRs Order 95-164 required the Discharger to calculate nitrogen or salt loading generated by the application of winery process wastewater; however, the RWD includes these loading estimates for 2022 and 2023 when ion exchange wastewater was included in the combined waste stream. The Discharger estimated a nitrogen load of 750 pounds per acre per year (lbs/ac/yr) if 200 acres of the LAAs were utilized, and about 500 lbs/ac/yr if all 296 acres of the LAAs were used. Salt loading, calculated using TDS, is reported to be 18,900 lbs/ac/yr if 200 acres are used, and about 12,800 lbs/ac/yr if 296 acres are used. The estimated salt loading, at even 12,800 lbs/ac/yr, is relatively high and has the potential to contribute to or cause groundwater degradation for salinity constituents.

27. Staff sent the Discharger a 25 April 2024 letter requesting additional information needed to evaluate and address BOD, nitrogen, and salt loading issues associated with the Facility's discharge. The Discharger responded in a 25 July 2024 letter to the Central Valley Water Board. The Discharger's response to the July 2024 Central Valley Water Board letter is discussed below.

    a. For BOD_5 loading, the Discharger responded that past discharges were only spread on a portion of the 217 combined acreage LAAs. This has historically been an reoccurring issue. The Facility has been cited for numerous violations for discharging wastewater to a LAA that is too small for the volume of wastewater discharged. SMRs indicate that the acreage

used for disposal in 2023 ranged from 19 to 85 acres and resulted in monthly average BOD_5 loadings of 10 to 119 lbs/ac/day and an annual average of 61 lbs/ac/day. Using 217 acres and the 2023 BOD_5 data, the Discharger estimated loadings would range from 10 to 69 lbs/ac/day and would have an annual average of 42 lbs/ac/day. A third estimate was provided that considered using 296 acres and the 2023 BOD_5 data, resulting in monthly loadings ranging from 7 to 32 lbs/ac/day and an annual average of 17 lbs/ac/day.

Staff is concerned with calculating BOD_5 loading using the 2023 BOD_5 results, as they are not consistent with 2022 or 2024 data. Based on the most recent data collected in 2024, BOD_5 loading to 217 acres, using the monthly daily average BOD_5 concentration, would result in a cycle average application of about 40 lbs/ac/day, with a range from 26.9 to 61.5 lbs/ac/day.

b. For nitrogen loading, the Discharger recalculated nitrogen loading using the 2023 observed concentrations and 217 acres for disposal. The resulting nitrogen load would be 122 lbs/ac/yr, which is less than the 150 lbs/ac/yr that can be utilized by the pasture grass grown in the LAAs. The Discharger also indicated it has cleared Field K and planted alfalfa, which has a higher nitrogen utilization potential than pasture grasses, as discussed below and shown in Table 8. Subsequent correspondence from the Discharger indicates that Fields H and I were also planted with alfalfa in 2025.

c. The Discharger's response did not address salt loading other than indicating a plan to monitor the individual waste streams in the future. With the CST SteamBoy operational, it is expected that discharge salinity will decrease. To further address salinity in the discharge, this Order prohibits the discharge of ion exchange waste to land. The Discharger intends to comply with this prohibition by properly storing this waste (as necessary) prior to onsite drying in the CST SteamBoy system and offsite disposal at an approved facility**.** Should the CST SteamBoy system be taken offline for maintenance or repairs, the Discharger is required to properly store the ion exchange wastewater onsite until it can be dried or disposed of offsite at an approved disposal facility.

28. The *Western Fertilizer Handbook* (8th Edition) includes annual nitrogen, potassium, phosphorus uptake rates for alfalfa, wheat silage corn, Sudan grass, and sorghum, as shown below in Table 8.

Table 8 – Annual Nutrient Uptake Rates

Plant	Nitrogen (lbs/ac)	Potassium (lbs/ac)	Phosphorus (lbs/ac)
Alfalfa	480	480	95
Wheat	175	200	70
Silage Corn	250	250	105
Sudan Grass	325	475	125
Sorghum, Grain	250	200	90

29. This order also contains Provision J.7 and J.8, which require the Discharger to further evaluate the sources of salinity (as FDS) in the discharge and identify potential measures for minimizing salt concentrations. Furthermore, the MRP requires the Discharger to monitor FDS concentration(s) in the discharge, so that potential salt loading and salt impacts to groundwater can be assessed.

Site-Specific Conditions

Topography, Climate, and Land Use

30. The Facility and LAAs are at an elevation of about 245 feet above mean sea level and the natural land surface slopes very gradually to the southwest. The Fresno River is 2.5 miles north of the Facility and the LAAs. A canal is present along the southern and eastern edges of the Facility. The canal channeled a portion of the creek that flowed intermittently across the Facility property, discussed in Finding 7 and shown in Attachment B. The creek/canal is still present south of Field H as shown on Attachment D.

31. According to the Web Soil Survey published by the United States Department of Agriculture, Natural Resources Conservation Service (USDA NRCS), soils in the area of the LAAs and the Facility consists primarily of the Hanford fine sandy loam (~60%) with lesser amounts of Tujunga loamy sand (~26%), and Grangeville fine sandy loam (~14%). Hanford sandy loam and the Grangeville fine sandy loam are listed as “prime farmland if irrigated,” and Tujunga loamy sand is described as “farmland of statewide importance.”

32. Additionally, the USDA NRCS land capability classification indicates that the Hanford fine sandy loam is listed as a Class 1 soil that has few limitations that restrict its use. The Grangeville fine sandy loam is listed as a Class 2w soil that has moderate limitations that reduce the choice of plants or that require moderate conservation practices. The “w” subclass indicates that water in or on the soil may interfere with plant growth or cultivation. The Tujunga loamy sand is listed as a Class “3e” soil. Class 3 soils have severe limitations that reduce the choice of

plants or that require special conservation practices, or both, and the “e” subclass indicates that the main hazard is the risk of erosion unless close-growing plant cover (such as alfalfa) is maintained.

33. MRP 95-164 required the Discharger to monitor soil in the LAAs at two-, four-, and six-feet bgs in two locations from within each of the three LAAs (Fields H, I, and K), and a background location. Soil samples are collected annually and analyzed for pH, nitrate as nitrogen, total Kjeldahl nitrogen (TKN), total nitrogen, soluble salts, and EC. The 2019 through 2023 average soil sampling results for total nitrogen and EC, and the median pH results for each depth are shown in Table 9. Average results are accompanied by associated ranges, shown in parentheses.

Table 9 – Annual Soil Sampling Results 2019 - 2023

LAA/FIELD	Depth (Feet bgs)	Total N (mg/kg)	EC (µmhos/cm)	Soluble Salts (mg/kg)	pH (Standard Units)
Field H South	**2**	320 (250 – 420)	634 (190 – 1300)	320 (250 – 420)	7.4 (5.0 – 7.8)
Field H North	**2**	280 (250 – 340)	608 (370 – 1000)	274 (240 – 340)	7.2 (5.2 – 8.1)
Field I	**2**	174 (110 – 240)	149 (78 – 260)	174 (110 – 240)	6.4 (6.2 – 8.1)
Field K East	**2**	380 (200 – 900)	1012 (370 – 2500)	380 (200 – 900)	6.4 (5.1 – 7.1)
Field K West	**2**	366 (290 – 450)	632 (240 – 1200)	366 (290 – 450)	6.6 (5.1 – 7.6)
Background	**2**	218 (160 – 290)	352 (83 – 1000)	218 (160 – 290)	8.6 (7.2 – 9.0)
Field H South	**4**	238 (220 – 300)	530 (390 – 760)	238 (220 – 300)	5.0 (4.5 – 7.6)
Field H North	**4**	270 (160 – 330)	832 (390 – 1000)	270 (160 – 330)	7.2 (5.3 – 7.8)
Field I	**4**	106 (59 – 180)	148 (61 – 280)	106 (59 – 180)	6.7 (5.2 – 7.8)
Field K East	**4**	242 (110 – 390)	838 (420 – 1400)	242 (110 – 390)	7.1 (4.6 – 8.1)
Field K West	**4**	234 (110 – 410)	658 (330 – 1300)	234 (110 – 410)	5.6 (4.8 – 6.6)
Background	**4**	140 (79 – 170)	203 (76 – 340)	140 (79 – 170)	8.4 (7.8 – 9.2)
Field H South	**6**	260 (220 – 320)	884 (520 – 1300)	260 (220 – 320)	4.7 (4.3 – 4.9)

LAA/FIELD	Depth (Feet bgs)	Total N (mg/kg)	EC (µmhos/cm)	Soluble Salts (mg/kg)	pH (Standard Units)
Field H North	**6**	172 (130 – 220)	794 (320 – 1400)	172 (130 – 220)	7.8 (7.0 – 7.9)
Field I	**6**	136 (62 – 260)	285 (26 – 520)	136 (62 – 260)	5.3 (5.2 – 6.9)
Field K East	**6**	242 (91 – 350)	888 (560 – 1700)	242 (91 – 350)	6.9 (4.7 – 7.7)
Field K West	**6**	202 (130 – 340)	742 (450 – 1300)	202 (130 – 340)	6.6 (4.5 – 7.1)
Background	**6**	114 (72 – 150)	259 (95 – 440)	114 (72 – 150)	8.4 (8.0 – 9.0)

34. Soil monitoring results indicate background concentrations for total nitrogen and EC are slightly lower than those of the soil samples collected within the LAAs, while pH background levels are slightly higher. The exceptions are the results for samples collected from Field I, which show lower concentrations than background for total nitrogen and EC in the two- and four-foot samples. Nitrogen and pH values generally decrease with depth, while the EC results generally increase. Variability in soil constituent concentrations, particularly where elevated (or low in the case of pH), is likely due to the historical practice of overapplying wastewater to minimal acreage. This Order includes Provision J.6, which requires the Discharger to prepare and implement a Wastewater Nutrient Management plan that describes how the discharger will manage the LAA and apply wastewater at agronomic rates considering plant available nitrogen stored in the soil. Provision J.6 also requires the Discharger to describe measures it will implement to mitigate past and future impacts to the soil's buffering capacity at the LAA.

35. The Facility and LAAs are in an arid climate characterized by dry summers and mild winters. The rainy season generally extends from October to April, and average annual precipitation is about 12.3 inches. The region has an annual evapotranspiration of 53.4 inches with monthly averages ranging from 0.93 inches in December to 8.1 inches in July (California Irrigation Management Information System [CIMIS], Reference Evapotranspiration Zones, Zone 12).

36. The Facility and the LAAs are shown on the Madera County Unincorporated Areas Map 060170 and Flood Map 06039C1165E and are not within a 100-year flood zone special hazards area.

37. Land usage surrounding the Facility is primarily agricultural to the south, west, and northwest, but there are several industrial/manufacturing facilities nearby as shown on Attachments A, D, and E. Inactive evaporation ponds from the former

Oberti Olive processing facility are present to the northeast of the Facility and are directly north and adjacent to one of the land application areas (Field H). California Olive Growers Exchange is the current owner of the 140.15 acre parcel containing the inactive evaporation ponds (APN 046-010-050). The Oberti Facility degraded the underlying groundwater with salts and was issued Cease and Desist Order (CDO) 94-202 in June 1994. Another CDO 5-01-191 was issued to Tri Valley Growers in July 2001 and was rescinded by R5-2009-0102 in 2009. Operations at the Oberti Facility ceased in 2004.

