CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2015-0085

WASTE DISCHARGE REQUIREMENTS

FOR
SUTTER HOME WINERY, INC.
SUTTER HOME WINERY WESTSIDE FACILITY
SAN JOAQUIN COUNTY

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

1. On 30 May 2014, Sutter Home Winery, Inc. submitted a Report of Waste Discharge (RWD) that describes expansion of an existing winery wastewater discharge to land in Lodi, California. Additional information to support the RWD was submitted in March 2015 and April 2015.

2. Sutter Home Winery, Inc. (hereafter "Discharger") owns and operates the facility that generates the waste and the land discharge areas, and is responsible for compliance with these Waste Discharge Requirements (WDRs).

3. The facility is located at 18667 Jacob Brack Road, in San Joaquin County (Sections 34 and 35, T4N, R5E, MDB&M). The winery and associated Land Application Areas (LAAs) occupy Assessor's Parcel Numbers (APN) 011-15-12, 011-15-23, 011-09-03, 011-09-14, 011-09-05, and portions of APN 011-09-04. The location of the facility is shown on Attachment A, which is attached hereto and is made part of this Order by reference.

4. The discharge is currently regulated under WDRs Order R5-2009-0073, adopted by the Central Valley Water Board on 13 August 2009, and amended by Order R5-2012-0078 on 3 August 2012. Order R5-2009-0073-001 allows a monthly average wastewater flow of up to 7.0 million gallons per month and a total wastewater flow of 30 million gallons per year (MGY) and discharge up to a total of 186.5 acres of land application areas (LAAs).

5. The Discharger has expanded winery operations to include a bottling plant, and proposes to increase wastewater flows and discharge wastewater to additional LAAs. Therefore, Order R5-2009-0073-001 will be rescinded and replaced with this Order.

Existing Facility and Discharge

6. The winery was built in 1998 and was initially operated as a non-distilling, non-crushing, non-fermenting wine storage facility. At that time, winery activities primarily included receiving and shipping grape juice and wine in bulk containers. Fermented wine was also received from other Sutter Home facilities and was fined, stabilized, and stored until being shipped off-site for bottling. An average discharge flow of

16,000 gallons per day (gpd) into two clay-lined wastewater ponds and a 15.5-acre Land Application Area (LAA-1) was authorized under WDRs Order R5-2002-0034, which was adopted by the Central Valley Water Board on 11 March 2002 and was later rescinded and replaced by the current WDRs. A current site plan is presented on Attachment B, which is attached hereto and is made part of this Order by reference.

7. Crushing and fermentation activities began at the facility in August 2009. Up to that time the facility used two clay-lined wastewater ponds that provided a total combined storage capacity of 1.23 million gallons. These two ponds were abandoned and destroyed in September 2009 after the installation of two high-density polyethylene (HDPE)-lined wastewater treatment ponds. A third HDPE-lined wastewater pond was installed and began operation in August 2011.

8. Wastewater is generated during tank, piping, equipment, and floor cleaning activities. Because much of the processing equipment is located outdoors, precipitation that falls on outdoor areas where wastewater is generated is collected within the wastewater system. Non-contact storm water is managed by a separate system.

9. The facility currently processes approximately 100,000 tons of grapes and produces 21 million gallons (MG) of wine annually. Approximately 53 MG of wine storage capacity is currently available at the facility.

10. Both domestic and process water for the facility are provided by Well No. 1, located on the eastern portion of the property. Water samples were collected from Well No. 1 between August 2008 and September 2009. Results showed arsenic and manganese at concentrations greater than Title 22 drinking water standards. In response to that testing, the Discharger installed an oxidation coagulation/filtration (CF) treatment system to remove arsenic and manganese from well water prior to use. Chemical treatment includes ferric chloride for co-precipitation with arsenic; sodium hypochlorite to oxidize manganese, iron, and arsenic; and sulfuric acid to reduce the pH for improved arsenic removal. Co-precipitation of arsenic with iron produces a sludge that the Discharger transports off-site to a permitted landfill. The water treatment system is permitted through the San Joaquin County Environmental Health Department.

    Supplemental irrigation water is currently provided by two on-site agricultural wells and surface water supplied by the Woodbridge Irrigation District. Recently acquired agricultural land west of the facility for new LAAs is outside of the Woodbridge Irrigation District service area, but the land includes water rights to Sycamore Slough. Below is a comparison of available water quality data from the process water supply well and the two surface water supply sources. Characterization data for the agricultural wells was not provided in the RWD.

Constituent	Units	Process Water Supply	Supplemental Irrigation Supply		Potentially Applicable Water Quality Objective
		Well No. 1 [1]	Woodbridge Irrigation District [2]	Sycamore Slough [3]	
pH	S.U.	7.7	--	--	6.5 [4] – 8.4 [5]
BOD	mg/L	--	10	8	--
TDS	mg/L	241	44	171	450 [5] – 1,000 [6]
FDS	mg/L	--	26	121	---
Bicarbonate	mg/L	--	--	107	---
Iron [7]	mg/L	0.06	--	0.2	0.3 [4]
Manganese [7]	mg/L	0.2	--	0.02	0.05 [4]
Nitrate as N	mg/L	1.0	0.1	0.1	10 [8]
TKN	mg/L	0.6	1.5	3.0	---
Potassium	mg/L	5	--	11	---
Sodium	mg/L	35	2	14	69 [5]
Chloride	mg/L	24	2	14	106 [5] - 600 [6]

[1] Average pretreatment results from January 2008 through October 2010
[2] Average results from January 2009 through October 2013
[3] Average results from January 2013 through October 2013
[4] Secondary Maximum Contaminant Level
[5] Lowest Agricultural Water Quality Goal
[6] Secondary Maximum Contaminant Level range
[7] Dissolved metals concentrations
[8] Primary Maximum Contaminant Level

11. Wastewater and contact storm water are collected in trench and floor drains that drain to several concrete sumps and then conveyed to the process wastewater treatment system. The wastewater treatment process is shown schematically on Attachment C, which is attached hereto and made part of this Order by reference. The wastewater system includes the following components:

    a. Wastewater is screened with basket and strainers in each of the trench and floor drains.

    b. Trench and floor drains connect to a network of piping and appurtenant fittings that convey wastewater to centralized collection sumps.

    c. The wastewater sumps are equipped with pumps that transfer wastewater to the lined treatment ponds. Each sump system includes two self-priming centrifugal pumps mounted on aboveground concrete pads next to the reinforced concrete sump. The pumps operate in a lead-lag configuration, with the leading pump acting as the primary duty pump and the lagging pump acting as a standby pump.

d. When storm water is collected during outdoor winery processing activities, the water is pumped to the wastewater aeration ponds. When outdoor winery processing activities are not occurring, storm water is diverted to the storm water retention basins.

e. Flows from the sumps to the ponds are metered using an inline magnetic flow measurement device.

f. Motorized rotary drum screens are used to remove large solids from the influent to the ponds, thereby reducing the accumulation of solids and organic biological loading in the ponds. Solids collected from the screening operations are managed as pomace.

g. Wastewater is pumped to three high-density polyethylene (HDPE)-lined wastewater treatment ponds, which are equipped with mechanical aerators. Two of the wastewater treatment ponds were constructed in 2009 and provide approximately 8.7 million gallons (MG) in combined storage capacity. A third HDPE-lined wastewater treatment pond, built in 2010, provides 8.3 MG in storage capacity. Wastewater flows to Ponds 1 and 2 for flow equalization and aeration before wastewater is comingled in Pond 3 and then discharged to the LAAs. Storm water incident on outdoor winery processing areas is routed to the wastewater ponds only during times of outdoor processing. Non-contact, storm water is directed to an on-site storm water retention basin located in the southern portion of the site

12. The Discharger uses a number of chemicals in the wine-making, processing, cleaning, and sanitation processes at the facility. Chemicals and estimated quantities used at the facility are identified below:

Chemical	**Areas Used**	**Used For**
Potassium Hydroxide	Cellar	Tanks, piping, and equipment cleaning
Peracetic Acid	Cellar	Tanks, piping, and equipment cleaning
Tri-Sodium Phosphate	Cellar	Tanks, piping, and equipment cleaning
Calcium Hypochlorite (65%)	Cellar	Floor Cleaning
Citric Acid (2-hydroxy-1,2,3-propanetricarboxylic acid)	Cellar	Tanks, piping, and equipment cleaning
Sani Bac (Alkyl Dimethyl Benzyl Ammonium Chloride)	Cellar	Tanks, piping, and equipment cleaning
Potassium Metabisulfite	Cellar	Wine Making
Ammonia	Cellar	Closed-circuit refrigeration
Nitrogen (gas)	Cellar	Prevent oxidation of wine in tanks.

13. Portable Clean-in-Place (CIP) systems are used to clean wine filters. Use of a CIP system can reduce the amount of caustic used at the winery by reusing caustic for cleaning to the extent possible. CIP systems conserve more water thereby reducing the FDS load from the source water. The portable cleaning units do not use hot water; therefore, boiler and boiler feed water residuals are not generated.

14. Below is a summary of average annual effluent quality since 2010:

Constituent	Effluent Concentration (mg/L)					5-Year Average
	2010	2011 [1]	2012	2013	2014	
BOD	286	133	165	247	141	194
TDS	1,894	1,467	1,667	1,750	1,708	1,678
FDS	1,412	1,054	1,275	1,342	1,417	1,300
Bicarbonate [2]	1,135	463	893	920	982	879
Sodium	88	77	85	84	63	81
Chloride	65	50	78	64	70	64
Sulfate	8	15	37	49	63	34
Total Nitrogen [3]	26	18	16	25	21	21

[1] Effluent monitoring data from Pond 2 used through July 2011 and then Pond 3 monitoring data thereafter.
[2] Annual average of quarterly sampling.
[3] Total nitrogen is the sum of TKN and nitrate nitrogen.

15. Treated wastewater is used to irrigate the LAAs. The Discharger is currently has approximately 111 acres of LAAs. Additional on-site acreage was defined in Order R5-2009-0073 for future LAA use. In 2012, LAA-3 was relocated approximately 1,000 feet east of its original location in anticipation of construction of a new bottling facility. Below is a summary of the current LAAs.

LAA ID	Acres	Date Wastewater First Applied	Source of Supplemental Irrigation Water	Crops	Irrigation System
LAA-1	15.5	May 2002	Wastewater and Woodbridge Irrigation District	Perennial Turfgrass	Sprinkler
LAA-2	64	November 2009	Wastewater and Woodbridge Irrigation District	Sudan Grass, Corn, Forage	Flood Irrigation
LAA-3	25	November 2009 [1]	Wastewater	Cover Crops	Microspray
			Woodbridge Irrigation District	Wine Grapes	Drip Irrigation

[1] Discharge was relocated in 2012 in preparation for construction of the bottling plant.

Annual volumes discharged to land from the wastewater ponds between 2010 and 2014 are summarized below.

Year	Annual Total Flow (MGY)	Average Monthly Flow (MG)	Average Daily Flow (MGD)
2010	11.75	0.98	0.03
2011	11.57	0.96	0.03
2012	26.65	2.22	0.07
2013	20.15	1.68	0.06
2014	29.83	2.49	0.08
Current Flow Limit:	30	7.0	None

16. The annual combined discharge of wastewater and supplemental irrigation water to the LAAs for 2010 through 2014 is summarized below.

Year	Acres Applied	Average Yearly Wastewater Discharge		Average Yearly Supplemental Irrigation		Discharge Ratio [1]
		Volume (MG)	Depth (Inches) [2]	Volume (MG)	Depth (Inches) [2]	
2010	107.5	11.7	4.0	68.5	9.9	5.8
2011	104.3	11.6	4.1	69.4	10.1	6.0
2012	104.3	26.6	9.4	79.8	12.4	3.0
2013	104.3	20.1	7.1	56.4	9.9	2.8
2014	111.22	29.8	9.9	76.8	12.5	2.6

[1] Ratio of supplemental irrigation water to wastewater discharge

[2] Inches applied to combined LAAs

17. According to the RWD, irrigation of the existing LAAs is performed in a manner that minimizes ponding and prevents the generation of tailwater. There is currently no tailwater collection system. Each LAA is allowed to rest between irrigation cycles.

18. Storm water that mixes with wastewater is discharged to the wastewater system. Uncontaminated (non-contact) storm water is discharged to an on-site storm water retention basin located in the southern portion of the existing facility. The existing storm water retention basin has a capacity of approximately 4.9 MG. The following summarizes current storm water management procedures:

    a. Storm water that falls onto uncovered wine processing areas and exterior tank areas is collected in the facility's wastewater drainage system. During winery operations, the wastewater/storm water mixture is pumped to the wastewater ponds for treatment, and then applied to the LAAs.

b. During high precipitation events, the pipes are flushed to the wastewater ponds by pumping three sump volumes of water into the wastewater ponds. Then, automated valves are switched so that water subsequently accumulated on the paved area is diverted to the storm water pond.

c. After the flushing process, the valves are programmed to switch position so that water entering the sumps overnight or on weekends would be diverted to the storm water pond. The system is equipped with notification alarms if a valve fails.

The Discharger minimizes storm water discharge to the wastewater ponds by limiting outdoor work during rainy periods. Monitoring and Reporting Program R5-2009-0073 requires storm water quality monitoring whenever there is enough water in the storm water pond to be sampled to ensure that the pond does not contain significant amounts of waste constituents. Below is a summary of storm water sampling results from 2010 through 2014.

Analyte	**Units**	**2010**	**2011**	**2012**	**2013**	**2014**
Number of monitoring events per year	--	6	4	1	2	1
pH	Std. Units	8 - 9.5	7.78 - 8.1	7.04	7.21 - 7.4	7.7
Electrical Conductivity	umhos/cm	555	577	369	598	314
Biochemical Oxygen Demand	mg/L	16	40	12	13	--
Dissolved Oxygen	mg/L	12	8	4	4	9
Total Dissolved Solids	mg/L	345	480	160	380	--
Fixed Dissolved Solids	mg/L	222	338	110	220	--
Nitrate Nitrogen	mg/L	1.5	1.2	<4.0	<0.4	--
Total Kjeldahl Nitrogen	mg/L	2.9	4.75	<1.0	2	--

19. The results of storm water pond sampling from 2010 through 2014 indicate that significant discharge of wastewater has not occurred to the storm water basin.