38. The Ardagh Groups Madera facility (glass bottle manufacturer) sits between the Facility and LAAs (Field I to the west, and Field H to the east). WDRs Order R5-2026-0019 regulates the Glass facilities industrial and domestic wastewater discharges to three ponds set along the south side of the property, north of Avenue 12, and just east of LAA Field I. Several other commercial facilities (Georgia Pacific Madera, Nutrien Ag Solutions, and the Quady Winery) are present along Avenue 13, the northern Facility border. Residential properties are present about 1 mile north of the Facility and about 1.5 miles to the east.

39. The Nutrien Ag Solutions Facility stores bulk liquid and dry fertilizers, liquid pesticides, and pre-packaged fertilizers and pesticides. Prior to 1984, pesticides were formulated at the Nutrien Facility. On 16 September 1994, Cleanup and Abatement Order 94-237 (CAO) was issued to the Nutrien Facility after investigations revealed that soils and groundwater at the site have been impacted by agricultural chemicals originating from Nutrien Facility. The primary chemicals of concern associated with the site are 1,2-dibromo-3-chloropropane (DBCP), 1,2-dibromoethane (EDB), and 1,2,3-trichloropropane (1,2,3 TCP). An engineered cap (asphalt and geosynthetic liner) was installed over 5.1 acres of the eastern portion of the site in 1996 and 1997 to minimize percolations through impacted soils to address CAO requirements. Subsequently, in April 2002, the Central Valley Water Board issued WDRs Order R5-2002-0068 for the Nutrien Facility, which prescribe post-closure maintenance and reporting requirements for the site, including continued groundwater monitoring.

40. According to the Department of Water Resources (DWR) Land Use Viewer, typical crops grown in the area include deciduous fruits, nuts, grapes, pasture, and field crops.

Source Water

41. Source water for the Facility is supplied by three active onsite wells (Public Water System Number CA2000659). These wells can be used for supplemental irrigation of the LAA if needed. The Discharger has stated the there are no available records of construction details for the source water wells. Recent analytical quality results for the source water wells were provided in the RWD and are summarized in Table 10, below, along with reference water quality objectives

(WQOs). Most of the results presented are from a 3 March 2016 sampling event. However, the results presented for nitrate as nitrogen are average results from 17 samples collected from Wells 1 and 2 between January 2013 to December 2023, and 3 samples collected from Well 3 between January 2013 and December 2023. Two samples were analyzed for EC from Wells 1 and 2 in January 2013.

Table 10 – Source Water Quality

Parameter	WQO	Well 1	Well 2	Well 3
EC (umhos/cm)	900	645	560	480
TDS (mg/L)	500	460	510	---
Chloride (mg/L)	250	52	43	---
Sodium (mg/L)	na	34	42	---
Sulfate (mg/L)	250	27	28	---
Calcium (mg/L)	na	77	82	35
Total Alkalinity (mg/L)	na	240	300	---
Bicarbonate (mg/L)	na	300	360	---
Total Hardness (as $CACO_3$) (mg/L)	na	290	310	---
Nitrate as N (mg/L)	10	7.1	5.2	3.9

Regional Groundwater Occurrence and Quality

42. Regional depth to groundwater information and groundwater elevation maps are available on the DWR Sustainable Groundwater Management Act Data Viewer (https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer). The direction of regional groundwater flow indicated by 2019 through 2023 DWR elevation contour maps is variable. Groundwater elevation contours for spring 2022 and 2023 show an apparent groundwater mound beneath the City of Madera at about 20 to 30 feet bgs, and a regional groundwater flow to the southwest. Groundwater elevations are depicted about 90 to 110 feet bgs in the area of the Facility on the 2022 and 2023 maps. In spring 2021, there was no apparent mound to the northeast, the depth to water below the Facility was about 190 feet bgs, and the predominant direction of regional groundwater flow was north-northwest. It should be noted that the groundwater contours shown on the DWR maps are created using water level data from wells spread out over the area that may have highly variable well depths, construction details, and may be set in different aquifers resulting in groundwater elevation contours that might not indicate accurate depth to water in a given location.

43. The National Water Quality Monitoring Council Water Quality Portal identifies eight wells within a two-mile radius of the Facility that range in depth from 125 to 592 feet bgs. Analytical results dating from 1961 to 1979 are available for six of the eight wells and are included in Table 11 and exhibit a wide range of concentrations from fair to poor water quality with respect to EC, and TDS.

Table 11 – Regional Groundwater Quality Results - Salinity

Well	Date	EC (µmhos/cm)	TDS (mg/L)	Chloride (mg/L)
USGS-365704120052901	5/25/66	1,310	917	170
USGS-365653120053101	5/25/66	729	510	72
USGS-365704120053401	5/1/62	807	565	110
	11/8/61	1370	989	250
USGS-365637120052901	5/25/66	760	532	80
	11/8/61	822	575	120
USGS-365646120053001	8/13/79	1070	635	100
	4/20/66	799	498	80
USGS-365657120050801	11/8/61	930	651	96

44. Staff reviewed the State Water Resources Control Board's (State Water Board) Groundwater Ambient Monitoring and Assessment Program database and identified nine wells (five downgradient and four upgradient) within 1.5 miles of the Facility with analytical results for nitrate as nitrogen. The results are summarized in Table 12 and are highly variable, ranging from non-detect in samples collected from five of the wells to exceeding the primary maximum contaminant level (MCL) of 10 mg/L in the other four wells. An "ND" with a value to the right in parentheses indicates that nitrate as nitrogen was not detect, and the method detection limit is the value shown in parentheses.

Table 12 – GAMA Regional Groundwater Wells

Well Numbers	Date	Screened Interval (feet bgs)	Gradient Position	Nitrate as N (mg/L)
AGW1080011462	11/7/2019	---	Downgradient	ND (0.4)
AGW1080011462	5/24/2021	---	Downgradient	ND (0.4)
AGW1080011462	5/17/2022	---	Downgradient	ND (0.4)
NO3-1027557	8/9/1990	3.6 - 16.4	Downgradient	12.9
NO3-1027559	8/9/1990	42.5 - 47.5	Downgradient	ND (0.4)
NO3-1027558	8/30/1990	26 - 60	Downgradient	ND (0.4)
NO3-1027496	12/5/1984	---	Downgradient	20.9
NO3-1002355	7/23/2001	---	Upgradient	ND (0.4)
NO3-1002356	7/23/2001	618 - 778	Upgradient	ND (0.4)
NO3-1002378	11/1/2007	---	Upgradient	10.7
NO3-1002378	4/1/2009	---	Upgradient	11.4
NO3-1002379	11/1/2007	---	Upgradient	17.4
NO3-1002379	8/11/08	---	Upgradient	16.8
NO3-1002379	8/11/08	---	Upgradient	17.1

Local Groundwater and Subsurface Conditions

45. The Discharger has a groundwater monitoring well network that currently consists of 12 groundwater monitoring wells comprised of five well pairs (wells MW-4R and MW-4B; MW-10 and MW-10B; MW-11R and MW-11B; MW-15R and MW-15B; and MW-18 and MW-18B) and two individual groundwater monitoring wells MW-19 and MW-20. Groundwater monitoring has been performed since 1996 as required by MRP 95-164.

46. The direction of local groundwater flow is typically to the northwest, and the depth to groundwater in January 2024 ranged from about 190 to 207 feet bgs, as shown in Table 12 below. Due to declining groundwater levels in the region, most of the original wells are now dry. As of June 2024, only 5 wells (MW-4B, MW-11B, MW-15B, MW-18B, and MW-20) had sufficient groundwater levels for sample collection as shown in bold font in Table 12. MW-10 contained sufficient water for

sample collection in the first two quarters of 2023, but didn't contain sufficient groundwater for sampling in the third and fourth quarters of 2023.

Table 12 – Onsite Depth to Groundwater – January 2024

Well ID	Well Depth (feet bgs)	Screened Interval (feet bgs)	Depth to GW (feet bgs)	Standing GW in Well (feet)
MW-4B	**220**	**170 - 220**	**194.67**	**25.33**
MW-4R	175	145 - 175	Dry	0
MW-10	137	107 - 137	Dry	0
MW-10B	**220**	**155 - 220**	WLBP (See 1 below)	Not measurable (See 1 below)
MW-11B	**220**	**170 - 220**	**203.3**	**16.70**
MW-11R	175	145 - 175	Dry	0
MW-15B	**220**	**170 - 220**	**207.37**	**12.63**
MW-15R	175	145 - 175	Dry.	0
MW-18B	**215**	**165 - 215**	**188.93**	**26.07**
MW-18	170	140 - 170	Dry	0
MW-19	170	140 - 170	Dry	0
MW-20	**230**	**165 - 230**	**204.56**	**25.44**

1. WLBP = Water level below pump. The groundwater level is below the pump and could not be measured. The pump is set at about 198 feet bgs. Water last measured at 195.72 feet below top of casing in April 2023.

47. The results of groundwater quality samples collected from wells MW-4B, MW-11B, MW-15B, MW-18B, and MW-20 from March 2022 through June 2024 are presented in Table 13. MRP 95-164 required analysis of groundwater samples for EC, pH, nitrate, TKN, total nitrogen, and a general minerals suite consisting of calcium, carbonate, chloride, fluoride, iron, magnesium, nitrate, potassium, sodium, sulfate, TDS, and total phosphorus. Hardness results presented were calculated based on reported results for calcium and magnesium ($[2.5 \times Ca^{2+}) + [4.1 \times Mg^{2+}]$). Results shown in bold font exceed the lowest applicable WQO.

Table 13 – Groundwater Monitoring Results

Parameter	MCL (mg/L)	Date	MW-4B	MW-11B	MW-15B	MW-18B	MW-20
Nitrate as N (mg/L)	10	6/26/24	**14**	7.9	**13**	4.6	8.1
		3/27/24	**16**	6.7	**12**	4.5	7.7
		9/20/23	**15**	6.5	**12**	4.9	9.7
		3/31/23	**12**	6.8	**12**	4.8	8.2
		9/21/22	**14**	6.0	9.1	4.6	9.0
		3/30/22	**16**	7.0	8.4	5.0	8.9
TKN (mg/L)	NA	6/26/24	1.3	1.2	0.91	0.97	0.92
		3/27/24	1.8	0.95	1.1	0.91	1.3
		9/20/23	1.2	1.7	1.1	0.7	0.93
		3/31/23	1.6	0.95	1.1	0.9	0.82
		9/21/22	1.2	1.2	1.2	1.0	1.0
		3/30/22	1.0	0.53	1.0	0.5	0.5
Total Nitrogen (mg/L)	NA	6/26/24	15.3	9.1	13.91	5.5	9.0
		3/27/24	17.8	7.65	13.1	5.4	9.0
		9/20/23	16.2	8.2	13.1	5.6	10.7
		3/31/23	13.6	7.75	13.1	5.4	9.0
		9/21/22	15.2	7.2	10.3	5.7	10.0
		3/30/22	17.0	7.53	9.4	5.5	9.4
EC (µmhos/cm) EC (µmhos/cm)	900	6/26/24	**960**	**1600**	620	770	650
		3/27/24	**980**	**1600**	600	780	690
		9/20/23	**930**	**1600**	540	790	630
		3/31/23	790	**1500**	510	670	580
		9/21/22	**920**	**1400**	470	690	570
		3/30/22	**1100**	**1500**	470	720	620

Parameter	MCL (mg/L)	Date	MW-4B	MW-11B	MW-15B	MW-18B	MW-20
TDS (mg/L)	500	6/26/24	**640**	**1000**	480	**530**	440
		3/27/24	**680**	**1100**	420	**510**	440
		9/20/23	**700**	**1100**	360	**550**	430
		3/31/23	**630**	**1100**	430	**550**	450
		9/21/22	**700**	**1100**	390	**560**	440
		3/30/22	**750**	**980**	310	500	470
Chloride (mg/L)		6/26/24	79	65	56	80	33
		3/27/24	90	82	57	88	37
		9/20/23	83	69	46	87	37
		3/31/23	73	76	51	94	38
		9/21/22	89	67	41	91	35
		3/30/22	94	74	40	95	42
Hardness (as $CaCO_3$) (mg/L)		6/26/24	320	692	198	252	230
		3/27/24	328	746	189	266	251
		9/20/23	294	750	165	265	215
		3/31/23	287	717	182	265	239
		9/21/22	343	729	169	257	217
		3/30/22	444	750	161	270	246

48. Similar to regional groundwater quality, the Facility's groundwater monitoring wells exhibit variable concentrations that range from poor to good with respect to nitrate and salinity. Network wells MW-4B and MW-15B exhibit elevated nitrate concentrations. MW-4B would appear to be upgradient of Field K and cross gradient of Field I **(approximately 600 and 450 feet from the extent of the pivot sprinklers, respectively)**; however, MW-4B was installed in an old creek or stream channel that flowed southwest (depicted in Attachment D). The historic creek/stream could have influenced the layering of sediments in the underlying aquifer and, therefore, be providing a preferred pathway to the southwest. The data presented in Table 13 further appears to suggest that MW-4B is likely

affected by a preferential flow path created by the historic creek/stream channel, limiting its suitability for classification as an upgradient well.