20. Monthly discharge volumes for wastewater and supplemental irrigation water to each LAA were provided in the Annual Monitoring Reports. The annual distribution and blending ratio of supplemental water to wastewater varied greatly to the LAAs between 2010 and 2014, resulting in a high degree of variability in flow-weighted effluent FDS concentrations to each LAA. The following table summarizes the annual FDS flow-weighted average with supplemental irrigation water from Woodbridge Irrigation District from 2010 through 2014.

Year	Annual FDS Flow-Weighted Average (mg/L)
2010	1,358
2011	1,150
2012	1,239
2013	1,310
2014	1,432

21. Flow and wastewater monitoring data and discharge calculations for wastewater and supplemental irrigation water to each LAA were provided in the Annual Monitoring Reports. Based on measured wastewater flows to each LAA, FDS monitoring results for Pond 3 effluent, and the gross LAA acreage used as reported in the Annual Monitoring Reports, the following table summarizes the annual FDS loading from wastewater from 2010 through 2014, calculated as an average across all three LAAs.

Annual Wastewater FDS Mass Loading (lb/acre/year)				
2010	**2011**	**2012**	**2013**	**2014**
1,238	1,064	2,640	2,110	3,203

22. Flow and wastewater monitoring data and discharge calculations for wastewater and supplemental irrigation water to each LAA were provided in the Annual Monitoring Reports. The following table summarizes the annual nitrogen loading to each LAA from wastewater, supplemental irrigation water and fertilizers from 2010 through 2014 as reported in the Annual Monitoring Reports.

LAA	Crop Description	Annual Nitrogen Loading (lb/acre/year)				
		2010	**2011**	**2012**	**2013**	**2014**
LAA-1	Grass	0	0	0	8	0
LAA-2	Crops	2.4	(217) [1]	(24) [1]	19 (212) [1]	33
LAA-3	Vineyard	0	0	<1	4	21

[1] Values in parentheses represent total nitrogen applied as reported in the Annual Monitoring Reports, but the reported values apparently do not include additional nitrogen from the applied wastewater.

Based on the calculated values presented in the Annual Monitoring Reports, it is not possible to determine whether nitrogen was applied at rates consistent with crop needs. However, based on a five-year average total nitrogen concentration for the effluent wastewater of 21 mg/L, and an assumed total annual wastewater flow to the LAAs at the currently permitted annual volume of 30 MG per year, the site-wide average nitrogen loading rate for wastewater only would have been 47 lb/ac/year.

This loading rate is trivial compared to the needs of the majority of crops and a substantial amount of nitrogen from supplemental fertilizer is required.

23. With regard to BOD, excessive application can deplete oxygen in the vadose zone and lead to anoxic conditions. At the ground surface, this can result in nuisance odors and fly-breeding. Additionally, when insufficient oxygen is present below the ground surface, anaerobic decay of the 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. 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.

24. Typically, irrigation with high strength wastewater results in high BOD loading on the day of application. It is reasonable to expect some oxidation of BOD at the ground surface and within the evapotranspiration zone. The maximum daily BOD loading rate that can be applied to land without creating nuisance conditions can vary significantly depending on soil conditions and operation of the land application system.

    Pollution Abatement in the Fruit and Vegetable Industry, published by the United States Environmental Protection Agency, cites BOD loading rates in the range of 36 to 600 lb/acre-day on the day of application to prevent nuisance, but indicates the loading rates can be even higher under certain conditions.

25. There are few studies that have attempted to determine maximum BOD 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 region. However, it is known that reducing conditions that dissolve naturally occurring soil metals can be prevented or controlled by managing applications to ensure that there is a resting period between successive applications that allows for soil drying to allow oxygen to transfer from the atmosphere into the evapotranspiration zone. Typically, the metric used for loading rates to prevent reducing conditions is the irrigation cycle average BOD mass loading rate, which is the total mass of BOD applied per acre during a single irrigation event divided by the number of days of application plus the number of resting days prior to the next application.

    The California League of Food Processors' Manual of Good Practice for Land Application of Food Processing/Rinse Water proposes risk categories associated with particular irrigation cycle average BOD loading rate ranges as follows:

    a. Risk Category 1: (less than 50 lb/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 lb/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 lb/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 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. Although it has not been subject to a scientific peer review process, the *Manual of Good Practice* provides science-based guidance for BOD loading rates that, if fully implemented, are considered a best management practice to prevent groundwater degradation due to reduced metals.

26. The current WDRs impose a daily maximum loading rate limit of 300 lb/ac/day and a BOD loading rate limit of 100 lb/ac/day as a five-day average to prevent reducing conditions in the LAA soils. As noted above, it is more appropriate to apply a BOD mass loading rate limit in the form of an irrigation cycle average loading. Based on calculations presented in the Annual Monitoring Reports, the highest seven-day average BOD loading rates to the LAAs between 2010 and 2014 are tabulated below.

Year	Maximum Seven-Day Average BOD Loading Rate (lb/acre/day)		
	LAA-1	LAA-2	LAA-3
2010	0	11	2
2011	4	19	3
2012	22	2	2
2013	10	27	6
2014	0	8	6

Unless the irrigation cycle is typically 7 days, there is no direct correlation between a 7-day average BOD loading rate and the actual irrigation cycle average loading rate. However, these data indicate that the recent historical BOD loading rates complied with the limit set forth in the current WDRs and correspond to CLFP Risk Category 1.

27. Solid waste generated by wine making includes stems, pomace, leaves, spent diatomaceous earth, and solids settled from grape juice and wine. Pomace, stems, and leaves are stored on a concrete slab that drains to the wastewater ponds. During the crush season, diatomaceous earth is stored on a concrete slab, while during the remainder of the year it is stored in a 20-cubic yard watertight bin prior to off-site

disposal. These wastes are managed as non-hazardous waste hauled off-site for composting or other uses. Sutter Home has not removed sludge from the wastewater treatment ponds since they were lined and put in service in 2009 and 2011.

28. Domestic wastewater is generated at the washrooms and toilets, and an employee lunchroom. Until 2014, domestic wastewater generated at the winery was discharged into a septic system permitted by the San Joaquin County Environmental Health Department. A larger septic system with a subsurface drip leachfield located at the northeastern portion of the facility was constructed in 2014 and is currently permitted under separate Waste Discharge Requirements.

Planned Changes to the Facility and Discharge

29. The Discharger is planning to increase wine production to ultimately crush up to 200,000 tons of grapes annually and has constructed a bottling plant. The RWD states that the annual wastewater volume will be as high as 70 MGY, with approximately 11 MGY of that total generated by the bottling plant. The Discharger is not planning to increase wastewater treatment or storage capacity.

In July 2013, the Discharger purchased approximately 166 acres of agricultural land west of the existing facility property for use as new LAAs to support the increased wastewater discharge. The existing LAAs and recently acquired land will be reconfigured to provide approximately 268 acres of LAAs. The reconfigured LAA system is summarized below.

LAA Subunits	Current Use	Area (acres)	Supplemental Irrigation Water Source	Proposed Crop	Irrigation System
North Block LAAs					
N-1, N-2, N-3 N-4	LAA-2	58.6	Woodbridge Irrigation District	Corn/Forage Double Crop	Flood
East Block LAAs					
E-1, E-2, E-3	Portions of LAA-3 and unused LAA	46.2	Woodbridge Irrigation District	Corn/Forage Double Crop	Flood
West Block LAAs					
W-5	New LAA	16.6	Woodbridge Irrigation District	Corn/Forage Double Crop	Flood
W-1, W-4	New LAA	57.7	Sycamore Slough	Corn/Forage Double Crop	Flood
W-2, W-3	New LAA	89.2	Sycamore Slough	Alfalfa	Flood

30. Wastewater will be applied to the LAAs year-round as needed to support crops. Treated wastewater from Pond 3 and supplemental irrigation water will be conveyed through separate distribution pipes to each of the LAAs.

31. The Discharger has constructed additional storm water retention basins surrounding the recently constructed bottling facility. One of these basins, located immediately east of the bottling plant building (Basin B), is approximately 3.8 acres in size, and will be used as a backup LAA for wastewater discharge. The original 8.25-acre storm water retention basin on the southern side of the original facility (Basin A) will also be used as a backup LAA for wastewater discharge. A site map depicting the recently constructed bottling plant, additional storm water basins, and the reconfigured LAAs is shown on Attachment D, which is attached hereto and is made part of this Order by reference.

32. Flood irrigation will be used to apply wastewater and supplemental irrigation water using a series of narrow checks within each of the LAAs. The RWD states that the Discharger will minimize tailwater and potential ponding by matching the inflow rate with the infiltration capacity of the soil. Furrows and checks will be used to promote the even application of wastewater within each LAA. Elevations of the new LAAs are lower than the surrounding access roads, which provides tailwater control and will prevent off-site runoff. Regular inspections of reconfigured LAAs will be performed to identify areas that need to be regraded or require maintenance.

33. The RWD provided a water balance hydraulic capacity analysis to show that the systems of existing ponds and planned LAAs will have sufficient hydraulic capacity to accommodate the proposed wastewater flow increase. The water balance included two models: one for the average year, 365-day precipitation event, and another for the 100-year, 365-day precipitation event. The two models assumed year-round cropping or perennial crops, and the application of supplemental irrigation water as needed to meet crop needs based on specific soil types, which vary across the site. The hydraulic capacity analysis demonstrated that the existing pond system and expanded LAAs can accommodate the increased flow. However, the water balance relied on a soil water balance approach and a leaching fraction of 7 to 9 inches during a normal precipitation year and 22 to 29 inches during the 100-year 365-day return period, as well as irrigation during periods when crop water demand will be met by precipitation (even in a normal rainfall year).

34. The RWD stated that the chemical character of wastewater influent to the treatment ponds will be similar to existing influent character except that wastewater from the new bottling operation is expected to contain lower concentrations of FDS. The RWD estimated influent FDS concentrations from the bottling line will range from 400 mg/L to 650 mg/L, and will average 515 mg/L based on data collected from another winery facility.

Prior to August 2012, the WDRs set an effluent limit for FDS of 1,100 mg/l as an annual average concentration. At the Discharger's request, the WDRs were amended in August 2012 to revise the effluent limit for FDS to 1,500 mg/L as a flow-weighted annual average as measured in effluent flows applied to the LAAs from Pond 3. Based on measured wastewater flows from Pond 3 to each LAA, FDS monitoring results for Pond 3 effluent, and the gross LAA acreage used as reported in the Annual Monitoring Reports, the recent history of flow-weighted annual average FDS concentrations is provided below.

Year	Total LAA Area (acres)	Total Annual Wastewater Volume (gallons)	Flow-Weighted Annual Average FDS Concentration (mg/L)	Site-Wide Average[1] FDS Loading Rate (lb/acre/year)
2010	107.5	11,749,900	1,358	1,238
2011	104.3	11,571,600	1,150	1,064
2012	104.3	26,648,900	1,239	2,640
2013	104.3	20,145,900	1,310	2,110
2014	111.22	29,826,200	1,432	3,203

[1] Based on the total mass and total acreage used during the calendar year. Individual LAA loading rates were variable.

However, these calculated values understate the actual effluent FDS concentrations and loading rates because the Discharger has been adding supplemental irrigation water directly to Pond 3 to reduce the FDS concentration in order to comply with the effluent limit.

35. The Discharger states that Sutter Home Winery has been aggressively implementing water conservation measures for the last several years, and that water conservation has caused, and will continue to cause, increases in effluent salinity concentrations despite the addition of lower salinity bottling line wastewater. In a RWD amendment dated March 2015, the Discharger requested that the FDS effluent limit be increased to 2,000 or 2,100 mg/L as a flow-weighted annual average, and provided the estimated values tabulated below to support that request.

Year	Total Annual Wastewater Volume (MG)	Volume of Wine Produced (MG)	Gallons of Wastewater per Gallon of Wine Produced
2010	19.4	9.1	2.14
2011	22	12.5	1.77
2012	30	18.2	1.65
2013	24.7	16.7	1.48
2014	27.8	21	1.33

The March 2015 RWD amendment further stated that, based on projected wastewater flows from the bottling plant and the expanded winery, an estimated FDS concentration of 514 mg/L for bottling wastewater, and the actual 2014 winery wastewater FDS concentration of 1,432 mg/L, a flow-weighted annual average FDS concentration limit of 2,000 mg/L would effectively prohibit additional water conservation beyond that which has already been implemented.

Beginning in 2010, FDS monitoring data were collected from Ponds 1 and 2 to represent effluent wastewater quality from the winery, in accordance with the Monitoring and Reporting Program. Effluent monitoring for Pond 3 began in August 2011. The Discharger has continued to collect monitoring data from both Ponds 2 and 3 since 2011. Because supplemental water has been periodically added to Pond 3, flow monitoring influent to the pond system and FDS monitoring data from Pond 2 represent a more accurate representation of wastewater quality. A summary of FDS mass loading from 2010 through 2014 is presented below based on total influent flow and Pond 2 effluent FDS.

Year	Influent to Ponds 1 and 2 (MG) [1]	Flow-Weighted Annual Average FDS Concentration (mg/L) [2]	LAAs in Use (Acres)	Flow-Weighted FDS Mass Loading (lb/acre/yr)
2010	19.4	1,446	107.5	2,181
2011	22.1	1,158	104.3	2,047
2012	29.9	1,609	104.3	3,844
2013	24.7	2,609	104.3	5,161
2014	27.8	2,451	111.22	5,121

[1] As reported in annual winery effluent monthly summaries presented in the Annual Monitoring Reports

[2] Based on average monthly FDS monitoring data from Pond 2.