For MW-15B, the well is considerably downgradient of Field H **(approximately 4,700 feet northwest of the extent of the pivot sprinkler)**, but it is also directly adjacent to the disposal area of Quady Winery that may influence water quality in this area. EC and TDS sample results from wells MW-4B and MW-11B consistently exceed WQOs. As discussed above, MW-4B is crossgradient but appears to be influenced by the discharge to Field I. MW-11B is directly downgradient of Field K **(about 600 feet northwest of the extent of the pivot sprinklers)** and exhibits higher salt concentrations but lower nitrate concentrations than MW-4B or MW-15B. MW-20 is approximately 3,500 feet northwest (downgradient) of the extent of the Field K pivot sprinkler, and MW-18B is approximately 1,100 feet southeast (upgradient) of the extent of the Field H pivot sprinkler.

Legal Authorities

49. 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).)

50. This Order, and its associated MRP, is also 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 and the separately issued MRP are necessary to verify and ensure compliance with these WDRs. The burden associated with such reports is reasonable relative to the need for their submission.

51. 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

52. This Order implements the Central Valley Water Board's Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin (Basin Plan), which designates beneficial uses for surface water and groundwater and establishes WQOs necessary to preserve such beneficial uses.

53. The Facility is in the Madera Hydrologic Area (No. 545.20) of the San Joaquin Valley Floor Hydrologic Unit, as depicted on hydrologic maps prepared by the State Water Board. Per the Basin Plan, beneficial uses of underlying groundwater at the Facility are municipal and domestic supply (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial process supply (PRO).

Water Quality Objectives

54. The Basin Plan establishes narrative WQOs for chemical constituents, taste and odors, and toxicity in groundwater. It also sets forth a numeric WQO for total coliform organisms.

55. The Basin Plan's 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 groundwater designated for MUN.

56. The Basin Plan's narrative WQO for chemical constituents in groundwater generally provides that groundwater shall not contain constituents in concentrations adversely affecting 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 groundwater does not

contain chemical constituents in concentrations that adversely affect beneficial uses.

57. The Basin Plan establishes a narrative WQO for toxicity in groundwater, which provides that groundwater shall be maintained free of toxic substances in concentrations producing detrimental physiological responses in human, animal, plant, or aquatic life associated with designated beneficial uses.

58. 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 WQO is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations to implement the narrative WQO. In establishing a specific numeric interpretation of a narrative WQO, the Basin Plan methodology is to consider any relevant published criteria. For salinity protective of agricultural supply (AGR), the Central Valley Water Board is relying on general salt tolerance guidelines, which indicate that although 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 an eight- to ten-fold range in salt tolerance for agricultural crops (see, e.g., Ayers & Westcot*, Water Quality for Agriculture* [1985], § 2.3.). For this reason, appropriate salinity values 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.

59. The crops listed in Finding 40 are not intended as a definitive inventory of crops that are or could be grown in the area where groundwater quality is potentially affected by the discharge, but it is representative of current and historical agricultural practices in the area.

Salt and Nitrate Control Programs

60. The Central Valley Water Board adopted Basin Plan amendments incorporating new programs for addressing ongoing salt and nitrate accumulation in the Central Valley at its 31 May 2018 Board Meeting (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 with Resolution R5-2020-0057 (https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2020-0057_res.pdf). The revisions to the Basin Plan amendments became effective on 10 November 2021.

61. For the Salt Control Program, dischargers that are unable to comply with stringent salinity requirements are instead required to meet performance-based limits, as determined 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 submitted a Notice to Intent to participate in the P&O Study (Alternative Permitting Approach) the Salt Control program on 22 June 2022 (**CV-SALTS: ID 2284**). To minimize salinity impacts, this Order does the following:

a. Requires the Discharger to submit a Salinity Evaluation and Minimization Plan to evaluate methods to control salinity in its discharge to the extent feasible;

b. Prohibits ion exchange wastewater from being discharged into the waste stream and to the LAAs; and

c. Sets a performance limit of **1,790 mg/L of TDS** (calculated as an annual average). This limit considers the 2022 and 2024 annual average TDS concentration of the discharge (1,628 mg/L) and includes an approximate 10 percent contingency to accommodate for drought and water conservation efforts. The average annual effluent TDS concentration observed in 2023 was omitted from calculation of the limit due to heavy precipitation that occurred during that year.

62. The Nitrate Control Program is a prioritized program. The Facility is within Groundwater Basin 5-022.06 (San Joaquin Valley – Madera), which is a Priority 2 Basin. Notices to Comply for dischargers in Priority 2 Basins were sent in December 2023, and recipients had until February 2025 to respond. The Discharger is listed as a participant in the Valley Water Collaborative's Preliminary Management Zone Implementation Plan for the Madera Management Zone, and is, therefore, participating in the Management Zone Approach (Path B) for the Nitrate Control Program.

63. As the Salt and Nitrate Control Programs are implemented, the Central Valley Water Board may find it necessary to modify the requirements of these WDRs. As such, this Order may be amended or modified to incorporate any newly applicable requirements to ensure that the goals of these Programs are met. 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 Waste

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

65. Excessive application of high organic 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, which include planting crops to take up nutrients, and maximizing oxidation of BOD_5 to prevent nuisance conditions.

66. Regarding BOD_5, excessive application can deplete oxygen in the vadose (unsaturated) zone and lead to anoxic conditions. At the ground surface, this can result in nuisance odors and fly breeding. When insufficient oxygen is present below the ground surface, anaerobic decay of organic matter can create reducing conditions that convert metals that are naturally present in the soil as relatively insoluble (oxidized) forms to more soluble reduced forms. This condition can be exacerbated by acidic soil and/or acidic 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) can degrade shallow groundwater quality. Many aquifers contain enough dissolved oxygen to reverse the process, but excessive BOD_5 loading over extended periods may cause beneficial use impacts associated with these metals.

67. 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 within the vadose 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.

68. *Pollution Abatement in the Fruit and Vegetable Industry*, published by the United States Environmental Protection Agency, recommends BOD_5 loading rates in the range of 36 to 600 lbs/acre-day to prevent nuisance, but indicates the loading rates can be even higher 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 that are prevalent throughout the Central Valley region.

69. 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 rate ranges as follows:

a. Risk Category 1: (less than 50 lbs/ac/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/ac/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/ac/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 that consider site-specific application cycles and soil properties and special monitoring.

The Manual of Good Practice recommends allowing a 50 percent increase in the 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.

70. Although it has not been subject to a scientific peer review process, the Manual of Good Practice provides science-based guidance for BOD_5 loading rates that, if fully implemented, are considered a best management practice to prevent groundwater degradation due to reduced metals. Projected BOD_5 loading rates to the LAAs average about 40 lbs/ac/day with a range from 26.9 to 61.5 lbs/ac/day, as discussed in Finding 27. These WDRs establish a BOD_5 cycle average loading rate of 100 lbs/ac/day to prevent odor conditions from occurring and to prevent groundwater degradation due to reduced metals.

Antidegradation Policy

71. State Water Board Resolution 68-16, *Statement of Policy with Respect to Maintaining High Quality Waters in California* (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 ensure 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.

72. 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 water

is a high-quality water is established on a constituent-by-constituent basis, which means that an aquifer can be considered a high-quality water with respect to one constituent, but not for others (SWRCB Order No. WQ 91-10). If the activity will not result in the degradation of high-quality waters, the Antidegradation Policy does not apply, and the dischargers need only demonstrate that it will use "best efforts" to control the discharge of waste.

73. The Discharger currently has a 12-well groundwater monitoring well network to monitor the quality of the underlying first encountered groundwater; however, only half of the wells currently contain enough groundwater for sample collection. Some regional groundwater quality data collected prior to 1968 is available from the National Water Quality Monitoring Council Water Quality Portal. Given the limited availability of pre-1968 water quality information, and the variable water quality results available, compliance with the Antidegradation Policy will be determined based partly on pre-1968 water quality and source water quality, as discussed below. Table 14 compares the observed concentration ranges for constituents of concern for 2022 to 2024 annual average effluent quality, available pre-1968 (1961 and 1966 data) groundwater quality results, observed source water quality (2013 data except for nitrate [2013 through 2023 data]), and 2022 through 2024 upgradient and downgradient groundwater quality data collected from the Facility's monitoring well network. Available constituent WQOs are also presented in Table 14 for reference.

Table 14 – Constituents with Potential for Degradation

Constituent	Effluent	Pre 1968 Groundwater	Up-gradient	Down-gradient	Source Water Quality	WQOs
BOD_5 (mg/L)	827 – 1,793	---	---	---	---	---
Nitrate as N (mg/L)	3.2 – 4.9	2.0 – 7.0	4.5 – 5.0	6.5 - 16	3.9 – 7.1	10
Total nitrogen (mg/L)	29 - 83	---	5.4 – 5.7	7.8 – 17.2	3.9 – 7.1	---
EC (µmhos/cm)	1,618 – 2,017	760 – 1,370	670 – 790	470 – 1,600	480 - 645	700 (Ag)
TDS (mg/L)	1,343 - 1,642	498 – 989	500 - 560	310 – 1,100	460 - 510	500
Chloride (mg/L)	210 - 254	72 – 250	80 - 88	33 - 90	43 - 52	250
Sulfate (mg/L)	---	---	62 - 75	26 - 130	27 - 28	250

a. **Salinity.** The available groundwater data for the site shows variable groundwater quality with regard to salinity, likely due to the differing depths

of the wells from which samples were collected. EC results range from good water quality (better than applicable WQOs) to poor (worse than applicable WQOs). However, the pre-1968 water quality data is from wells mostly northeast and north (cross-gradient) of the Facility and the results for EC and TDS are similar (both below and above applicable WQOs) to the current values in the Facility's downgradient monitoring wells (Table 13). While salinity concentrations in groundwater are generally poor, observed source water EC and TDS levels are below and near respective WQOs; therefore, groundwater underlying the Facility is considered high-quality with regard to salinity. Effluent salinity concentrations exceed receiving water concentrations (source water quality), as such, the discharge may degrade receiving water quality.

However, it is unclear the proportion of TDS that are fixed dissolved solids (FDS), which is the non-volatile portion of TDS that has the potential to percolate or leach to shallow groundwater. These WDRs include Provisions J.7 and J.8, which require the Discharger to prepare a salinity reduction work plan and submit a final technical report that evaluates the sources and the salt load in the discharge, including FDS.

Should the CST Steamboy treatment system become non-operational, these WDRs also include Discharge Prohibition B.4, which requires that ion exchange wastewater be separated from the other Facility wastewater streams and not be discharged to the effluent storage ponds or LAAs. Ion exchange wastewater may be temporarily stored onsite in a manner that precludes introduction to the other Facility waste streams, prior to being disposed offsite or treated in the CST Steamboy once it is operational.

These WDRs include an annual flow limit (255 mgy) and a Performance-Based Salinity Limit (1,790 mg/L TDS) that, when coupled, significantly reduce the maximum authorized salt loading of the discharge. In addition, this Order also includes other requirements (e.g., participation in the P&O Study, storage of wastewater on properly lined surfaces, and application at agronomic rates) that constitute BPTC for discharges of salt from the Facility.

b. **Nitrate.** For nutrients such as nitrate, the potential for groundwater degradation depends on wastewater quality, rates of application to LAAs, and the ability of the vadose zone below the LAAs to support nitrification and denitrification. Receiving groundwater is considered high quality with respect to nitrate as N, with maximum detected concentrations of about 7 mg/L in both pre-1968 data and recent source water quality data. While observed average wastewater concentrations of nitrate as N at the Facility are below these observed groundwater nitrate as N concentrations, the process wastewater contains elevated concentrations of total nitrogen.

Total nitrogen levels in the discharge averaged 83 mg/L in 2024, but ranged from 4.3 to 748 mg/L, and may have included organic nitrogen and ammonia nitrogen, which has the potential to mineralize and convert to nitrate (with some loss via ammonia volatilization) and increase the net concentration of nitrate as N.

As discussed in the findings above, nitrogen loading to the LAAs was estimated in the RWD to be about 150 lbs/ac when evenly applied across the entire LAAs. The LAAs are currently cropped with pasture grasses, but the Discharger has indicated they have planted alfalfa on Fields K and I and will plant alfalfa on Field H in the near future, and that other crops may be rotated through the LAAs based on agronomic need. As indicated in Table 8, the published annual uptake rate for alfalfa is 480 lbs/ac, which is triple the estimated loading from wastewater. Annual uptake rates for other crops that may be rotated/grown on the LAAs also exceed the estimated nitrogen load from wastewater application. As such, nitrogen loading rates are expected to be less than the agronomic nitrogen demand of crops grown at the LAAs. Therefore, degradation with respect to nitrogen is not anticipated to occur as a result of this Order.

Additionally, the Discharger has implemented various measures to reduce the Facility's potential impact on underlying groundwater (i.e., lining the Facility's ponds and application of process wastewater on crops at agronomic rates). Furthermore, the Facility is in a Priority 2 Zone for the Nitrate Control Program. The Discharger received a Notice to Comply for the Nitrate Control Program in December 2023 and has elected to participate in the Madera Management Zone.

c. **Organics.** The Facility produces high-strength process wastewater, with highly variable BOD_5 concentrations that range from 97 to 11,000 mg/L. The Discharger stores the wastewater temporarily in two lined ponds with capacities of 250,000 gallons each minus two feet for freeboard. This Order requires the Discharger to comply with a BOD_5 cycle average loading rate of 100 lbs/acre/day by utilizing all of the 296 acres for disposal. BOD_5 loading estimates are low and the estimated annual average is 40 lbs/ac/day with a range from 26.9 to 61.5 lbs/ac/day.

As discussed in Finding 66, excessive BOD_5 loading can cause certain metal constituents, such as manganese, iron, and arsenic, that are naturally present in the soil as relatively insoluble (oxidized) forms to more soluble reduced forms. However, even application of wastewater, utilization of the entirety of the LAAs, and adherence to the BOD_5 cycle average loading limit required by this order should be sufficient to prevent reducing conditions. Additionally, if limited reducing conditions were to occur, it is expected that metal constituents would oxidize prior to reaching

groundwater due to the large vadose zone and depth to groundwater underlying the Facility (approximately 200 feet bgs). Therefore, groundwater quality degradation with regard to metals is not anticipated to occur as a result of this Order.

Available regional groundwater quality results do not indicate elevated metals concentrations, but groundwater samples from the Facility's groundwater monitoring wells are not currently analyzed for these constituents. While groundwater degradation with regard to metals is not anticipated from the current discharge, historical wastewater application at the LAAs often exceeded that previously permitted BOD limit of 600 lbs/ac/day, warranting additional monitoring for these constituents to evaluate the discharge's impact to causing reducing conditions. As such, the MRP requires groundwater monitoring for iron, manganese, and arsenic.

74. The Discharger implements, or will implement, as required by this Order the following measures, which the Central Valley Water Board has determined constitute BPTC for the discharge and the constituents of concern described above. These measures will minimize the extent of water quality degradation resulting from the discharge authorized by this Order:

a. Initial pretreatment (screening) of solids generated from wine, grape juice concentrate, and stillage production prior discharge to the lift station.

b. Additional pretreatment of wastewater using rotary screens prior to discharge into lined effluent retention ponds.

c. Evaporation of high strength ion exchange wastewater in the CST SteamBoy system to reduce salinity concentrations in the effluent.

d. Solids screened from the waste stream and dried salts are collected and disposed of offsite at an authorized disposal facility.

e. Wastewater storage in properly lined effluent storage pond(s)

f. The Discharger must prepare and implement a Wastewater and Nutrient Management Plan.

g. Compliance with a BOD_5 cycle average loading rate of 100 lbs/acre/day

h. Preparation and implementation of a Salinity Evaluation and Minimization Plan.

i. Compliance with an Annual Performance-Based Effluent Limit for TDS

j. The Discharger must maintain compliance with the Salt and Nitrate Control Programs, including participation in the Prioritization and Optimization Study (P&O Study) and the Madera Management Zone.

75. The limited degradation of high-quality water authorized by this Order is consistent with the maximum benefit of the people of the State. The Facility employs about 240 full-time employees during the year and during harvest employs another 30 temporary employees. The Facility contributes to the economic prosperity of the region by providing necessary service and employment for the local community, by providing incomes for numerous aligned businesses, as well as local and county governments. Additionally, the Discharger is a member in good standing with the P&O Study, which is intended to identify and implement long-term solutions for achieving balanced salt-loading to the region's waters.

76. Based on the foregoing, the adoption of this Order is consistent with the State Water Board's Antidegradation Policy.

California Environmental Quality Act

77. This Order, which authorizes and regulates existing discharges of wastewater from an existing facility, with negligible or no expansion of existing use, is exempt from California Environmental Quality Act (CEQA) pursuant to California Code of Regulations, title 14, section 15301.

Other Regulatory Considerations

Water Code Section 13149.2

78. 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 nitrogen). 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 an 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. 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.

79. 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 concentrations that may cause 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 discharges to nearby disadvantaged communities in Madera County. Although this Order may result in limited increases to salinity 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 nitrogen-impacted groundwater basins across the region.

Human Right to Water

80. 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 (see § 106.3, subdivision (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, this Order requires compliance with the Salt Control Program. Although the Basin Plans' Exceptions Policy for Salinity, Nitrate, and/or Boron allows participants in these Programs to obtain limited-term exceptions from MCLs for salinity and/or boron, these Programs are consistent with the Human Right to Water Policy because their over-arching management goals and priorities include the short-term provision of providing 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

81. For the purposes of California Code of Regulations, title 23, section 2200, the Facility has a threat-complexity rating of 2-B.

    a. Threat Category "2" reflects waste discharges that can impair receiving water beneficial uses, cause short-term water quality objective violations, 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 WMUs.

Title 27 Exemption

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

Stormwater

83. Stormwater at the Facility is collected in a dedicated stormwater lift station and directed to lined Pond 1 where it comingles with process wastewater prior to discharge to Field I. During rainfall periods, the Facility directs process water from the main sump to Pond 2 to isolate stormwater from the winery process wastewater. Because all stormwater at the Facility is collected and disposed of onsite with the process wastewater, 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.

Scope of Order

84. 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 herein as “Discharger.”

85. 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.

86. 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

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

88. 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.)

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

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

REQUIREMENTS

IT IS HEREBY ORDERED, pursuant to Water Code sections 13263 and 13267 WDRs Order 95-164 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. Waste classified as “hazardous” (per Title 22, § 66261.1 et seq.), shall not be discharged at the Facility under any circumstance.

2. 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.

3. Discharge of wastes other than the Facility’s winery wastewater, at the locations and in the manner described in the Findings and authorized herein is prohibited.

4. Ion exchange liquid wastewater shall not be discharged to the ponds or to the LAAs. In accordance with Finding 27.c, should the CST Steamboy treatment system be taken offline, the ion exchange wastewater shall be temporarily stored onsite in a tank, container, or storage vessel that precludes introduction to the discharge and/or land, and dried when the CST Steamboy evaporation system becomes operational again, or it shall be disposed of off-site at an authorized waste disposal facility.

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

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

7. The discharge of process wastewater to the onsite septic/leach field system is prohibited.

8. Discharge of domestic wastewater to the process wastewater treatment system, lined ponds, and/or LAAs 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 (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 Management Zone Approach.

D. Flow Limitation

1. The combined wastewater discharged from the Facility to Ponds 1 and 2 shall not exceed a total annual discharge of 255 mgy (monitored at Monitoring Location INF-01).

E. Performance Based Salinity Limit

1. To comply with the Salt Control Program, the Discharger has selected the Alternative Salinity Permitting Approach (i.e., participation in the P&O Study). Therefore, as discussed in the above Findings, these WDRs establish performance-based effluent limitation for TDS of **1,790 mg/L** (as an average annual concentration of effluent in Pond 2 [monitored at Monitoring Location EFF-002]).

F. Discharge Specifications

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

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

3. All wastewater shall be contained in or stored on an engineered lined surface. The engineered lined surface shall meet a hydraulic conductivity standard of 1 x 10^{-6} centimeters per sec 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.

4. The Discharger shall regularly inspect the liner condition of the effluent storage pond(s). The Discharger shall maintain and repair the liner as necessary to ensure the integrity of the pond liners is maintained and leakage from the liners is minimized. Necessary repairs shall be completed in reasonable timeframes that are consistent with the severity of the impairment and potential for impact to water quality.

5. Provision J.5 of this Order requires the Discharger to assess the leachate collection and removal system (LCRS) installed at Ponds 1 and 2, and determine an action leakage rate (ALR). Leachate generation to either LCRS shall not exceed the ALR and/or the rate necessary for efficient pump operation. If leachate generation exceeds this rate and/or if the depth of the fluid in an LCRS exceeds the minimum needed for safe pump operation, then the Discharger shall immediately cease the discharge of waste, excluding leachate, to the impoundment and shall notify the Board in writing within seven days. Notification shall include a timetable for remedial action to repair the upper liner of the impoundment or other action necessary. To ensure compliance with Discharge Specification F.4, if the LCRS exceeds the ALR, the Discharger shall provide a workplan that discusses how the Discharger intends to address the pond liner leak(s) in a timely manner. This workplan shall be submitted within 60 days of the ALR exceedance.

6. 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.

7. Objectionable odors shall not be perceivable beyond the limits of the Facility property 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 or storage pond 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 the DO in the pond(s) is below 1.0 mg/L for any single sampling event, the Discharger shall implement daily DO monitoring of that pond until the minimum DO concentration is achieved for at least three consecutive days. If the DO in the pond is below 1.0 mg/L for three consecutive days, the Discharger shall report the findings to the Central Valley Water Board in accordance with Section B.1 of the SPRRs. The written notification shall include a specific plan to resolve the low DO results within 30 days of the first date of violation.