36. Based on the water balance provided in the RWD, the anticipated total nitrogen loading rates to the LAAs are expected to be approximately 50 lb/ac/year. Because nitrogen concentrations in the wastewater are relatively low, supplemental nitrogen will be needed to maintain crop productivity.

37. The highest effluent BOD concentration of the wastewater in Pond 3 in 2014 was 270 mg/L. The RWD did not provide specific estimates of maximum daily or irrigation cycle average BOD loading rates. However, the water balance included in the RWD indicates that a maximum of 5.2 inches of wastewater would be applied to any LAA in a single month. Assuming that depth of wastewater were to be applied in one day and a minimum irrigation cycle of 7 days, the estimated

maximum daily BOD loading would be approximately 318 lb/ac/day, and the irrigation cycle average loading rate would be approximately 45 lb/ac/day.

If the maximum Pond 3 BOD effluent concentration were to increase by 30 percent to 350 mg/L, the estimated maximum daily BOD loading would be approximately 413 lb/ac/day, and the assumed 7-day irrigation cycle average loading rate would be approximately 59 lb/ac/day.

Either of these scenarios would be consistent with CLFP Risk Category 2. Therefore, this Order sets an irrigation cycle average BOD loading rate limit for the LAAs of 100 lb/acre/day for flood irrigation and requires that the Discharger manage land application to evenly distribute the BOD load evenly between the LAAs and within each LAA.

38. Because of the sequence of LAA improvements, not all LAAs will be available for continuous use during 2015. In the Discharger's 17 April 2015 comments on the tentative version of this Order, the Discharger proposed the following build-out schedule.

<table>
<tr><th rowspan="2">2015 by Month</th><th colspan="2">East Block LAAs</th><th colspan="2">North Block LAAs</th><th colspan="2">West Block LAAs</th><th rowspan="2">Total Available Acres</th></tr>
<tr><th>Activity</th><th>Acres</th><th>Activity</th><th>Acres</th><th>Activity</th><th>Acres</th></tr>
<tr><td>January</td><td rowspan="2">Land Apply</td><td rowspan="2">46</td><td>Land Apply N1-N3</td><td rowspan="6">56</td><td rowspan="6">No Wastewater Application</td><td rowspan="6">0</td><td rowspan="2">102</td></tr>
<tr><td>February</td><td>Land Apply</td></tr>
<tr><td>March</td><td rowspan="4">Construct LAA</td><td rowspan="4">0</td><td>Land Apply, Harvest</td><td rowspan="4">56</td></tr>
<tr><td>April</td><td>Land Apply, Replant</td></tr>
<tr><td>May</td><td rowspan="2">Land Apply N1-N3, Construct N4</td></tr>
<tr><td>June</td></tr>
<tr><td>July</td><td rowspan="4">Land Apply</td><td rowspan="6">46</td><td>Construct N1-N4</td><td>0</td><td rowspan="4">Construct [1]</td><td rowspan="6">0</td><td>46</td></tr>
<tr><td>August</td><td rowspan="5">Land Apply</td><td rowspan="5">70</td></tr>
<tr><td>September</td><td rowspan="4">116</td></tr>
<tr><td>October</td></tr>
<tr><td>November</td><td>Land Apply, Harvest, Replant</td><td>Construct, Plant</td></tr>
<tr><td>December</td><td>Land Apply</td><td>Land Apply</td><td>163</td><td>279</td></tr>
</table>

[1] Assumes WDRs adopted during June 2015 Board hearing

Despite the temporary deficit in available LAAs, the Discharger also requested that the interim wastewater flow limit be increased from the current 30 million gallons per year (mg/y) to 35 mg/y to allow for immediate operation of the bottling plant. This will result in temporary hydraulic and waste constituent overloading, but it is not likely to adversely affect groundwater quality if the overloading is limited to a short period. Therefore, this Order requires that all LAA construction be completed and all LAAs be fully operational by 30 December 2015.

Site-Specific Conditions

39. Land use in the vicinity of the site consists of vineyards and agricultural operations, including confined animal facilities to the north, east, and south of the site. Jacob Brack Road and Interstate Highway 5 border the facility to the east.

40. The topography of the site and surrounding area is generally level with an approximate mean sea level (MSL) surface elevation. The facility is within the Lower Mokelumne Hydrologic Area (No. 531.20), as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986. Sycamore Slough borders the northern portion of the site, and then bisects the western portion of the site where it then connects with the Upland Canal. Sycamore Slough then drains westward into the South Mokelumne River.

41. An irrigation canal owned by the Woodbridge Irrigation District enters the eastern portion of the site, and then runs along the southern property line. In 2014, a portion of the Woodbridge Irrigation District canal was relocated outside the facility boundary and converted to a pipeline to allow for more agricultural land use at the site.

42. Elevations of the LAAs are such that runoff from the facility cannot flow off-site or into the nearby Woodbridge Irrigation District canal or Sycamore Slough. Aside from Sycamore Slough, the nearest surface water is the South Mokelumne River, located approximately 4.5 miles west of the facility.

43. According to Federal Emergency Management Agency (FEMA) flood zone mapping, the western half of the site, including the three lined wastewater ponds, is located within the 100-year flood zone that is subject to flooding greater than three-feet. The northeastern portion of the site is located within the 100-year flood zone with no base elevation determined, while the southeastern portion of the site is designated within the 500-year Zone X flood plain. The tops of the berms for the three existing wastewater ponds are higher than the currently-defined 100-year flood zone.

44. The western Lodi area is underlain by alluvial deposits consisting of fine grained sand, silt, and clay. According to United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) data, near-surface soils at the site are classified primarily as Devries sandy loam and Guard clay loam. These soils are generally characterized as moderate to poorly drained alluvial floodplain deposits with low permeability rates. Published infiltration rates for the soils range from 0.05 to 1.5-in/hr.

45. Based on climate data from the California Irrigation Management Information System (CIMIS), the average annual precipitation for the nearby area (Lodi West Station 166) is approximately 17.1 inches per year. The 100-year, 365-day precipitation event is approximately 33.6 inches, and the average reference evapotranspiration (ETo) rate is approximately 50.3 inches per year.

Groundwater Conditions

46. Lodi is located within the Eastern San Joaquin Subbasin of the San Joaquin River Groundwater Basin, San Joaquin River Hydrologic Region. Water-bearing units of the subbasin include undifferentiated deposits of alluvium and flood basin deposits of the Laguna Formation. The Plio-Pleistocene Laguna Formation consists of discontinuous lenses of fluvial sand and silt with lesser amounts of clay and gravel.

47. Shallow groundwater in the Lodi area occurs within the alluvial flood plain deposits to depths of greater than 20 feet bgs. The depth to groundwater is as little as a few feet below ground surface in some areas, especially near unlined canals and surface water bodies such as Sycamore Slough.

48. The Eastern San Joaquin Groundwater Basin Groundwater Management Plan1 summarizes the geologic and hydrogeologic conditions in the Eastern San Joaquin, Cosumnes, and Tracy Sub-basins of the greater San Joaquin Valley Groundwater Basin. According to the Plan, degradation of water quality due to TDS and/or chloride contamination threatens the long-term sustainability of groundwater as a water resource for drinking water needs and irrigating crops. Regional sources of groundwater degradation include applied fertilizers, salts, and septic systems (nitrate and salt loading).

49. Shallow groundwater depth and flow conditions can vary depending on location, season, land use, nearby pumping (i.e. construction dewatering, agricultural wells and irrigation, etc.), and the proximity and flow stage of nearby surface water bodies. As a result, changes in agricultural land use, irrigation practices, and regional pumping have likely altered the groundwater flow regime. The local topography and low horizontal gradient[2] suggest a low net horizontal movement of shallow groundwater.

50. Twenty two shallow groundwater monitoring wells (GW-1 through GW-22) were installed at the site between 2002 and 2013 to collect pre-discharge groundwater data and compliance monitoring data during the use of various LAAs. The monitoring wells were constructed with 2-inch Schedule 40 PVC casing in accordance with California Department of Water Resources Well Standards. Groundwater monitoring well details are summarized below, and the locations are shown on Attachment D.

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[1] San Joaquin County Department of Public Works, Stockton, 2004.
[2] 2014 Annual Monitoring Report, Condor Earth Technologies, Inc., 21 January 2015.

Well ID	Year Installed	Screen Interval (feet bgs)	Description of Well Location and Function
GW-1	2002	5.5 – 14.5	Southeast corner of property and adjacent to Woodbridge Irrigation District canal; downgradient of future LAA E-2
GW-2	2002	5.9 – 14.8	Centrally located; downgradient of current LAA-3; limited value as a future compliance well
GW-3	2002	5.4 – 14.3	Along southern property line adjacent to storm water basin and Woodbridge Irrigation District canal; limited value as a future compliance well
GW-4	2002	5.7 – 14.6	Along southern property line adjacent to storm water basin and Woodbridge Irrigation District canal; limited value as a future compliance well
GW-5	2002	5.8 – 14.7	Downgradient of current LAA-1 and future LAA N-4; presumed [1] upgradient of future LAA W-5
GW-6	2002	5.9 – 14.8	Downgradient of current LAA-1 and future LAA N-4; presumed [1] upgradient of future LAA W-5
GW-7	2002	5.8 – 14.7	Within current LAA-1 and future LAA N-4
GW-8	2009	6.6 – 16.6	Within current LAA-2 and future LAA N-3; downgradient of lined wastewater ponds
GW-9	2009	7.1 – 17.1	Within current LAA-2 and downgradient of future LAA N-2
GW-10	2009	5.9 – 15.9	Within current LAA-2 and downgradient of future LAA N-2; upgradient of lined wastewater ponds
GW-11	2009	7.2 – 17.2	Within current LAA-2 and future LAA N-2; downgradient of future LAA N-1
GW-12	2009	7.2 – 17.2	Upgradient edge of current LAA-2 and downgradient of both current and former LAA-3; Upgradient edge of future LAA N-1
GW-13	2009	9.3 – 19.3	Eastern end of property downgradient of an existing dairy waste discharge field owned by others and domestic wastewater leachfield; limited value as a future LAA compliance well
GW-14	2009	7.1 – 17.1	Within current LAA-2; downgradient of future LAA N-3; presumed[1] upgradient of future LAA W-5
GW-15	2010	7.1 – 17.1	Downgradient of current LAA-2 and future LAA N-3; presumed [1] upgradient of future LAA W-5
GW-16	2010	7.8 – 17.8	Adjacent to northern property line, background monitoring well
GW-17	2010	7.9 – 17.9	Adjacent to northern property line, background monitoring well

Well ID	Year Installed	Screen Interval (feet bgs)	Description of Well Location and Function
GW-18	2010	7.3 – 17.3	Eastern end of property; downgradient of current LAA-3 and future LAA E-1
GW-19	2013	5.0 – 15.0	Downgradient of future LAA W-1
GW-20	2013	4.7 – 14.7	Downgradient of future LAA W-1
GW-21	2013	4.7 – 14.7	Downgradient of future LAAs W-1, W-2 and W-3
GW-22R	2014	5.0 – 15.0	Downgradient of future LAAs W-1, W-2 and W-3

[1] To be verified after installation of additional monitoring well within future LAA N-5

51. Monitoring well installation logs indicate that shallow soils at the facility consist of inter-bedded silt and fine to medium-grained sand intervals to depths of approximately 50 feet below ground surface (bgs). The twenty-two monitoring wells are screened in the uppermost saturated zone across intervals of fine to medium grained sands inter-bedded with fine-grained sediments.

52. Quarterly groundwater monitoring conducted since 2002 shows that shallow groundwater occurs at approximately 10 feet bgs and fluctuates seasonally. The direction of groundwater flow is generally to the west across the central and western portions of the site, and with a relatively low degree of horizontal gradient (less than 0.001 ft/ft). Groundwater flow at the east end of the facility has a more south-southeasterly component, and may be influenced by local pumping or surface recharge.

53. Groundwater monitoring wells GW-1 through GW-7 were installed in March 2002 to collect pre-discharge groundwater data for LAA-1. These wells were then used for compliance monitoring (LAA-1 was the only LAA in use from 2002 until October 2009). A summary of pre-discharge groundwater data from GW-1 through GW-7 is provided below.

Monitoring Well	Number of Sampling Events	Pre-Discharge Groundwater Monitoring Data (mg/L)					
		TDS	FDS	Cl	Na	NO_3-N	Sulfate
GW-1 [1]	30	700	590	23	18	1	23
GW-2 [1]	30	1,210	920	26	127	3	70
GW-3 [1]	30	1,210	500	13	41	8	40
GW-4 [1]	30	820	710	20	50	33	48
GW-5 [2]	1	840	730	20	50	23	41
GW-6 [2]	1	890	700	25	164	5	100
GW-7 [2]	1	1,110	820	34	158	12	210

[1] Pre-discharge data collected between 28 March 2002 and 26 August 2009

[2] Data collected on 24 June 2002

54. In September 2008, eleven direct push soil borings were advanced and sampled to collect pre-discharge grab groundwater data before the current lined wastewater ponds were constructed and before discharge began to LAA-2 and LAA-3. The resulting data are summarized below.

Sampling Location	Pre-Discharge Groundwater Monitoring Data (mg/L)					
	TDS	Cl	Na	Total N [1]	NO_3-N	Sulfate
KB-1	202	3	8	1	0.72	5
KB-2 [2]	1,070	70	221	29	29	75
KB-3 [2]	972	30	183	39	38	77
KB-4	793	42	91	3	31	110
KB-5	893	29	181	34	34	53
KB-6	878	31	100	57	54	56
KB-7	622	18	35	7	7	35
KB-8	317	22	25	<1.0	<0.25	13
KB-9	944	38	92	<1.0	44	132
KB-10	622	24	41	<1.0	4	27
KB-11	750	15	89	<1.0	30	37

[1] Total nitrogen is the sum of TKN and nitrate-N

[2] Sampling location near adjacent off-site dairy operation

55. Groundwater monitoring wells GW-8 through GW-14 were installed on the northern half of the site in July 2009 to collect pre-discharge data before LAA-2 and LAA-3 began being used in November 2009. Included in this group of wells was GW-13, which is located on the far eastern end of the facility property and adjacent to an off-site dairy. Pre-discharge groundwater monitoring data were collected between July 2009 and September 2009. The average pre-discharge monitoring results are summarized below.