8. DO content does not constitute the exclusive means of determining compliance with the Discharge Specification against offsite objectionable odors, as such odors may nevertheless be generated in surface impoundments despite the presence of DO.

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. The Discharger shall monitor residual solids accumulation in the effluent storage ponds annually and shall periodically remove residual solids as necessary to maintain adequate storage capacity. Specifically, if the estimated volume of sludge in the pond(s) threatens to impact the pond(s)

storage capacity, the Discharger shall clean out the pond(s) within 12 months after the date of the estimate.

11. The Discharger shall 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 with calibration marks that clearly show the water level at design capacity and enable determination of available operational freeboard.

12. 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.

13. On or about 1 October of each year, wastewater treatment, storage, and disposal ponds or structures shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration during the winter while ensuring compliance with all requirements of this Order. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

G. 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 in excess of natural background groundwater quality, whichever is greater:

1. Constituents in concentrations that exceed either the Primary or Secondary MCLs established in Title 22, excluding salinity provided the Discharger complies with Salt Control Program requirements (see Conditional Prohibition C.1 and J.3).

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]).

H. Land Application Area Specifications

For the purposes of this Order, “land application areas” or “LAAs” refers to the discharge areas described in Findings 13 and 14 (i.e., Fields H, I, K, and the flood irrigated perimeter LAAs.) and shown in Attachment E.

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

2. The perimeter of the LAAs shall be graded to prevent ponding along public roads or other public areas and prevent runoff or overspray onto adjacent properties not owned or controlled by the Discharger.

3. Application of waste constituents to the LAAs shall be at reasonable agronomic rates to preclude creation of a nuisance or unreasonable degradation of groundwater, considering crop, soil, climate and irrigation management system. The annual nutritive loading of the LAAs, including nutritive value of organic and chemical fertilizers, plant available nitrogen stored in LAA soils, and the wastewater shall not exceed the annual crop demand.

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

    a. 50 feet of a water supply well,

    b. 50 feet of a surface water or surface water drainage course, or

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

5. Hydraulic loading of wastewater and irrigation water shall be managed to:

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

    b. Maximize crop nutrient uptake

    c. Maximize breakdown of organic waste constituents in the root zone

    d. Minimize the percolation of waste constituents below the root zone (i.e., deep percolation).

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.

6. The BOD_5 loading to the LAAs, calculated as a cycle average as determined by the methods described in the attached MRP, shall not exceed **100 lbs/acre/day.**

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 Discharger shall not discharge process wastewater to the LAA when soils are saturated (e.g., during or after significant precipitation).

10. The Discharger shall ensure that all water is applied and distributed with reasonable uniformity on adequate acreage to preclude the creation of nuisance conditions and violations of groundwater limitations.

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

12. The LAA shall be managed to prevent breeding of mosquitoes. More specifically:

    a. All applied irrigation water must infiltrate completely within 48 hours;

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

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

13. Irrigation of the LAAs shall occur only when appropriately trained personnel are on duty.

14. As required by the MRP, LAAs 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.

I. Solids Disposal Specifications

1. For the purpose of this Order, residual solids include the solid, semisolid, and liquid organic matter removed during the screening of wastewater and stillage.

2. Residual solids shall be removed from screens, vaults, and ponds as needed to ensure optimal operation, prevent nuisance conditions, and maintain adequate storage capacity.

3. Any handling and storage of residual solids shall be temporary and 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 approved by the Executive Officer and consistent with Title 27, division 2. Removal for reuse as animal feed, biofuel 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 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 their 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) to address ongoing salt and nitrate accumulation in the Central Valley and developed as part of the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative.

4. In accordance with 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.

5. **By 19 September 2025,** the Discharger shall submit an **Operations and Maintenance Plan (O&M Plan)** that describes operation and maintenance of the concrete drainage system to collect wastewater, lift sumps, rotary screens, and lined ponds used to store wastewater. The O&M Plan shall specify clean-out activities for the effluent storage ponds, as well as frequency of clean-out, and how the Discharger plans to monitor the integrity of the pond liners and concrete conveyances, and conduct liner repairs, as required by Discharge Specification F.4. Additionally, the O&M Plan shall assess the LCRS at each of the effluent storage ponds and establish an ALR, that when exceeded triggers the Discharger to take necessary action to identify and repair liner breaches, as required by Discharge Specification F.5. Lastly, the O&M Plan shall describe the operation and maintenance of the CST SteamBoy evaporation system and the four water softeners present at the site.

6. **By 19 December 2025**, 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, including how the Discharger will evenly apply wastewater across an entire field. The Plan shall also demonstrate how the Facility will not discharge wastewater to LAA when the soil is saturated (e.g., during and after significant precipitation).

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

d. Details on how wastewater and irrigation water will be blended (if applicable).

e. A detailed map of the LAAs to be used each year to facilitate tracking annual wastewater application and nutrient release to the land.

f. Management practices that will ensure that wastewater, irrigation water, and fertilizers/compost are applied at agronomic rates to the LAA, 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. **By 19 December 2025**, develop and implement a **Salinity Evaluation and Minimization Work Plan** for the proposed discharge. This work plan shall identify salinity control measures that could further reduce the salinity of the Facility's discharge, including chloride. The Plan shall provide a description of the tasks, cost, and time required to investigate and implement the various elements in the Salinity Control and Minimization Plan. At a minimum, the plan shall include:

a. An estimate of all the sources that contribute, or potentially contribute, to the loadings of salinity, including chloride, in the Facility's proposed process wastewater discharge.

b. An analysis of the methods/alternatives that could be used to reduce the sources of salinity, including chloride, that discharge into the facility process wastewater streams. Specifically, the work plan shall assess the feasibility of removing the water softener and stillage wastewater streams from the discharge and disposing them offsite.

c. A description of the tasks, costs, and time required to investigate and implement various elements in the Salinity Evaluation and Minimization Plan.

d. A plan for monitoring the results of the Salinity Evaluation and Minimization Plan.

8. **Within one year following approval of the Salinity Evaluation and Minimization Work Plan,** the Discharger shall submit a **Salinity Evaluation and Minimization Final Report**. At a minimum, the Final Report shall include:

    a. Summary and findings associated with Salinity Evaluation and Minimization Work Plan activities.

    b. Proposed method(s) of compliance with the Salinity Control Program.8.

    c. Proposed methods/alternatives for reducing the sources of salinity that discharge into the facility process wastewater streams.

    d. Identification of the recommended source control measures to decrease salinity concentrations at Facility process water components, where necessary.

9. **By 19 December 2025, the Discharger shall submit a Groundwater Monitoring Well Network Evaluation Work Plan** that evaluates the existing groundwater monitoring well network and proposes methods (e.g., lowering pumps, new wells, etc.,) to provide monitoring of the underlying groundwater. Furthermore, this work plan shall satisfy the information needs specified in the monitoring well installation section of **Attachment G**, Requirements For Monitoring Well Installation Workplans And Monitoring Wells Installation Reports. The monitoring wells shall comply with appropriate 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), and any more stringent standards adopted by local agencies pursuant to Water Code section 13801. The Workplan shall include a timeline for installing the monitoring wells in accordance with the deadlines specified in this Order.

10. **By no later than 180 days from Executive Officer approval of the Groundwater Monitoring Workplan,** the Discharger shall complete the modifications/installations to the groundwater monitoring well network in accordance with the approved Work Plan and shall submit **a Technical Report** detailing the modification/installation of the monitoring well network and results of the initial sampling event. The technical report shall meet the requirements of the Monitoring Well Installation Report Section (Section 2) of **Attachment G.**

11. 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.

12. 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.

13. 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 includes 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.

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

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

16. 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.

17. To assume operation as 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 Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. The new owner/discharger shall also submit documentation indicating its participation (or intent to participate) in the (1) Prioritization and Optimization Study and (2) Management Zone Approach (Path B) for the Nitrate Control Program (i.e., by participating in the Valley Water Collaborative Management Group for the Madera 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.

18. 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.

19. 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 the Water Code, including sections 13268, 13350, and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

ADMINISTRATIVE REVIEW

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

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

ATTACHMENTS

Attachment A — Project Location Map

Attachment B — 1929 USGS Topographic Map

Attachment C — 1995 Site Map

Attachment D — Current Site Map with Groundwater Monitoring Wells and January 2024 Groundwater Elevation Contours

Attachment E – Site Plan with Land Application Area (Pivot Sprinkler and Flood)

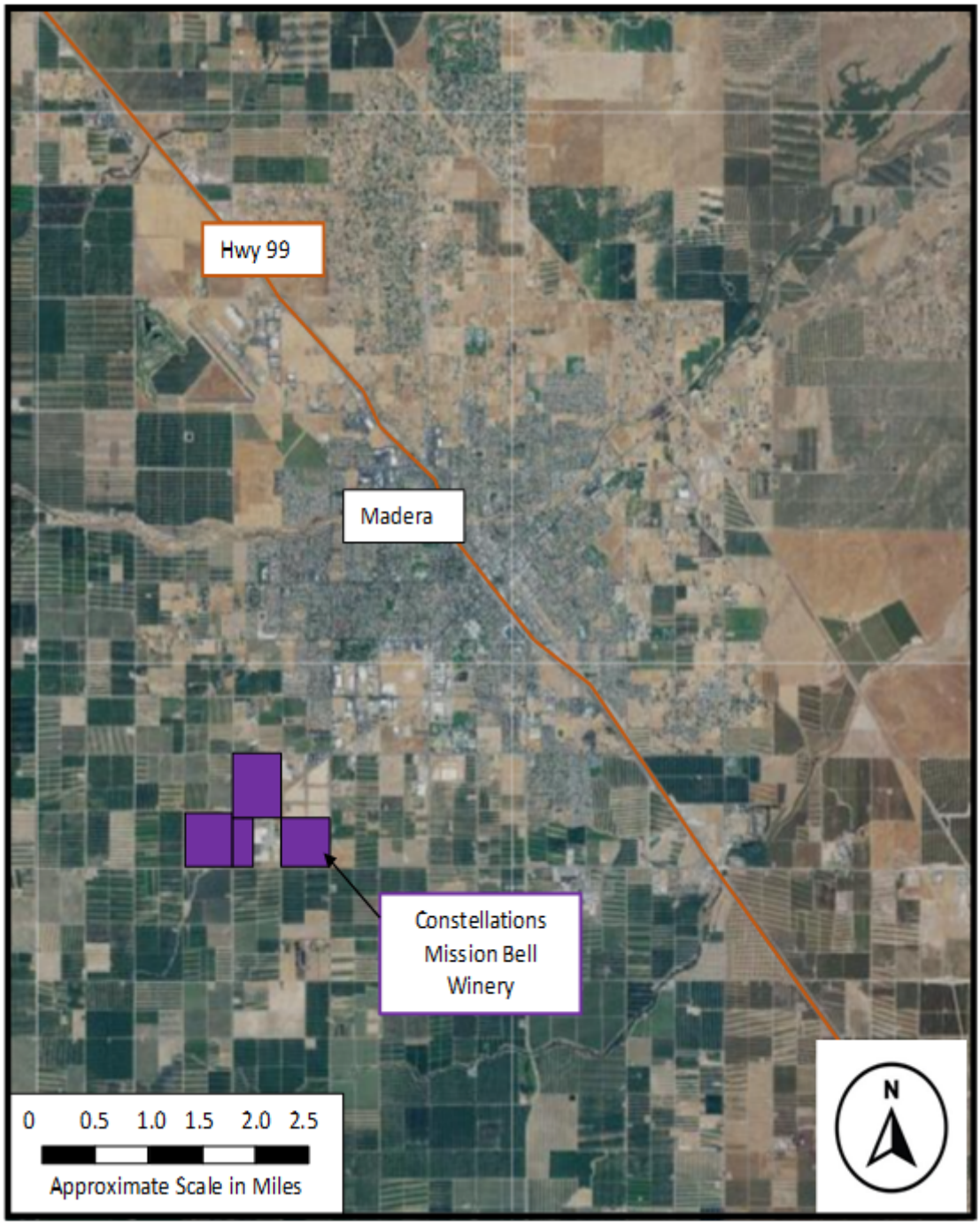
Attachment F — Process Flow Diagram

Attachment G — Requirements for Groundwater Monitoring Well Installation Work Plans