Sampling Location	Number of Sampling Events	Pre-Discharge Groundwater Monitoring Data (mg/L)				
		TDS	Cl	Na	NO_3-N	Sulfate
GW-8	3	733	23	157	21	35
GW-9	3	557	33	69	26	29
GW-10	3	653	38	64	23	36
GW-11	3	787	46	216	28	75
GW-12	3	663	74	128	29	52
GW-13	3	693	55	121	16	38
GW-14	3	590	35	81	4	34

56. Monitoring wells GW-15 through GW-18 were installed in February 2010 along the northern side of the site to provide background groundwater monitoring data. Because GW-15 is cross- to downgradient from LAA-2 and pre-discharge data were not collected from this well, GW-15 is not considered a background well. Monitoring wells GW-16 and GW-17 are considered background wells based on their consistently upgradient position with respect to all current and former LAAs. Monitoring well GW-18 was also considered a background well until the use of LAA-3 began in 2012.

57. On 28 June 2013, a Background Groundwater Quality Standard Report was submitted to comply with Provision 1.g of Order R5-2009-0073. The background study evaluated site-wide groundwater monitoring data and identified spatial variability with respect to shallow groundwater quality. The background study concluded that the spatial variability was influenced by discharges from nearby dairies located to the south, east, and northeast; infiltration of higher quality water from the unlined Woodbridge Irrigation District water supply canal located south of the site; infiltration from Sutter Home's storm water retention basin located along the southern boundary of the site; and a former septic system, which was replaced with a larger system elsewhere on the site in 2012. Below is a summary of background groundwater monitoring data from monitoring wells GW-16 and GW-17 from February 2010 to August 2010, and GW-18 from February 2010 through February 2012.

Sampling Location	Number of Sampling Events	Background Groundwater Monitoring Data (mg/L)						
		TDS	FDS	Cl	Na	Total N	NO_3-N	Sulfate [1]
GW-16	3	510	340	42	67	4	3	28
GW-17	3	519	375	42	45	2	2	26
GW-18 [2]	9	525	405	15	49	7	2	32

[1] Data from samples collected on 31 March 2010

[2] Data from samples collected between 31 March 2010 and 29 February 2012

58. The current Monitoring and Reporting Program (MRP) for the site requires the analysis of groundwater samples for selected metals, but does not specify whether the samples should be field-filtered and analyzed for dissolved metals concentrations. Groundwater samples collected in May 2013 as part of the Background Groundwater Study were analyzed for total and dissolved iron and manganese. Additionally, in November 2013, groundwater samples from monitoring wells GW-19 through GW-22 were analyzed for dissolved iron and manganese. Below is a summary of dissolved iron and manganese concentrations from groundwater sampling conducted in May 2013 and November 2013.

Monitoring Well	Iron [1]		Manganese [1]	
	Total	Dissolved	Total	Dissolved
GW-1	20	2.62	7.8	6.68
GW-2	4.5	<0.03	0.017	0.02
GW-3	4.94	<0.03	0.17	0.01
GW-4	2.53	<0.03	2.81	0.82
GW-5	0.85	<0.03	1.22	1.11
GW-6	2.2	<0.03	4	2.17
GW-7	0.17	<0.03	0.21	0.21
GW-8	2.44	<0.03	0.13	0.05
GW-9	6.1	<0.03	0.12	<0.01
GW-10	10.5	<0.03	1.18	0.77
GW-11	17	<0.03	2	<0.01
GW-12	20	<0.03	0.56	0.09
GW-13	9.47	<0.03	0.16	<0.01
GW-14	19	<0.03	3.2	0.79
GW-14	2.5	<0.03	1.4	0.41
GW-16	11.7	<0.03	0.33	<0.01
GW-17	8.86	<0.03	0.23	0.02
GW-18	26.6	<0.03	0.56	<0.01
GW-19	--	<0.1	--	0.44
GW-20	--	<0.1	--	0.46
GW-21	--	<0.1	--	0.21
GW-22	--	<0.1	--	0.23
Water Quality Objective	0.3 [2]		0.05 [2]	

[1] All results reported in milligrams per liter.
[2] Secondary Maximum Contaminant Level

59. In November 2013, four monitoring wells (GW-19 through GW-22) were installed to obtain pre-discharge groundwater data for the proposed new LAAs located west of the existing facility and Sycamore Slough. Since that time these wells have been sampled quarterly. Pre-discharge monitoring data from November 2013 through August 2014 for GW-19 through GW-22 are summarized below.

Parameter	Pre-Discharge Groundwater Monitoring Data (mg/L)							
	TDS	Cl	Na	Total N	NO_3-N	Fe [1]	Mn [1]	B [2]
GW-19	629	24	52	7	4	<0.1	0.44	0.2
GW-20	593	23	74	7	4	<0.1	0.46	0.2
GW-21	596	29	111	10	7	<0.1	0.21	0.2
GW-22	652	30	99	10	5	<0.1	0.23	0.2

[1] Dissolved concentration from a single sampling event conducted on November 2013.
[2] Total metal concentration average.

60. Based on the planned expansion and reconfiguration of the LAAs and expected direction of shallow groundwater flow, the current monitoring well network is not adequate to monitor future LAAs E-2, W-2, W-4 and W-5. Therefore, this Order requires that the Discharger install additional monitoring wells.

61. Pre-discharge groundwater conditions in 2002, 2008, and 2013 illustrate a high degree of spatial variability in nitrate, sodium, and TDS groundwater concentrations prior to any discharge of winery waste. Pre-discharge groundwater data collected in 2002 prior to the use of LAA-1 and additional data collected in 2008 prior to the use of LAA-2 and LAA-3 identified several locations across the property where TDS and/or nitrate nitrogen, exceeded their water quality objectives. Because pre-discharge groundwater data from on-site monitoring wells shows temporal and spatial variability, a determination of source or sources of these constituents from on- or off-site activities prior to Sutter Home's discharge could not be made. Regardless of the pre-discharge source(s) of nitrate and TDS to groundwater, it is appropriate to rely on an intrawell evaluation to determine whether the discharge is causing or contributing to degradation.

62. An intra-well evaluation was conducted for each LAA by comparing pre-discharge groundwater data with the results of four quarterly monitoring events conducted between November 2013 and August 2014. Due to spatial variability of pre-discharge conditions and different timing when the three LAAs were activated, a summary of post-discharge water quality is summarized below by each existing LAA. Ambient background groundwater concentrations are generally of higher quality than pre-discharge monitoring conditions and are not relevant to this analysis.

    a. **LAA-1:** Monitoring wells GW-5, GW-6, and GW-7 are compliance wells for LAA-1. Below is a comparison of pre-discharge monitoring data collected from GW-5, GW-6, and GW-7 in March 2002 and post-discharge monitoring data collected from November 2013 through August 2014.

Parameter [1]	GW-5		GW-6		GW-7	
	Pre-	Post-	Pre-	Post-	Pre-	Post-
TDS	840	1,125	890	785	1,110	525
Chloride	-	187	-	68	-	22
Sodium	-	87	-	128	-	71
Nitrate Nitrogen	23	14	5	2	12	3

[1] All results reported in milligrams per liter.

Based on the monitoring data, groundwater conditions in LAA-1 have improved for nitrate-nitrogen, although the current intrawell discharge average for GW-5 continues to exceed the water quality objective of 10 mg/L (the primary MCL).

In general, nitrate-nitrogen concentrations have decreased in LAA-1 and appear to be more stable with less temporal variability since use of this LAA began.

In contrast, TDS concentrations in monitoring wells GW-5, GW-6, and GW-7 continue to show a wider range of temporal variability. Concentrations in GW-5 have increased steadily since 2011 while TDS concentrations have declined in GW-6 and GW-7. Below is a comparison of pre-discharge TDS monitoring data collected from GW-5, GW-6, and GW-7 in March 2002 with all post-discharge monitoring data collected from June 2002 through November 2014 and from November 2013 through August 2014.

Monitoring Interval	GW-5	GW-6	GW-7
Pre-Discharge TDS (March 2002) [1]	840	890	1,110
Post-Discharge Average TDS (2002 – 2014) [1]	777	760	802
Post-Discharge Average TDS (2013 – 2014) [1]	1,125	785	525

[1] All results reported in milligrams per liter.

LAA-2: Monitoring wells GW-9, GW-10, GW-11, GW-14, and GW-15 are compliance groundwater monitoring wells for LAA-2. Although monitoring wells GW-8 and GW-12 are also located within LAA-2, they are both hydraulically upgradient and most likely are not reflecting influence by the discharge. Below is a comparison of pre-discharge monitoring data from GW-9, GW-10, GW-11, GW-14, and GW-15 in August 2009 and post-discharge monitoring data collected from November 2013 through August 2014.

Parameter [1]	GW-9		GW-10		GW-11		GW-14		GW-15	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
TDS	557	511	653	668	787	475	590	674	-	723
Chloride	33	22	38	25	46	19	35	20	-	24
Sodium	69	49	64	41	216	84	81	92	-	118
Nitrate Nitrogen	26	7	22	12	28	17	4	8	-	16

[1] All results reported in milligrams per liter.

Based on the monitoring data, groundwater conditions in LAA-2 have generally improved for nitrate-nitrogen since the discharge began, however concentrations continue to exceed the water quality objective in GW-10, GW-11, and GW-15. Nitrate-nitrogen concentration trends show some degree of reduction in temporal variability.

TDS concentrations in monitoring wells GW-9 and GW-11 have trended downward slightly from pre-discharge conditions. Although pre-existing degradation was present as compared to background monitoring wells GW-16 and GW-17, the discharge is not causing TDS conditions to exceed the water quality objective of 1,000 mg/L or to get worse than pre-discharge conditions.

b. **LAA-3:** Monitoring wells GW-2 and GW-12 are compliance groundwater monitoring wells for the former location of LAA-3, which was relocated in 2012. Below is a comparison of pre-discharge monitoring data collected from GW-2 and GW-12 from March 2002 through August 2009 and post-discharge monitoring data collected from November 2013 through August 2014.

Parameter [1]	GW-2		GW-12	
	Pre-	Post-	Pre-	Post-
TDS	767	499	663	613
Chloride	28	21	74	28
Sodium	132	90	128	112
Nitrate Nitrogen	7.0	6.9	28	30

[1] All results reported in milligrams per liter.

Monitoring data from compliance wells GW-2 and GW-12 show different trends before and after discharge began to LAA-3. Pre- and post-discharge monitoring data from GW-2 shows a relatively consistent temporal trend primarily below the nitrate water quality objective. In contrast, monitoring well GW-12 shows a greater degree of temporal variability and increasing nitrate-nitrogen concentrations. It should be noted that GW-12 is located hydrologically between LAA-2 and LAA-3, and may be influenced by the discharge at one or both LAAs.

TDS concentrations in monitoring wells GW-2 and GW-12 have trended downward from pre-discharge conditions since discharge began to LAA-3, although the monitoring events from GW-12 from November 2013 through August 2014 averaged slightly higher than the overall average of all post-discharge monitoring. Although pre-existing degradation was present as compared to background monitoring wells GW-16 and GW-17, the discharge has not caused TDS conditions to exceed the water quality objective or to get worse than pre-discharge conditions.

Basin Plan, Beneficial Uses, and Regulatory Considerations

63. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the

State Water Board. Pursuant to Water Code section 13263(a), waste discharge requirements must implement the Basin Plan.

64. Local drainage is to the Mokelumne River. The beneficial uses of the Mokelumne River from Comanche Reservoir to the Sacramento/San Joaquin Delta are agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat.

65. The beneficial uses of underlying groundwater as set forth in the Basin Plan are municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.

66. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater. It also sets forth a numeric objective for total coliform organisms.

67. The Basin Plan's numeric water quality objective for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in MUN groundwater.

68. The Basin Plan's narrative water quality objectives for chemical constituents, at a minimum, require waters designated as domestic or municipal supply to meet the MCLs specified in Title 22 of the California Code of Regulations (hereafter Title 22). The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

69. The narrative toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, animal, plant, or aquatic life associated with designated beneficial uses.

70. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective.

71. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as Water Quality for Agriculture by Ayers and Westcot and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an EC less than 700 µmhos/cm. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000 µmhos/cm if the

proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.

Antidegradation Analysis

72. State Water Resources Control Board Resolution 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State") (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:

    a. The degradation is consistent with the maximum benefit to the people of the state.

    b. The degradation will not unreasonably affect present and anticipated future beneficial uses.

    c. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives, and

    d. The discharger employs best practicable treatment or control (BPTC) to minimize degradation.

73. Degradation of groundwater by some of the typical waste constituents associated with discharges from a winery, after effective source control, treatment, and control measures are implemented, is consistent with the maximum benefit to the people of the state. The Discharger's operation provides several hundred full, part-time, and seasonal jobs and jobs for that work at the vineyards that produce the grapes used to make the wine, as well as those that produce materials and equipment used for winemaking. The Discharger anticipates providing an additional 300 to 400 full-time equivalent jobs and support for additional ancillary services as part of the facility expansion. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and provides sufficient justification for allowing the limited groundwater degradation that may occur pursuant to this Order.

74. The Discharger has been monitoring groundwater quality at the site since 2002. Because discharge of on-site wastewater has occurred at various locations since that time, pre-discharge groundwater monitoring data are available to perform the antidegradation analysis. However, pre-discharge groundwater quality data as compared to background conditions indicate that degradation occurred prior to Sutter Home's discharge. Additionally, the long term agricultural nature of the surrounding area prevents a determination of pre-1968 groundwater quality. Therefore, determination of compliance with Resolution 68-16 for this facility must be based on pre-discharge groundwater quality. Because pre-discharge data are available for the existing LAAs, an intrawell analysis was used to determine whether the discharge to date is in compliance with the Basin Plan and whether the proposed expansion is likely to be consistent with the Basin Plan.