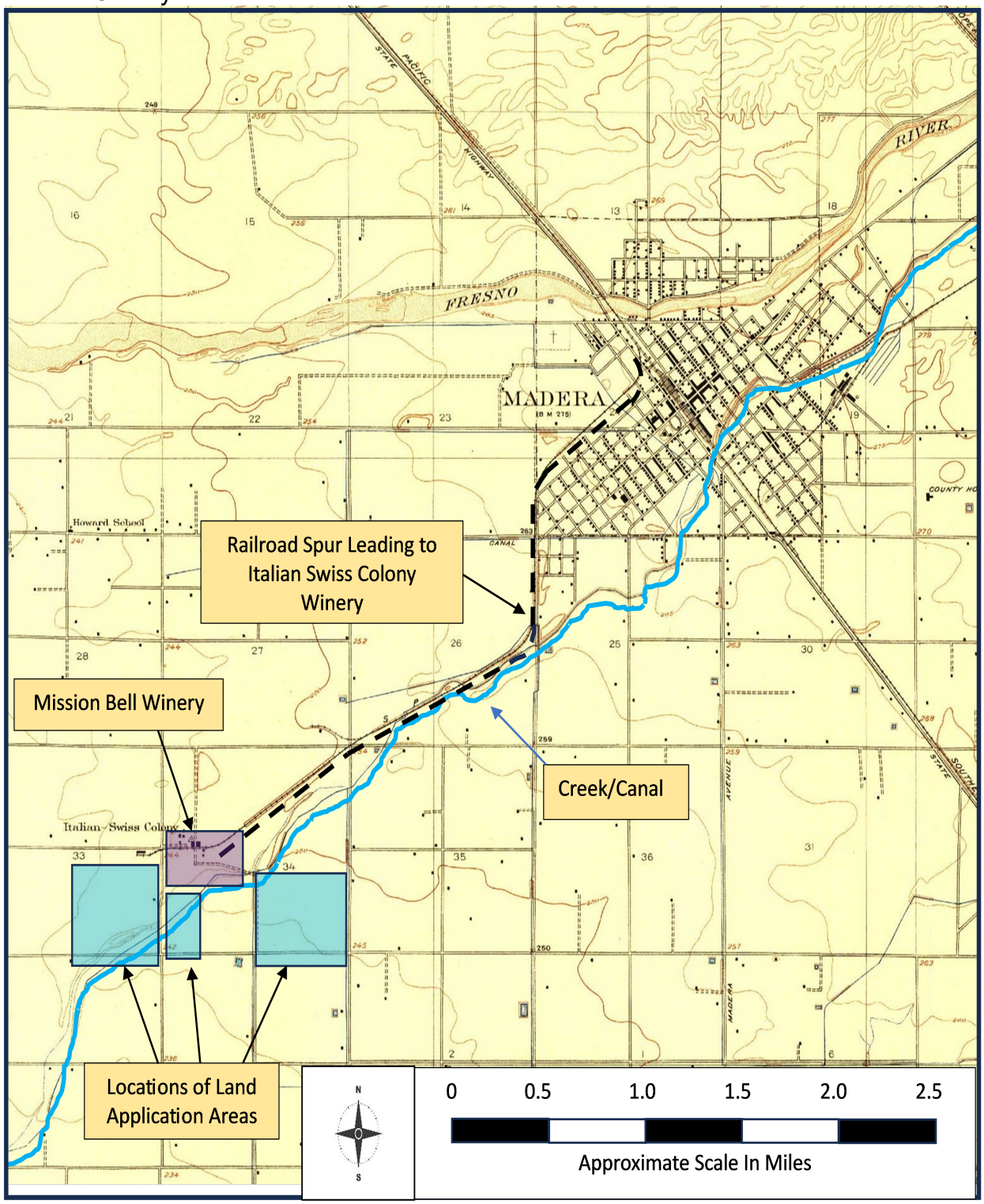
Standard Provisions & Reporting Requirements

Information Sheet

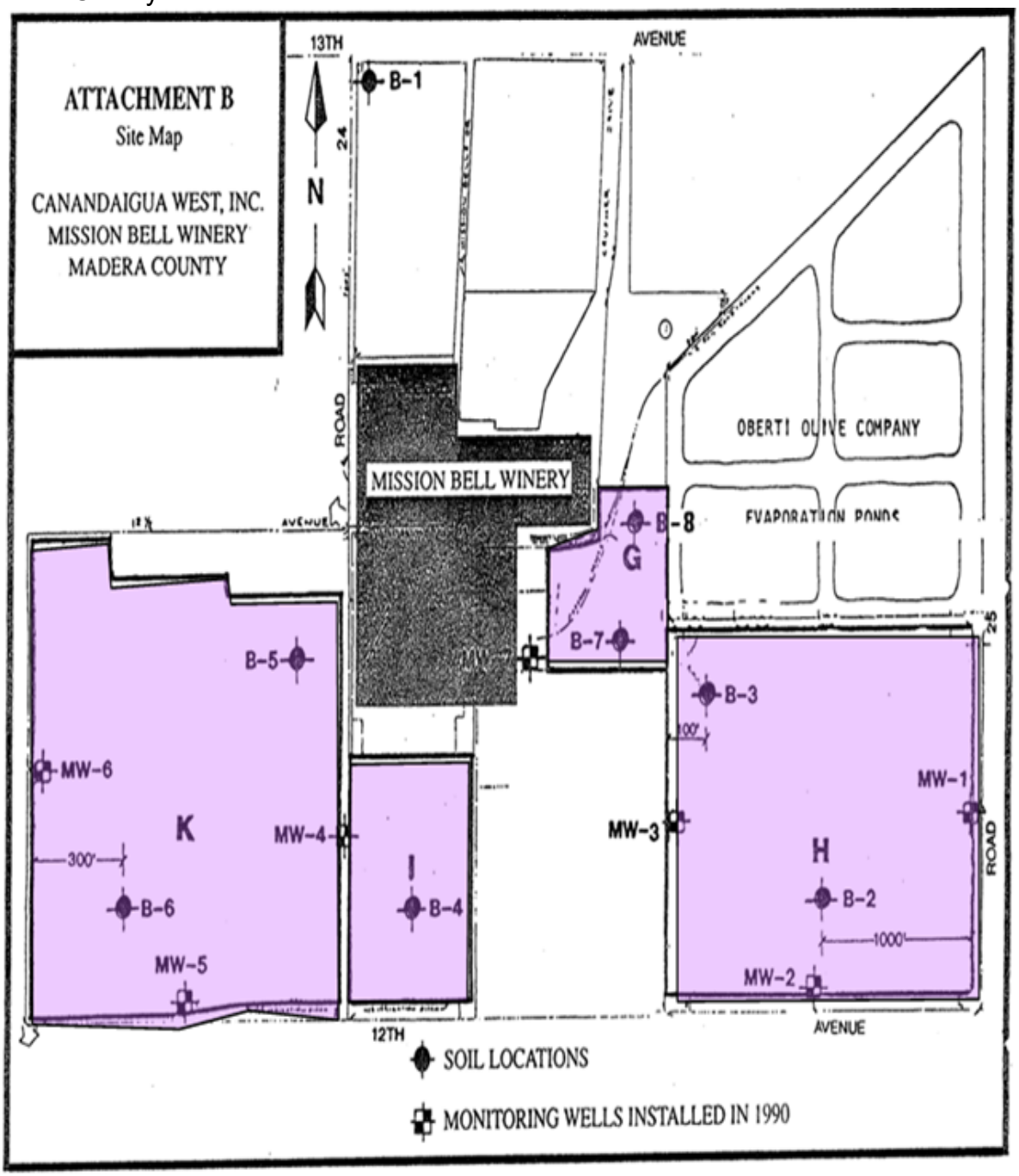
Monitoring and Reporting Program R5-2025-xxxxx