75. Constituents of concern that have the potential to degrade groundwater quality are salts (primarily TDS, sodium, and chloride), manganese, iron, and nitrate, as discussed below. Below is a summary of groundwater data before and after discharge began.

Well	Monitoring Well Location	TDS (mg/L)		Nitrate Nitrogen (mg/L) [1]	
		Pre-Discharge	Current Average [2]	Pre-Discharge	Current Average [2]
GW-1	South Property Line [3]	492	518	4	1
GW-2	LAA-3	733	499	7	7
GW-3	South Property Line [3]	421	298	7	3
GW-4	South Property Line [3]	573	434	9	2
GW-5 [4]	LAA-1	840	1,125	23	14
GW-6 [4]	LAA-1	890	785	5	2
GW-7	LAA-1	1,100	525	12	3
GW-8	LAA-2	733	672	19	21
GW-9	LAA-2	560	511	26	7
GW-10	LAA-2	653	668	24	14
GW-11	LAA-2	787	475	28	19
GW-12	LAA-2/LAA-3	663	613	32	32
GW-13	Upgradient [5]	616	635	14	14
GW-14	LAA-2	580	674	4	8
GW-15	LAA-2	--	723	--	17
GW-16	Background	502	497	4	8
GW-17	Background	465	407	1	1
GW-18	Cross-gradient	525	617	2	4
GW-19	Future LAA W-1	629	629	4	4
GW-20	Future LAA W-1	593	593	4	4
GW-21	Future LAA W-3	596	596	7	7
GW-22R	Future LAA W-3	652	652	5	5
Effluent Quality [6]		--	406	--	6
Water Quality Objective		1,000 [7]		10 [8]	

[1] Total nitrogen represented by nitrate-nitrogen and TKN.

[2] Average of monitoring data collected between November 2013 and August 2014

[3] Monitoring well located adjacent to irrigation canal and/or storm water retention basin

[4] Monitoring well to be destroyed and replaced
[5] Monitoring well located adjacent to domestic wastewater leachfield and downgradient of off-site dairy
[6] Annual flow-weighted average monitoring for 2010 through 2014
[7] Upper Secondary Maximum Contaminant Level
[8] Primary Maximum Contaminant Level

76. Based on the comparison of wastewater and groundwater concentrations, the following constituents have the potential to degrade groundwater quality.

a. **Total Dissolved Solids**: In 2014, wastewater discharged to the LAAs from Pond 3 had a flow-weighted annual average FDS concentration of about 1,400 mg/L. However, as noted in Finding 35 the actual average wastewater FDS was higher to an unknown degree. For the majority of the monitoring wells, pre-discharge groundwater TDS concentrations were less than the water quality objective of 1,000 mg/L. Since the discharge began, TDS concentrations have decreased or remained relatively stable and below the water quality objective in all of the monitoring wells except for GW-5. Between November 2013 through August 2014, TDS concentrations in five wells (GW-1, GW-5, GW-10, GW-14, and GW-18) increased, and TDS concentrations in well GW-5 now exceed the water quality objective for TDS. Based on the available groundwater and wastewater FDS loading data, it appears that continuing and/or expanding the discharge at the current FDS effluent limitation of 1,500 mg/L as a flow-weighted annual average (or the equivalent mass loading rate of about 3,300 lb/ac/year) would not cause significant exceedance of the water quality objective if the wastewater is carefully managed to ensure even loading between LAAs and within each LAA.

The RWD requested to increase the FDS effluent limit to 2,100 mg/L, which is equivalent to a mass loading of 4,500 lb/ac/year based on the proposed total annual flow and the total acreage of the expanded LAA system. This represents a 30 percent increase over what is currently allowed, which was reportedly due to aggressive water conservation. The RWD did not show that the proposed effluent limit and resulting FDS mass loading would ensure compliance with the Antidegradation Policy. If further effluent salinity increases are a consequence of additional water conservation beyond that which has already been implemented, it would be reasonable to expect that wastewater flows would be reduced commensurate with the FDS concentration increase, and that the FDS loading rate from wastewater would not increase significantly. However, the estimate for future effluent quality was based in part on assumed bottling wastewater salinity that is substantially lower than the current wastewater quality. It is therefore appropriate to allow for a modest increase over the predicted bottling line salinity.

Therefore, this Order sets an FDS mass loading rate for the land application areas of 28 percent over the currently permitted loading rate, or 4,200 lb/ac/year. The groundwater limitation for TDS prohibits any statistically significant increase in TDS concentration for any monitoring well where TDS currently exceeds the water

quality objective and prohibits the discharge causing exceedance of the water quality objective in wells for which the TDS concentration is less than the water quality objective. This Order also sets a numeric trigger concentration for TDS for those wells that monitor discharge to the LAAs that is lower than the water quality objective. If the trigger concentration is exceeded, this Order requires that the Discharger demonstrate that the increasing trend will not result in exceedance of the groundwater limitation or implement additional treatment or control measures to ensure compliance with the groundwater limitation.

b. **Nitrate Nitrogen:** Wastewater discharged from Pond 3 to the LAAs typically has a total nitrogen concentration of about 20 mg/L, which is similar to that of treated domestic wastewater. As noted in previous findings, the expected nitrogen loadings from wastewater to the LAAs will be trivial compared to crop needs.

   Pre-discharge groundwater quality was spatially variable with respect to nitrate nitrogen and concentrations in on-site wells exceeded the primary MCL of 10 mg/L before any discharge was initiated at this facility. Nitrate nitrogen concentrations in groundwater since the discharge began have decreased to below the water quality objective in two monitoring wells (GW-7 and GW-9) and have been stable in the six monitoring wells, however nitrate nitrogen concentrations continue to exceed the water quality objective in six monitoring wells. Based on these findings, the discharge is not causing nitrate degradation, and the expansion to new LAAs is expected to not cause or contribute to a condition of pollution.

   This Order sets a groundwater limitation for nitrate nitrogen that prohibits any statistically significant increase in any monitoring well that currently exceeds the water quality objective, and does not allow the discharge to cause an exceedance of the water quality objective where groundwater meets the water quality objective for nitrate.

c. **Manganese and Iron**: With regard to manganese, pre-discharge groundwater monitoring data identified dissolved manganese concentrations in excess of the water quality objective during one sampling event conducted in May 2013 and November 2013. In contrast, only one of the groundwater samples collected in May 2013 and November 2013 analyzed for dissolved iron had a detected concentration above the laboratory reporting limit and the water quality objective. To date, insufficient monitoring data have been collected to make a determination whether the discharge is causing manganese or iron degradation or contributing to pollution.

   This Order requires that BOD loading rates and with irrigation cycles that are consistent with best practices to prevent reducing conditions, and the wastewater be evenly applied between the LAAs and within each LAA. Compliance with these requirements should prevent exceedance of the water quality objectives for these two constituents, which are the secondary MCLs of 0.50 and 0.300 mg/L,

respectively. The groundwater limitations prohibit exceedance of a water quality objective.

77. This Order establishes effluent and groundwater limitations that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.

78. With the exception of GW-5, current groundwater monitoring data for TDS indicate that groundwater has not been degraded by the discharge and that the expanded discharge does not pose a threat of pollution in the future. Because the average TDS concentration in GW-5 currently exceeds the water quality objective, the requirements of this Order do not allow any statistically significant increase in TDS concentrations to occur in that well (or its replacement).

79. Pre-discharge groundwater monitoring data for nitrate nitrogen indicate that groundwater degradation and pollution had occurred prior to Sutter Home's discharge. A comparison of pre-discharge to current average groundwater monitoring conditions indicates that the discharge has not caused further pollution and in some locations decreased degradation. Therefore, this Order does not allow any statistically significant increase in nitrate nitrogen concentrations to occur in those wells which currently exceed the water quality objective.

80. The Discharger provides treatment and control of the discharge that incorporates the following treatment and control measures:

    a. Lined wastewater treatment ponds;
    b. The equivalent of secondary treatment to reduce BOD and total nitrogen;
    c. Physical pre-cleaning of equipment prior to washing;
    d. Portable clean-in-place equipment to replace boilers;
    e. Chemical solution reuse;
    f. Application of wastewater at nutrient loading rates consistent with crop needs;
    g. Sufficient land application area to control salt and BOD loading rates with use of supplemental irrigation water;
    h. Solids storage on a concrete pad to prevent leachate percolation; and
    i. Off-site disposal of solids.

81. With respect to TDS, an unacceptable degree of groundwater degradation has occurred in one monitoring well. Therefore this Order does not authorize any continued degradation beyond that which exists today for that constituent in that well, or its replacement. The Groundwater Limitations are effective immediately and allow no degradation beyond existing groundwater quality in any compliance monitoring well where the TDS concentration exceeds the water quality objective. Because of the spatial variability of groundwater quality, this Order requires intrawell analysis of

compliance well groundwater monitoring data to determine compliance with the Groundwater Limitations. If significant improvement of the TDS concentration in well GW-5, or its replacement well, does not occur within five years of adoption of this Order, the Provisions require that the Discharger implement additional treatment or control as necessary to bring the discharge into compliance with the Basin Plan water quality objectives.

82. This Order imposes effluent and mass loading rate limitations ensure that the highest water quality consistent with the maximum benefit to the people of the State will be achieved while minimizing any degradation that may occur. This Order will be reopened if necessary to reconsider effluent limitations and other requirements to comply with Resolution 68-16 or the Controllable Factors Policy as applicable. Based on the existing record, the discharge authorized by this Order will be consistent with the Basin Plan.

Other Regulatory Considerations

83. In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.

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

    a. Category 2 threat to water quality: “Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.”

    b. Category B complexity, defined as: “Any discharger not included [as Category A] that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal) or any Class 2 or Class 3 waste management units.”

85. Title 27 of the California Code of Regulations (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to provisions that exempt domestic sewage, wastewater, and reuse. Title 27, section 20090 states in part:

    > The following activities shall be exempt from the SWRCB-promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed:

(b) Wastewater - Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met:

(1) the applicable RWQCB has issued WDRs, reclamation requirements, or waived such issuance;

(2) the discharge is in compliance with the applicable water quality control plan; and

(3) the wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

86. The discharge authorized herein, and the treatment and storage facilities associated with the discharge, are exempt from the requirements of Title 27 as follows:

a. Discharges to ponds and the LAAs are exempt pursuant to Title 27, section 20090(b) because they are discharge of wastewater to land and:

i. The Central Valley Water Board is issuing WDRs.

ii. The discharge is in compliance with the Basin Plan, and;

iii. The wastewater does not need to be managed as hazardous waste.

87. The U.S. EPA published *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (hereafter "Unified Guidance") in 2009. As stated in the Unified Guidance, the document:

> …is tailored to the context of the RCRA groundwater monitoring regulations … [however, t]here are enough commonalities with other regulatory groundwater monitoring programs … to allow for more general use of the tests and methods in the Unified Guidance… Groundwater detection monitoring involves either a comparison between different monitoring stations … or a contrast between past and present data within a given station… The Unified Guidance also details methods to compare background data against measurements from regulatory compliance points … [as well as] techniques for comparing datasets against fixed numerical standards … [such as those] encountered in many regulatory programs.

The statistical data analysis methods in the Unified Guidance are appropriate for determining whether the discharge complies with Groundwater Limitations of this Order.

88. The State Water Board adopted Order 97-03-DWQ (NPDES General Permit CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. The Discharger filed a Notice of Non-Applicability of Coverage under the NPDES General Permit for Discharges of Storm Water in 1998.

Following a site visit in 2002, the Central Valley Water Board concurred that the facility is exempt from the requirements to acquire coverage under the General Permit. The Discharger is covered under NPDES General Permit CAS000001.

89. Water Code section 13267(b) states:

> In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region … shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. 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 technical reports required by this Order and the attached Monitoring and Reporting Program R5-2015-0085 are necessary to ensure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

90. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in California Well Standards Bulletin 74-90 (June 1991) and Water Well Standards: State of California Bulletin 94-81 (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to Water Code section 13801, apply to all monitoring wells used to monitor the impacts of wastewater storage or disposal governed by this Order.

91. A Negative Declaration was certified by the San Joaquin County Community Development Department on 15 May 2014, in accordance with CEQA (Pub. Resources Code, § 21000 et seq.). The Initial Study and Negative Declaration describe the project as expanding winery production from crushing and processing 100,000 tons of grapes per year to 200,000 tons per year and constructing a bottling plant. Facility upgrades include additional winery equipment, buildings, and management operations for crop irrigation. The Initial Study found that the project would not cause significant impacts to water quality and that mitigation measures were not necessary.

92. The action to adopt waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality (CEQA), in accordance with the California Code of Regulations, title 14, section 15301.

93. Pursuant to Water Code section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

Public Notice

94. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.

95. The Discharger and interested agencies and persons have been notified of the Central Valley Water Board's intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity to submit written comments and an opportunity for a public hearing.

96. All comments pertaining to the discharge were heard and considered in a public hearing.

IT IS HEREBY ORDERED that Order R5-2009-0073-001 is rescinded and, pursuant to Water Code sections 13263 and 13267, the Discharger, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted hereunder, shall comply with the following:

A. Discharge Prohibitions

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

2. Discharge of waste classified as 'hazardous', as defined in the California Code of Regulations, title 23, section 2510 et seq., is prohibited.

3. Discharge of waste classified as 'designated', as defined in Water Code section 13173, in a manner that causes violation of groundwater limitations, is prohibited.

4. Treatment system bypass of untreated or partially treated waste is prohibited, except as allowed by Standard Provision E.2 of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*.