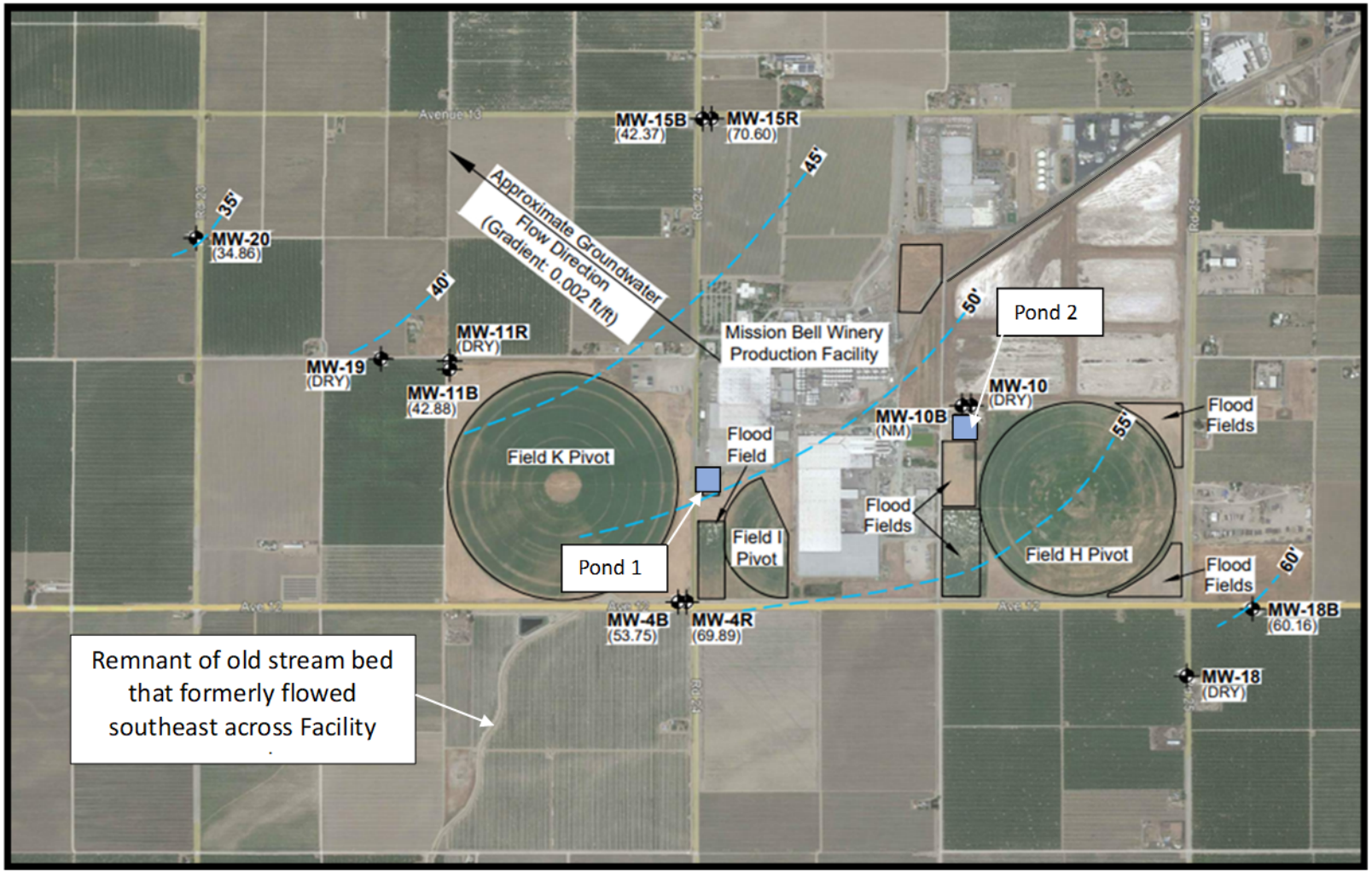
ATTACHMENT A — PROJECT LOCATION MAP



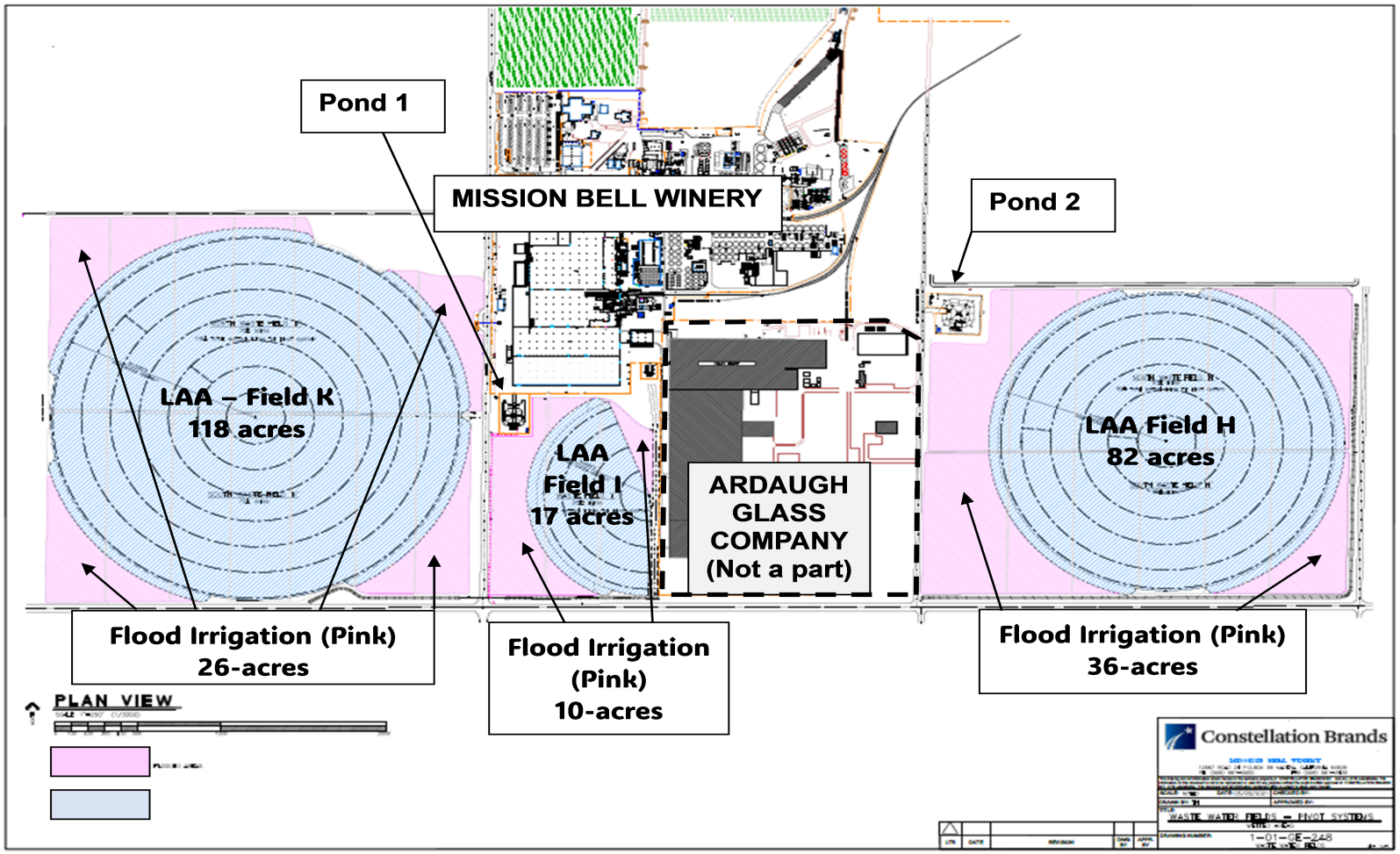
ATTACHMENT B – 1929 USGS TOPOGRAPHIC MAP



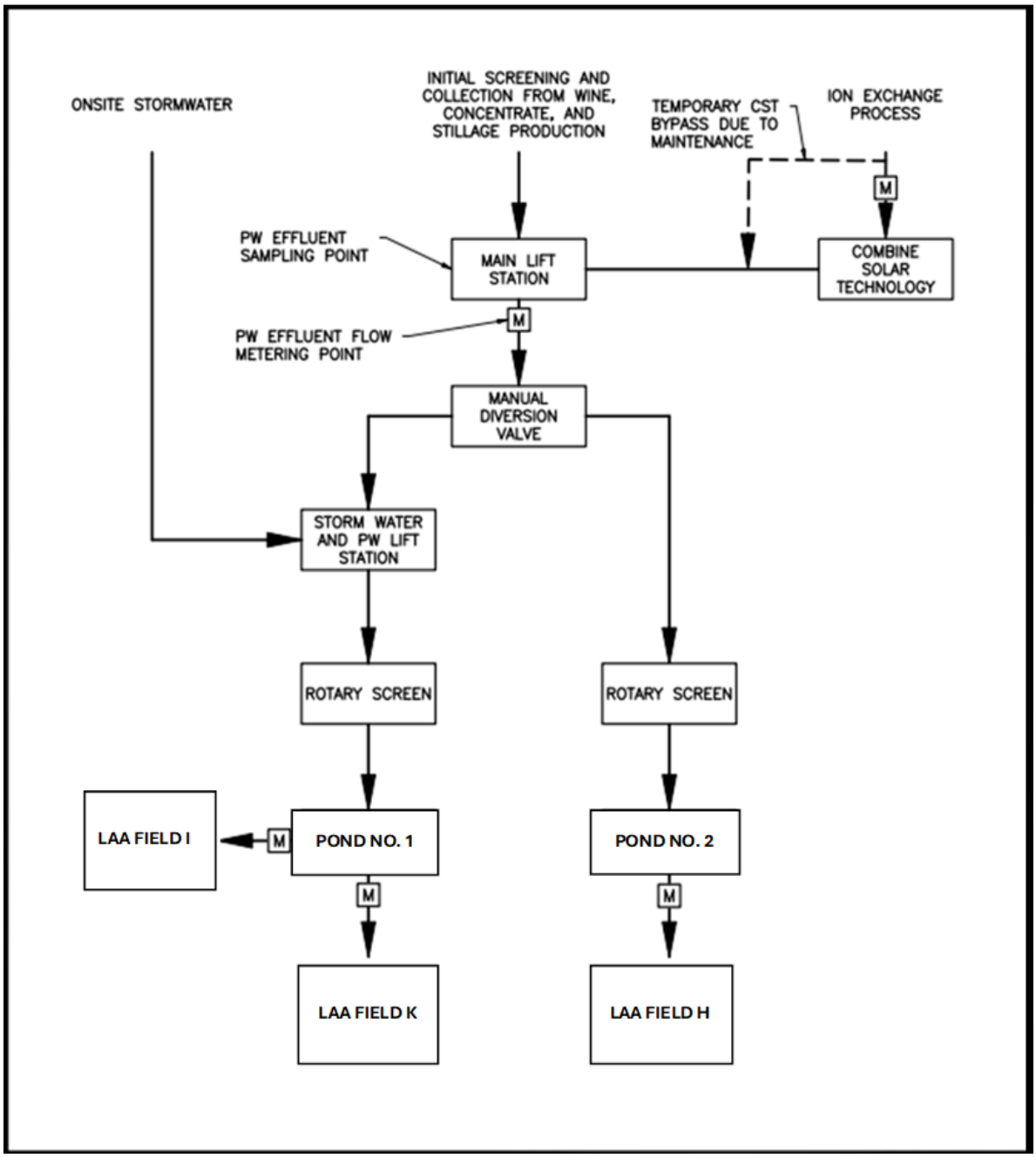
ATTACHMENT C – 1995 SITE MAP



ATTACHMENT D – CURRENT SITE PLAN WITH GROUNDWATER MONITORING WELLS AND JANUARY 2024 GROUNDWATER ELEVATION CONTOURS



ATTACHMENT E – CURRENT LAND APPLICATION AREAS



ATTACHMENT F – PROCESS FLOW DIAGRAM

ATTACHMENT G — REQUIREMENTS FOR MONITORING WELL INSTALLATION WORKPLANS AND INSTALLATION REPORTS

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing, at a minimum, the information listed in Section 1, below. Wells may be installed after staff approves the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report which includes the information contained in Section 2 below. All workplans and reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

SECTION 1 -Monitoring Well Installation Workplan and Groundwater Sampling and Analysis Plan

The monitoring well installation workplan shall contain the following minimum information:

A. General Information:

- Purpose of the well installation project
- Brief description of local geologic and hydrogeologic conditions
- Proposed monitoring well locations and rationale for well locations
- Topographic map showing facility location, roads, and surface water bodies
- Large-scaled site map showing all existing on-site wells, proposed wells, surface drainage courses, surface water bodies, buildings, waste handling facilities, utilities, and major physical and man-made features

B. Drilling Details:

- Description of the on-site supervision of drilling and well installation activities
- Description of drilling equipment and techniques
- Equipment decontamination procedures
- Soil sampling intervals (if appropriate) and logging methods

C. Monitoring Well Design (in narrative and/or graphic form):

- Diagram of proposed well construction details:
  - Borehole diameter
  - Casing and screen material, diameter, and centralizer spacing (if needed)
  - Type of well caps (bottom cap either screw on or secured with stainless steel screws)

- Anticipated depth of well, length of well casing, and length and position of perforated interval
- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Anticipated screen slot size and filter pack

D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):

- Method of development to be used (i.e., surge, bail, pump, etc.).
- Parameters to be monitored during development and record keeping technique.
- Method of determining when development is complete.
- Disposal of development water.

E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):

- Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey.
- Datum for survey measurements.
- List well features to be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.

F. Schedule for Completion of Work

G. Appendix: Groundwater Sampling and Analysis Plan (SAP)

The Groundwater SAP shall be included as an appendix to the workplan, and shall be utilized as a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities.

Provide a detailed written description of standard operating procedures for the following:

- Equipment to be used during sampling
- Equipment decontamination procedures
- Water level measurement procedures
- Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged)
- Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used)
- Purge water disposal
- Analytical methods and required reporting limits

- Sample containers and preservatives
- Sampling
  - General sampling techniques
  - Record keeping during sampling (include copies of record keeping logs to be used)
  - QA/QC samples
- Chain of Custody
- Sample handling and transport

SECTION 2 - Monitoring Well Installation Report

The monitoring well installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

A. General Information:

- Purpose of the well installation project
- Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells
- Number of monitoring wells installed and copies of County Well Construction Permits
- Topographic map showing facility location, roads, surface water bodies
- Scaled site map showing all previously existing wells, newly installed wells, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details (in narrative and/or graphic form):

- On-site supervision of drilling and well installation activities
- Drilling contractor and driller’s name
- Description of drilling equipment and techniques
- Equipment decontamination procedures
- Soil sampling intervals and logging methods
- Well boring log (including the following):
  - Well boring number and date drilled
  - Borehole diameter and total depth

- Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
- Depth to first encountered groundwater and stabilized groundwater depth
- Detailed description of soils encountered, using the Unified Soil Classification System

C. Well Construction Details (in narrative and/or graphic form).

- Well construction diagram, including:
  - Monitoring well number and date constructed
  - Casing and screen material, diameter, and centralizer spacing (if needed)
  - Length of well casing, and length and position of perforated interval
  - Thickness, position and composition of surface seal, sanitary seal, and sand pack
  - Type of well caps (bottom cap either screw on or secured with stainless steel screws)

D. Well Development:

- Date(s) and method of development
- How well development completion was determined
- Volume of water purged from well and method of development water disposal
- Field notes from well development should be included in report

E. Well Survey (survey the top rim of the well casing with the cap removed):

- Identify the coordinate system and datum for survey measurements
- Describe the measuring points (i.e. ground surface, top of casing, etc.)
- Present the well survey report data in a table

Include the Registered Engineer or Licensed Surveyor’s report and field notes in appendix

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

[TENTATIVE] WASTE DISCHARGE REQUIREMENTS ORDER R5-2025-XXXX
FOR
CONSTELLATION BRANDS US PS, INC.
MISSION BELL WINERY
MADERA COUNTY

INFORMATION SHEET

BACKGROUND

Constellation Brands U.S. Operations, Inc. (Discharger) owns and operates the Mission Bell Winery (Facility) at 12667 Road 24 just southwest of the City of Madera in Madera County. The Facility has a long operational history as a winery, and some structures date back to the 1930s. United Vintners was issued the first Waste Discharge Requirements (WDRs) for the Facility on 21 January 1966 (Resolution 66-080). Subsequently, the Facility was purchased by Heublein, Inc. in 1969, which submitted a Site Evaluation Work Plan, a Report of Waste Discharge, and Wastewater Management Plan in February 1990 in support of a "discharge to land of grape and fruit juice concentrate and distillery wastes."

Over its significant history, operations at the Facility have resulted in documented groundwater degradation and a history of odors causing nuisance conditions. WDRs Order 95-164 was issued to Canandaigua West, Inc., on 23 June 1995 and authorized the discharge of winery wastewater to about 296 acres flood irrigated land application areas (LAA). The Discharger became the owners in January 2010. WDRs Order 95-164 further prescribed maximum discharge, application depth, drying time, and LAA disposal specifications during certain periods in a year, as shown in Table 1 and required by the Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan) for stillage waste. WDRs Order 95-164 also stated that "waste application rates for any reclamation area shall not exceed the environmental conditions at the site or 600 lbs/ac/day, whichever is less."

Table 1– WDRs 95-164 Flow Limitations

Time Period	Maximum Discharge (mgd)	Maximum Depth (inches)	Drying Time (days)	LAA Acreage (see 1 below)
1 May to 30 September	2.94	3.7	6	7
1 October to 30 November	1.67	3.0	9	12.3
1 December to 30 April	1.00	2.5	13	20.6

1. Minimum acreage that shall be used for disposal per 100,000 gallons per day (gpd).

INFORMATION SHEET

EXISTING FACILITY

The Facility and LAAs are contained in seven assessor parcels as listed in Table 2.

Table 2 – Assessor Parcel Numbers (APNs)

Area	APN	Acres
Facility & LAA Field I	046-010-015	210
Facility	046-010-009	20
LAA Field H	046-010-010	129
LAA Field K	045-190-011	143
LAA Field K	045-190-010	17
LAA Field K	045-190-015	1

The Facility includes an office, maintenance area, processing buildings, and tank farms. Wastewater at the Facility is generated from the cleaning and sanitation of winery and grape juice concentrate processing equipment. Wastewater from the operation of an ion exchange unit is typically treated on site in a CST SteamBoy evaporation system, and the dried solids are typically disposed of offsite and remove considerable salt from the discharge. From mid-2022 until late August 2024, the CST SteamBoy treatment system was not operational. Ion exchange wastewater during this time period was blended with the winery process wastewater and used for irrigation of the LAAs.

The average annual flow from 2018 through 2022 was 223.7 million gallons per year (mgy) and ranged from 185 to 253 mgy, while the annual flow in 2023 was about half of the observed flows from the previous years (109.2 mgy). The Discharger indicated that, while grape juice concentration was produced at the Facility during 2023 and 2024, wine making did not occur, resulting in decreased annual flow. The total and daily average discharges of winery process wastewater to the LAAs over the past seven years are summarized in Table 3.

Table 3 – Annual/Daily Flows 2018 through 2024

Year	Total Discharge (million gallons)	Daily Average (million gallons)
2024	109.4	0.299
2023	109.7	0.300

Year	Total Discharge (million gallons)	Daily Average (million gallons)
2022	215.4	0.591
2021	184.9	0.507
2020	224.0	0.614
2019	241.0	0.660
2018	253.1	0.693

Winery Process Wastewater Quality

The RWD and SMRs include blended effluent results for 2022 through 2024, and the average analytical results for the winery wastewater sampled from this period are shown in Table 4.

Table 4 - Average Effluent Analytical Results

Constituent (see 1 below)	2022	2023	2024
Median pH (s.u.)	7.8	7.2	7.1
EC (µmhos/cm)	1,901	1,618	2,017
BOD_5	1,793	827	1,609
COD	749	619	658
TDS	1,642	1,343	1,614
Chloride	210	254	244
Nitrate as Nitrogen	4.3	3.2	4.9
Total Kjeldahl Nitrogen	40	27	78
Total Nitrogen	45	29	83

The 2023 average wastewater quality results indicate lower constituent concentrations when compared to 2022 and 2024 data and may be related to the lack of wine production in 2023. Additionally, the heavy rainfall that occurred in the spring of 2023 may have influenced the effluent quality results via dilution, since stormwater runoff from parts of the Facility may comingle with wastewater in the area drains and central sump. Recent loading analyses provided by the Discharger were calculated using 2023 data, which could underestimate the loading scenarios. The most recent data from

2024 indicates that the effluent constituent concentrations for EC, TDS, BOD_5, total nitrogen, and total Kjeldahl nitrogen have returned to concentrations similar to those seen in 2022 and before.

Analytical results of ion exchange samples analyzed in 2022 through 2024 are summarized in Table 5.

Table 5 – Ion Exchange Analytical Results – 2022 through 2024

Constituent	Unit (See 1 below)	2022 Results	2023 Results	2024 Results
EC	µmhos/cm	14,763	4,508	6,918
BOD_5	mg/L	1,212	1,114	1,072
COD	mg/L	1,820	1,951	1,647
VDS	mg/L	3,217	1,538	1,681
TDS	mg/L	5,938	2,423	2,875
Total Nitrogen	mg/L	1,486	1,034	899
Nitrate as Nitrogen	mg/L	6.6	3.9	5.0
TKN	mg/L	1,402	1,030	904
Hardness	mg/L	729	188	245
Calcium	mg/L	161	39	55.6
Magnesium	mg/L	78	21	25.8
Sodium	mg/L	43	14	27
Potassium	mg/L	1,325	163	252
Copper	mg/L	0.1	0.015	0.106
Iron	mg/L	2.2	0.8	3.8
Manganese	mg/L	0.5	0.04	0.21
Zinc	mg/L	0.3	0.06	0.26
Calcium Carbonate	mg/L	1,865	1,994	
Hydroxide	mg/L	627	312	108
Carbonate	mg/L	740	488	271
Bicarbonate	mg/L	688	297	1,021
Chloride	mg/L	89	72	57
Sulfate	mg/L	3,858	1,531	1,761

1. µmhos/cm = micromhos per centimeter, mg/L = Milligrams per liter.

The results of sampling the ion exchange wastewater show the EC, BOD_5, TDS, sulfate, and total nitrogen at elevated concentrations. Operation of the CST SteamBoy is likely to remove a considerable volume of salt from the discharge. It should be noted that the CST Steamboy system was not operational for a portion of 2022 and all of 2023, but the results of salinity constituents including EC, TDS, hardness, potassium, etc.) were lower in 2023 than in 2022. It's not clear what the cause of the decrease in salinity was, but it's likely related to the Facility not making wine in 2023, not discharging stillage, and that 2023 was a very high rainfall year for the region and considerable stormwater likely was collected in the Facility area drains and diluted the waste stream.

REUSE OF EFFLUENT

Land Application Areas:

Effluent is discharged to LAAs contained in three Fields (Field H, Field, I, and Field K) covering a combined 217 acres as listed below.

- Field H – 82 acres
- Field I – 17 acres
- Field K – 118 acres

There are about 72 acres of LAAs outside the radius of the sprinklers that can be flood irrigated, if needed. The fields are planted with pasture grasses and cover crops that are harvested and used for animal feed, but the Discharger intends to plant all LAA fields with alfalfa, as discussed further below. Field K was being prepared for alfalfa in October 2024.

GROUNDWATER CONSIDERATIONS

Groundwater conditions are discussed in Findings 41 to 48 of the Order. The WDRs include Provision J.9 that requires the Discharger to prepare and submit a Groundwater Monitoring Well Network Evaluation to assess the adequacy of the existing groundwater monitoring well network.

ANTIDEGRADATION

Antidegradation analysis and conclusions are discussed in Findings 71 to 76 of the Order.

DISCHARGE PROHIBITIONS, EFFLUENT LIMITATIONS, DISCHARGE SPECIFICATIONS, AND PROVISIONS

The Order sets an annual total discharge of 255 million gallons per year for discharge into Ponds No. 1 and No 2, as measured at EFF-01. The Order also specifies an annual Performance-Based Effluent Salinity Limit of 1,790 mg/L calculated using TDS.

This Order also contains the following provisions including:

- Provision J.6 requires the Discharger to prepare and implement a Wastewater and Nutrient Management Plan.

- Provisions J.7-8 requires the Discharger to submit a Salinity Evaluation and Minimization Plan.

- Provision J.9 requires the Discharger to submit a Groundwater Monitoring Well Evaluation Report/Work Plan that evaluates the effectiveness of the existing groundwater monitoring network and proposes measures to ensure groundwater describes the installation, development, and the initial sampling results of the new groundwater monitoring wells.

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, pond, source water supply, land application area, plant tissue, soil, supplemental irrigation water, and solids monitoring requirements. This monitoring is necessary to characterize the discharge and evaluate 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. On 16 October 2019, the State Water Resources Control Board adopted Resolution No. 2019-0057 approving the Central Valley Water Board Basin Plan amendments and also directed the Central Valley Water Board to make targeted revisions to the Basin Plan amendments within one year from the approval of the Basin Plan amendments by the Office of Administrative Law. The Office of Administrative Law approved the Basin Plan amendments on 15 January 2020 (OAL Matter No. 2019-1203-03) and were revised by the Central Valley Water Board in 2020 with Resolution R5-2020-0057 (https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2020-0057_res.pdf).

The Discharger submitted a Notice of Intent (NOI) to for the Salt Control Program on 20 June 2022 and elected to participate in the Prioritization and Optimization Study. The Facility's CV-SALTS ID number is 2284 and is up to date with fees.

For the Nitrate Control Program, the Facility is in a Priority 2 subbasin (San Joaquin Valley – Madera), and the RWD indicates that the Discharger intends to participate in the Management Zone Approach (Path B). According to staff in the CV-SALTS Unit, there is no record of an NOI submittal from the Discharger; however, the Facility is listed as a participant in the Valley Water Collaborative's 30 December 2024 Preliminary Management Zone Implementation Plan Proposal for the Madera 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 on 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.