5. Discharge of waste at a location or in a manner different from that described in the Findings is prohibited.

6. Discharge of toxic substances into the wastewater treatment system or land application areas such that biological treatment mechanisms are disrupted is prohibited.

7. Application of residual solids to the land application areas is prohibited.

8. Discharge of domestic wastewater to the process wastewater treatment system is prohibited.

9. Discharge of process wastewater to the domestic wastewater treatment system (septic system) is prohibited.

B. Flow Limitations

1. **Effective immediately**, influent flows to the wastewater treatment ponds shall not exceed the following limits:

Flow Measurement	Flow Limit
Total Annual Flow [1]	35 MG
Total Monthly Flow [2]	7.0 MG

[1] As determined by the total flow for the calendar year.

[2] As determined by the total flow during the calendar month.

2. **Effective on the date of Executive Officer approval** of the *Land Application Area Completion Report* submitted pursuant to Provision H.1.a, influent total flows to the wastewater treatment ponds shall not exceed the following limits:

Flow Measurement	Flow Limit
Total Annual Flow [1]	70 MG
Total Monthly Flow [2]	13 MG

[1] As determined by the total flow for the calendar year.

[2] As determined by the total flow during the calendar month.

C. Effluent and Mass Loading Limitations

1. Discharge to the LAAs shall not exceed the following effluent and mass loading limits:

Constituent	Units	Limit
FDS Mass Loading Limit	lb/ac/year	4,200
BOD Loading Rate Limit Irrigation Cycle Average Flood Irrigation Sprinkler Irrigation	lb/ lb/ac/day lb/ac/day	 100 150
Total Nitrogen Loading Rate Limit	lb/ac/yr	Crop Demand

[1] Flow-weighted annual average based on total flow and concentration.

D. Discharge Specifications

1. No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations of this Order.

2. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.

3. The discharge shall remain within the permitted waste treatment/containment structures and land application areas at all times.

4. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.

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

6. Objectionable odors shall not be perceivable beyond the limits of the property where the waste is generated, treated, and/or discharged at an intensity that creates or threatens to create nuisance conditions.

7. As a means of discerning compliance with Discharge Specification D.8, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Regional Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.

8. 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.

9. Wastewater treatment, storage, and disposal systems shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal

precipitation, and ancillary inflow and infiltration during the winter while ensuring continuous 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 average rainfall patterns.

10. On or about **1 October** of each year, available capacity shall at least equal the volume necessary to comply with Discharge Specifications D.9 and D.10.

11. All ponds and open containment structures shall be managed to prevent breeding of mosquitoes. Specifically:
    a. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
    b. Dead algae, vegetation, and debris shall not accumulate on the water surface.
    c. 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.

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. **Every five years beginning in 2018**, the Discharger shall test the integrity of all pond liners and repair all significant leaks in accordance with an approved workplan pursuant to Provision H.1.e.

14. The Discharger shall monitor sludge accumulation in the wastewater ponds at least **every five years beginning in 2018**, and shall periodically remove sludge as necessary to maintain adequate storage capacity. Specifically, if the estimated volume of sludge in any pond exceeds ten percent of the permitted pond capacity, the Discharger shall complete sludge cleanout within 12 months after the date of the estimate.

15. Storage of residual solids, including pomace and/or diatomaceous earth on areas not equipped with means to prevent storm water infiltration, or a paved leachate collection system is prohibited.

E. Groundwater Limitations

Release of waste constituents from any portion of the site shall not cause groundwater to:

1. Contain any of the specified constituents in a concentration statistically greater than the maximum allowable concentration tabulated below. The

wells to which these requirements apply are specified in the Monitoring and Reporting Program.

Constituent	Water Quality Objective (mg/L)	Maximum Allowable Concentration	
		Where Current Water Quality Exceeds Water Quality Objective	Where Current Water Quality Meets Water Quality Objective
TDS	1,000	No statistically significant increase [1]	1,000 mg/L
Nitrate nitrogen	10	No statistically significant increase [1]	10 mg/L

[1] For the purpose of this requirement, "Current Water Quality" is defined as the arithmetic mean of the last four quarterly monitoring results prior to adoption of this Order for each of the specified compliance monitoring wells listed in the Monitoring and Reporting Program.

2. For all compliance wells, except as specified in 1 above, contain constituents in concentrations that exceed either the Primary or Secondary MCLs established in Title 22 of the California Code of Regulations.
3. For all compliance wells, except as specified in 1 above, contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.

The applicability of these subparagraphs to each compliance well is specified in the Monitoring and Reporting Program (MRP). Compliance with these limitations shall be determined on an intrawell basis using approved statistical methods.

If additional wells are designated as compliance wells in the future, the Executive Officer will issue a revised MRP specifying the applicability of subparagraphs 1, 2, and 3 to those wells.

F. Land Application Area Specifications

1. Crops (e.g. corn, alfalfa, forage crops, etc.) shall be grown in the LAAs. Crops shall be selected based on nutrient uptake capacity, tolerance to soil conditions, consumptive use of water, and irrigation requirements. Cropping activities shall be sufficient to take up the nitrogen applied, including any fertilizers and manure.

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

3. Wastewater shall be evenly distributed between the LAAs and within each irrigation block of each LAA to the maximum practical extent. Due consideration shall be given to changing irrigation methods or operational practices as needed to prevent uneven loading of waste constituents.

4. Discharge of process wastewater to any LAA not having a fully functional tailwater/runoff control system is prohibited.

5. Tailwater runoff shall not be discharged outside of the LAAs.

6. LAA storm water runoff shall not be discharged outside of the LAAs.

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

8. The LAAs shall be managed to prevent breeding of mosquitoes, or other vectors.

9. LAAs shall be designed, maintained, and operated to comply with the following setback requirements:

Setback Definition	**Minimum Irrigation Setback (feet)**
Edge of LAA to property boundary	25
Edge of LAA to manmade or natural surface water drainage course	25
Edge of LAA to domestic water supply well	100

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

11. 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 immediately implement corrective action to ensure compliance with this Order.

12. Any irrigation runoff (tailwater) shall be contained within the LAAs and shall not enter any surface water drainage course or storm water drainage system.

13. Spray irrigation with wastewater is prohibited when wind speed (including gusts) exceeds 30 mph.

14. Sprinkler heads, if used, shall be designed, operated, and maintained to create a minimum amount of mist.

15. Discharge to the LAAs shall not be performed during rainfall or when the ground is saturated.

G. Solids Disposal Specifications

Sludge, as used in this document, means the solid, semisolid, and liquid organic matter removed from wastewater treatment, settling, and storage vessels or ponds. Solid waste refers to solid inorganic matter removed by screens and soil sediments from washing of unprocessed fruit or vegetables. Except for waste solids originating from meat processing, residual solids means organic food processing byproducts such as culls, pulp, stems, leaves, and seeds that will not be subject to treatment prior to disposal or land application.

1. Sludge and solid waste shall be removed from screens, sumps, ponds, and clarifiers as needed to ensure optimal operation and adequate storage capacity.

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

3. If removed from the site, sludge, solid waste, and 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, 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.

4. 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.

H. Provisions

1. The following reports shall be submitted pursuant to Water Code section 13267 and shall be prepared as described in Provision H.5:

   a. **By 31 December 2015**, the Discharger shall submit a *Land Application Area Completion Report* that that certifies completion of all reconfigured and new LAAs as described in the findings. The report shall describe the irrigation and tailwater control systems for each LAA, and shall include as-built drawings.

   b. By **31 July 2015**, the Discharger shall submit a *Groundwater Monitoring Well Installation Workplan* that describes plans to install additional monitoring wells within or downgradient of planned LAAs E-2, W-1, W-4 and W-5 to verify groundwater gradient and compliance with the Groundwater Limitations and to document the planned replacement of GW-5 and GW-6. The workplan shall be prepared in accordance with, and include the items listed in, the first section of Attachment E: "*Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports*", which is attached hereto and made part of this Order by reference. The groundwater monitoring wells shall be

designed to yield samples representative of the uppermost portion of the first aquifer underlying the LAAs.

c. By **30 November 2015**, the Discharger shall submit a *Groundwater Limitations Compliance Assessment Plan*. The plan shall describe and justify the statistical methods that are proposed to determine compliance with the Groundwater Limitations of this Order for the constituents listed in the Monitoring and Reporting Program. As described in the MRP, Compliance shall be determined annually based on intrawell statistical analysis that evaluates temporal trends based on all historic data for each well.

d. By **1 February 2016**, the Discharger shall submit a *Groundwater Monitoring Well Installation Report* that describes the installation of the new groundwater monitoring wells required by Provision G.1.b. The report shall be prepared in accordance with, and including the items listed in, the second section of Attachment E: "*Monitoring Well Workplan and Monitoring Well Installation Report Guidance*," which is attached hereto and made part of this Order by reference. The report shall describe the installation and development of all new monitoring wells, and explain any deviation from the approved workplan. Groundwater monitoring of these wells is described in the Monitoring and Reporting Program.

e. By **29 December 2017**, the Discharger shall submit a *Pond Liner Integrity Evaluation Workplan* that specifies the means and methods that the Discharger proposes to use to perform a 5-year evaluation of all geosynthetic liner systems to comply with Discharge Specification D.13.

f. By **1 October 2020**, the Discharger shall submit a *Groundwater Salinity Trend Evaluation Report* that demonstrates statistically significant decreasing temporal trends in groundwater for TDS in monitoring well GW-5, or its replacement, as applicable, to demonstrate compliance with the groundwater limitations of this Order. If there is not a statistically significant decrease in TDS concentrations since the date of adoption of this Order, the report shall include a description of the specific additional treatment or control measures that will be implemented to achieve compliance with the Controllable Factors Policy unless the report demonstrates that another source of pollutants is preventing compliance. The Discharger shall fully implement those measures by **30 September 2022**.

2. If groundwater monitoring results show that the discharge is causing groundwater to contain any waste constituents in concentrations statistically greater than the Groundwater Limitations of this Order, within 120 days of the request of the Executive Officer, the Discharger shall submit a *BPTC Evaluation Workplan* that sets forth the scope and schedule for a systematic and comprehensive technical evaluation of each component of the facility's waste treatment and disposal system to determine best practicable treatment and control for each waste constituent that exceeds a Groundwater Limitation. The workplan shall contain a preliminary evaluation of each component of the wastewater and disposal system and propose

a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed one year.

3. At least **180 days** prior to any sludge removal and disposal, the Discharger shall submit a *Sludge Cleanout Plan*. The plan shall include a detailed plan for sludge removal, drying, and disposal. The plan shall specifically describe the phasing of the project, measures to be used to control runoff or percolate from the sludge as it is drying, and a schedule that shows how all dried sludge will be land applied to the LAAs or removed from the site prior to the onset of the rainy season **(1 October)**.

4. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Central Valley Water Board by **31 January**.

5. 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.

6. 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.

7. The Discharger shall comply with Monitoring and Reporting Program R5-2015-0085, 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.

8. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

9. 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.

10. 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.

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

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

13. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."

14. The Discharger shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal systems in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

15. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Central Valley Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.

16. In the event of any change in control or ownership of the facility, 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. 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. A copy of this Order including the MRP, Information Sheet, Attachments, and Standard Provisions, shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

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

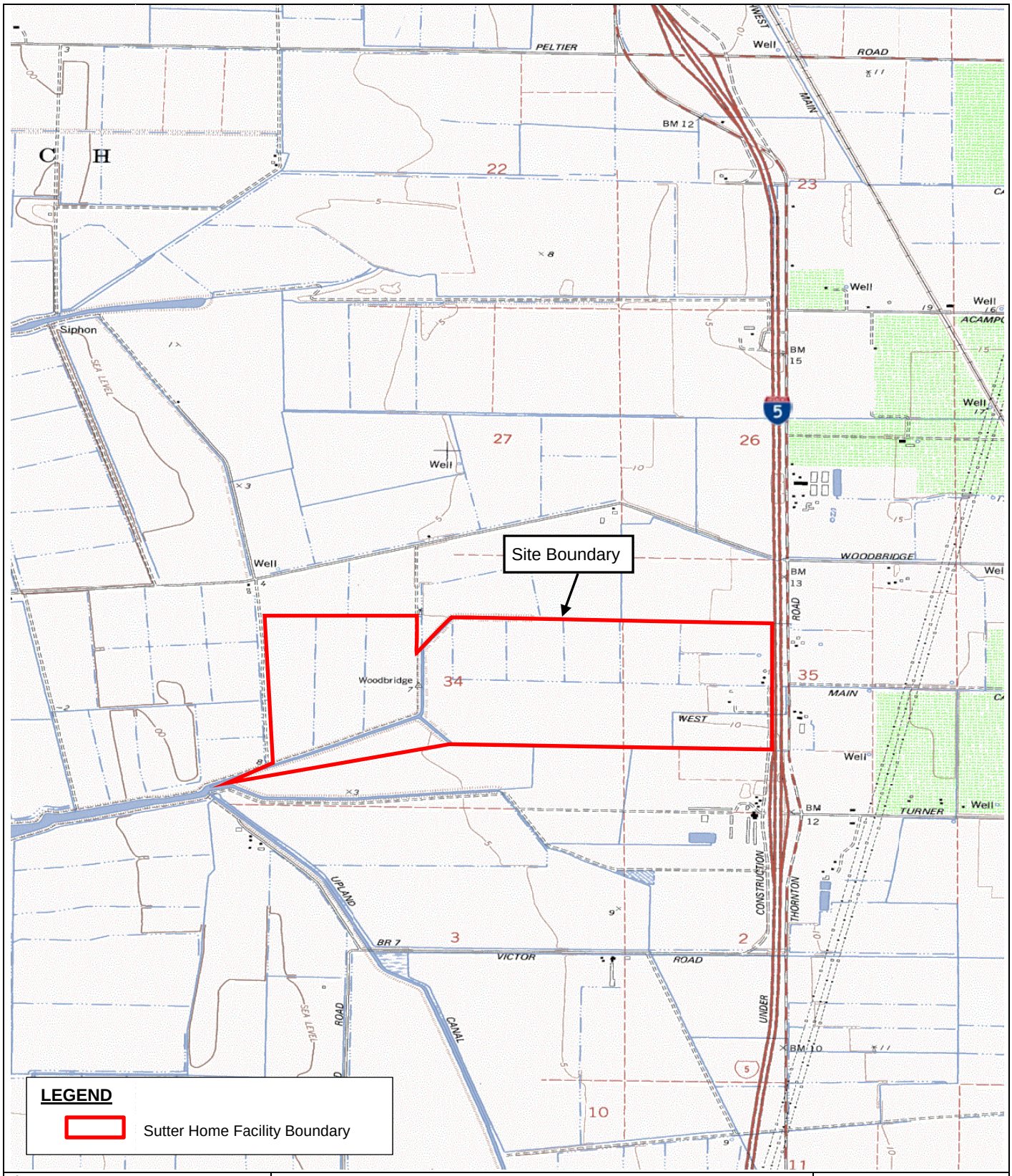
If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. 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.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order 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 will be provided upon request, and may be found on the Internet at:

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

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that the foregoing is a full true, and correct copy of an Order adopted by the California Regional Water Quality Control Board on 5 June 2015.

PAMELA C. CREEDON, Executive Officer



fx
Drawing Reference:

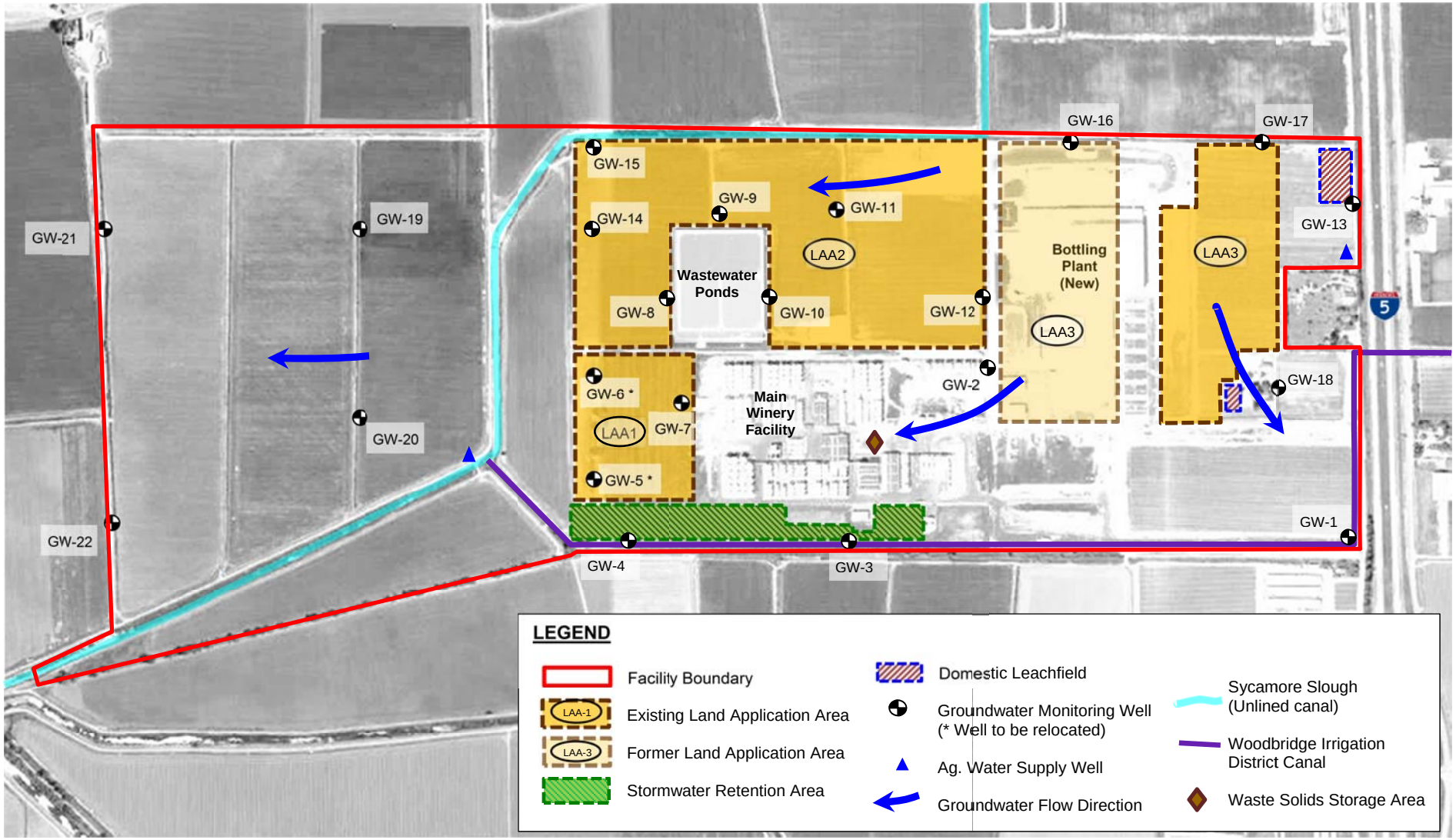
U.S.G.S.
Thornton Map
7.5 Minute Quad

SITE LOCATION MAP

SUTTER HOME WINERY
SUTTER HOME WINERY – WESTSIDE FACILITY
SAN JOAQUIN COUNTY

N
W E
S

approx. scale
1 in. = 2,200 ft.



Drawing Reference:

Kennedy/Jenks
Report of Waste Discharge, March 2014
Modified from GoogleEarth November 2014

N
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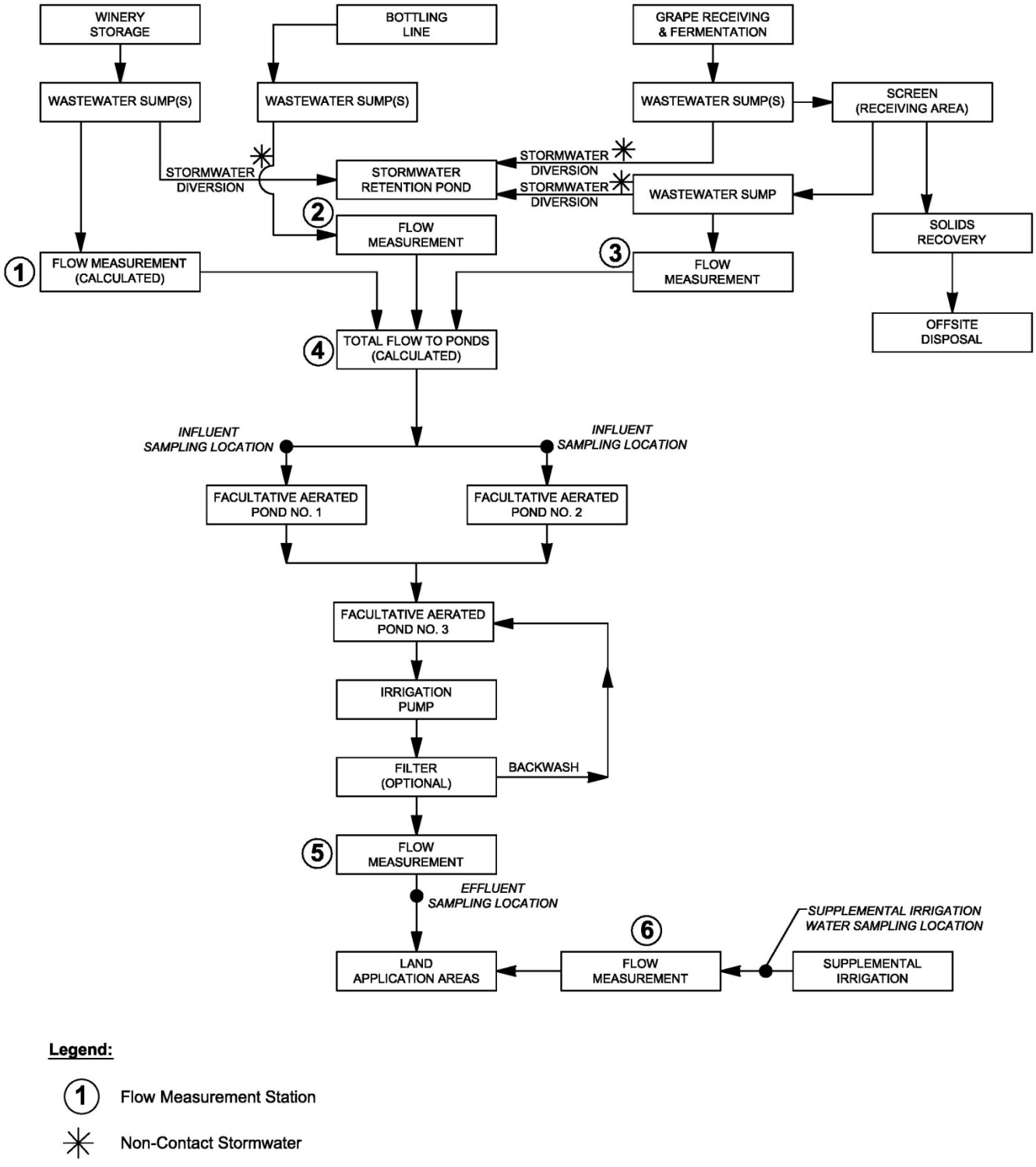
Approx. scale
1 in. = 1,000 ft.

CURRENT SITE PLAN

SUTTER HOME WINERY
SUTTER HOME WINERY – WESTSIDE FACILITY
SAN JOAQUIN COUNTY

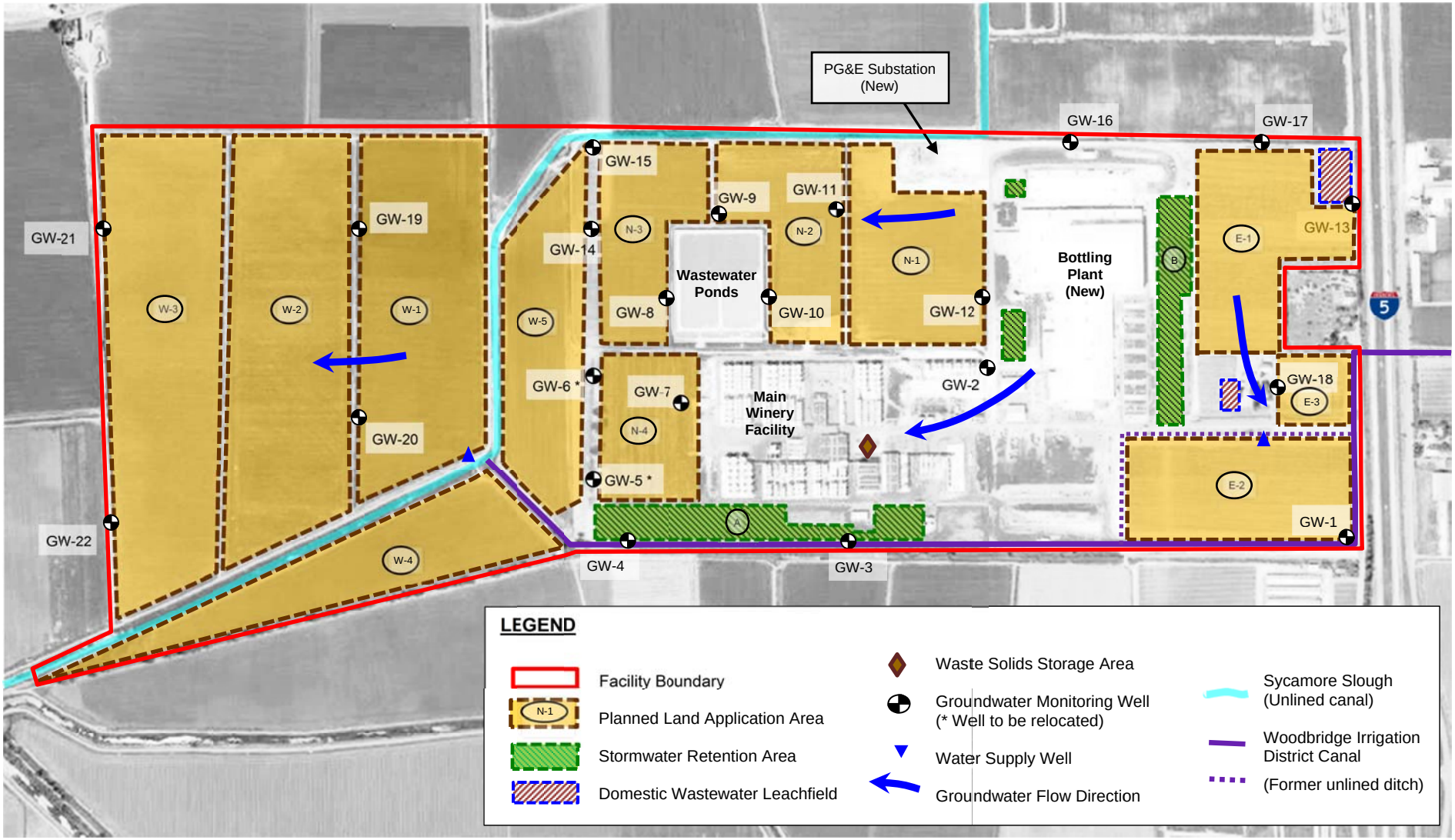


Drawing Reference:

Modified from Process Water Management Schematic
Report of Waste Discharge
Kennedy/Jenks, December 2014

WASTEWATER FLOW SCHEMATIC

SUTTER HOME
SUTTER HOME WESTSIDE FACILITY
SAN JOAQUIN COUNTY



Drawing Reference:

Kennedy/Jenks
Report of Waste Discharge, March 2014
Modified from GoogleEarth November 2014

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Approx. scale
1 in. = 1,000 ft.

PLANNED SITE PLAN

SUTTER HOME WINERY
SUTTER HOME WINERY – WESTSIDE FACILITY
SAN JOAQUIN COUNTY

ATTACHMENT E
REQUIREMENTS FOR MONITORING WELL INSTALLATION WORKPLANS AND MONITORING WELL 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:
   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

- 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)

E. 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

F. 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

MONITORING AND REPORTING PROGRAM R5-2015-0085

FOR

SUTTER HOME WINERY, INC.
SUTTER HOME WINERY WESTSIDE FACILITY
SAN JOAQUIN COUNTY

This Monitoring and Reporting Program (MRP) incorporates requirements for monitoring of wastewater, wastewater treatment ponds, storm water ponds, land application areas, solids, and groundwater. This MRP is issued pursuant to Water Code section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form. Flow monitoring shall be conducted continuously using flow meters. Field test instruments (such as those used to measure pH and dissolved oxygen) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;

2. The instruments are calibrated prior to each monitoring event;

3. The instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and

4. Field calibration reports are submitted as described in the “Reporting” section of the MRP.

Analytical procedures shall comply with the methods and holding times specified in the following: *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA); *Test Methods for Evaluating Solid Waste* (EPA); *Methods for Chemical Analysis of Water and Wastes* (EPA); *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA); *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125). Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the California Department of Public Health’s Environmental Laboratory Accreditation Program. The Discharger may propose alternative methods for approval by the Executive Officer. Where technically feasible, laboratory reporting limits shall be lower than the applicable water quality objectives for the constituents to be analyzed.

INFLUENT FLOW MONITORING

Influent wastewater flows to wastewater treatment ponds shall be performed at flow monitoring stations 1, 2, 3 and 4 as shown on Attachment C and shall include the following:

Monitoring Location [1]	Units	Type of Sample	Monitoring Frequency	Reporting Frequency
Winery Sumps (Station 1)	Gallons	Calculated	Daily	Monthly
Bottling Line Sumps (Station 2)	Gallons	Meter Reading	Daily	Monthly
Fermentation and Screening Sumps (Station 3)	Gallons	Meter Reading	Daily	Monthly
Total Influent Flow to Ponds 1 and 2 (Station 4)	Gallons	Calculated [2]	Daily	Monthly

[1] Monitoring requires daily meter reading or automated data collection using a meter equipped with a totalizer.
[2] Total influent flows shall be calculated as the daily sum of measured flows at Stations 1, 2, and 3.

INFLUENT WASTEWATER MONITORING

Influent wastewater samples shall be collected at established sampling stations located immediately upstream of Ponds 1 and 2, as shown on Attachment C. Influent monitoring shall include the following:

Constituents	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Biochemical Oxygen Demand [1]	mg/L	Grab	Monthly	Monthly
Fixed Dissolved Solids	mg/L	Grab	Monthly	Monthly

[1] Five-day, 20° Celsius Biochemical Oxygen Demand.

EFFLUENT WASTEWATER MONITORING

Treated wastewater samples shall be collected from an established sampling station located immediately downstream of Pond No. 3 that will provide representative samples of the treated wastewater that will be applied to the LAAs. Effluent wastewater monitoring shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Biochemical Oxygen Demand	mg/L	Grab	Monthly	Monthly
Total Nitrogen	mg/L	Grab	Monthly	Monthly
Fixed Dissolved Solids	mg/L	Grab	Monthly	Monthly
Selected Standard Minerals [1]	mg/L	Grab	Quarterly	Quarterly [2]

[1] Selected standard minerals shall include the following: potassium, sulfate, and total alkalinity (including alkalinity series).
[2] Quarterly results shall be reported in the monthly report for the month in which samples were analyzed.

WASTEWATER POND MONITORING

Each wastewater treatment pond shall be monitored as follows. Freeboard shall be measured vertically from the surface of the pond water to the lowest elevation of the surrounding berm and shall be measured to the nearest 0.1 feet. Wastewater pond monitoring shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Dissolved Oxygen [1]	mg/L	Grab	Weekly	Monthly
Freeboard	feet (±0.1)	Measurement	Weekly	Monthly
pH	pH Units	Grab	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly

[1] Samples shall be collected at a depth of one foot in each pond opposite the inlet.

STORM WATER POND MONITORING

Each storm water basin shall be monitored whenever it contains more than 6 inches of water in the lowest portion of the pond. Samples shall be collected from an established sampling station located in each basin that will provide representative samples of the water in the pond. Freeboard shall be measured vertically from the surface of the pond water to the lowest elevation of the surrounding berm and shall be measured to the nearest 0.1 feet. Monitoring of the ponds shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Presence/Absence of Water	--	Observation	Weekly	Monthly
Freeboard	feet (±0.1)	Measurement	Weekly	Monthly
pH	pH Units	Grab	Weekly	Monthly
Total Nitrogen	mg/L	Grab	Monthly	Monthly
Fixed Dissolved Solids	mg/L	Grab	Monthly	Monthly

SUPPLEMENTAL IRRIGATION WATER MONITORING

Supplemental irrigation water quality shall be monitored as described below during periods when supplemental irrigation water is used to irrigate the LAAs. Monitoring of supplemental irrigation water from each on-site irrigation well that is used, Sycamore Slough, and the Woodbridge Irrigation District Canal shall be performed during each quarter when water from that source is used, and each sample shall be analyzed for the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency [1]
Total Nitrogen	mg/L	Grab	Quarterly	Monthly
Total Dissolved Solids	mg/L	Grab	Quarterly	Monthly
Fixed Dissolved Solids	mg/L	Grab	Quarterly	Monthly

[1] Quarterly monitoring results shall be reported in the monthly report for the month in which samples are analyzed.

LAND APPLICATION AREA MONITORING

The Discharger shall inspect and monitor the land application areas and the results shall be included in the monthly monitoring reports. Evidence of erosion, field saturation, runoff, or the presence of nuisance conditions shall be noted in the report. Loading rates for each land application area shall be calculated. Monitoring of the land application areas shall include the following, and flows shall be measured at flow monitoring stations 5 and 6 as shown on Attachment C:

Constituent	Units	Type of Sample	Monitoring Frequency	Reporting Frequency
Local Rainfall	inches	Measurement	Daily	Monthly
Effluent Wastewater Application [1] (Station 5):	gpd and inches	Meter Reading [1]	Daily	Monthly
Supplemental Irrigation Application (Station 6):	gpd and inches	Meter Reading [1, 2]	Daily	Monthly
Acreage Applied [3]	Acres	Observation	Daily	Monthly
Total Water Application	gpd and inches	Calculated	Daily	Monthly
BOD Loading Rates:				
Irrigation Cycle Average	lb/acre/day	Calculated	--	Monthly
Total Nitrogen Loading Rate				
Wastewater	lb/acre	Calculated	--	Monthly
Fertilizer/Other	lb/acre	Calculated	--	Monthly
Total (all sources)	lb/acre	Calculated	--	Monthly

[1] Measure and report the volume of wastewater discharged to each land application area from Pond 3.
[2] Measure and report the volume of supplemental irrigation discharged to each land application area.
[3] Land Application Areas shall be identified by name or number and the acreage provided. If a portion of an area is used, then the acreage shall be estimated.

At least **once per week** when wastewater is being applied to a particular land application area, the entire application area shall be inspected to identify any equipment malfunction or other circumstance that might allow irrigation runoff to leave the area and/or create ponding conditions that violate the Waste Discharge Requirements. A log of these inspections shall be kept at the facility and be submitted with the monthly monitoring reports. If wastewater was not applied to the land application area, then the monthly monitoring report shall so state.

SOLIDS MONITORING

The Discharger shall monitor the solids generated and disposed of on a monthly basis. The following shall be monitored and reported:

1. Amount of solids generated, including pomace, seeds, stems, lees, diatomaceous earth, wastewater screenings, sump solids, and sludge removed from treatment ponds.
2. Volume disposed of off-site. For each solids type, describe the disposal method (e.g. animal feed, land application, off-site composting, landfill, etc.), the amount disposed (tons), the name of the hauling company, and the location where the material was transported.

GROUNDWATER MONITORING

Prior to construction and/or sampling of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Board for approval. Once installed, all new wells shall be added to the monitoring network and shall be sampled and analyzed according to the schedule below. All samples shall be collected using approved EPA methods. The following table lists all existing monitoring wells and designates the purpose of each well:

GW-1 [1]	GW-2 [2]	GW-3 [2]	GW-4 [2]	GW-5 [1, 3]	GW-6 [1, 3]	GW-7 [1]	GW-8 [1]
GW-9 [1]	GW-10 [1]	GW-11 [1]	GW-12 [1]	GW-13 [2]	GW-14 [1]	GW-15 [1]	GW-16 [4]
GW-17 [4]	GW-18 [1]	GW-19 [1]	GW-20 [1]	GW-21 [1]	GW-22 [1]		

[1] Compliance well.
[2] Well not suitable as a compliance well or background well; monitored for water table elevation only.
[3] Well to be abandoned and replaced.
[4] Background well.

Prior to sampling, depth to groundwater measurements shall be measured in each monitoring well to the nearest 0.01 feet. Groundwater elevations shall then be calculated to determine groundwater gradient and flow direction, based on surveyed well casing elevations. Low or no-purge sampling methods are acceptable, if described in an approved Sampling and Analysis Plan. Groundwater monitoring for all monitoring wells shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency [2]	Reporting Frequency [2]
Depth to Groundwater	±0.01 feet	Measurement	Quarterly	Quarterly
Groundwater Elevation[1]	±0.01 feet	Calculated	Quarterly	Quarterly
Gradient	feet/feet	Calculated	Quarterly	Quarterly
Gradient Direction	Degrees	Calculated	Quarterly	Quarterly
pH	pH units	Grab	Quarterly	Quarterly
Total Nitrogen	mg/L	Grab	Quarterly	Quarterly
Nitrate Nitrogen	mg/L	Grab	Quarterly	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly	Quarterly
Dissolved Metals [3]	mg/L	Grab	Annually	Annually

[1] Groundwater elevation shall be determined based on depth-to-water measurements from a surveyed measuring point elevation on the well.

[2] Background wells may be sampled annually and the results reported in the Quarterly Monitoring Report for the quarter during which sampling was performed.

[3] Metals shall include dissolved iron and dissolved manganese; samples shall be filtered using a 0.45 µ filter prior to sample preservation.

GROUNDWATER TRIGGER CONCENTRATIONS

The following groundwater trigger concentrations are intended only to serve as a means of assessing whether wastewater discharge to the LAAs might potentially cause a violation of one or more of the Groundwater Limitations of the WDRs at some later date. These trigger concentrations only apply to compliance monitoring wells.

Constituent	Trigger Concentration (mg/L)	Water Quality Objective
TDS	800	1,000 [1]
Nitrate Nitrogen	8	10 [2]

[1] Upper Secondary Maximum Contaminant Level

[2] Primary Maximum Contaminant Level

If the annual evaluation of groundwater quality performed pursuant to this MRP shows that the annual average of one or more of the trigger concentrations has been exceeded in any compliance monitoring well during the calendar year, the Discharger shall submit one or both of the following technical reports (as applicable) by **1 May of the following calendar year** (e.g., if one or more trigger concentrations are exceeded for calendar year 2020, the appropriate report is due by 1 May 2021):

a. A technical evaluation of the reason(s) for the concentration increase for each constituent and a technical demonstration that, although the concentration has increased more than expected in one or more compliance wells, continuing the discharge without additional treatment or control will not result in exceedance of the applicable groundwater limitation.

b. An Action Plan that presents a systematic technical evaluation of each component of the facility's waste treatment and disposal system to determine what additional treatment or control is necessary and feasible for each waste constituent that exceeds a trigger concentration. The plan shall evaluate each component of the wastewater treatment, storage, and disposal system (as applicable); describe the applicability and feasibility of available treatment and/or control technologies; provide preliminary capital and operation/maintenance cost estimates for each; designate the preferred option[s] for implementation; and specify a proposed implementation schedule. The schedule for full implementation shall not exceed one year, and the Discharger shall immediately implement the proposed improvements.

EFFLUENT AND MASS LOADING CALCULATIONS

a. The mass of BOD applied to each LAA as an irrigation cycle average shall be calculated using the following formula:

$$M = \frac{8.345(\mathrm{CV})}{A(CT)}$$

Where:
M = mass of BOD applied to the irrigation block in lb/ac/day as an irrigation cycle average
C = concentration of BOD in mg/L based on the most recent wastewater monitoring results
V = volume of wastewater applied to the irrigation block in millions of gallons per day during the irrigation cycle
A = area of the irrigation block in acres
CT = cycle time (i.e., irrigation cycle length from start of irrigation to start of next irrigation event, in days)

b. The mass of total nitrogen applied to each LAA on an annual basis shall be calculated using the following formula and compared to published crop demand for the crops actually grown:

$$M = \sum_{i=1}^{12} \frac{(8.345(C_i V_i) + M_x)}{A}$$

Where:

M	=	mass of nitrogen applied to LAA in lb/ac/yr
C_i	=	Monthly average concentration of total nitrogen for month *i* in mg/L
V_i	=	volume of wastewater applied to the LAA during calendar month *i* in million gallons
A	=	area of the LAA irrigated in acres
i	=	the number of the month (e.g., January = 1, February = 2, etc.)
M_x	=	nitrogen mass from other sources (e.g., fertilizer and compost) in pounds
8.345	=	unit conversion factor

c. The mass of wastewater fixed dissolved solids applied to each LAA on an annual basis shall be calculated using the following formula and compared to the FDS loading rate limit:

$$M = \sum_{i=1}^{12} \frac{8.345\,(C_i V_i)}{A}$$

Where:

M	=	mass of wastewater FDS applied to LAA in lb/ac/yr
C_i	=	Monthly average concentration of effluent FDS for month *i* in mg/L
V_i	=	volume of wastewater applied to the LAA during calendar month *i* in million gallons
A	=	area of the LAA irrigated in acres
i	=	the number of the month (e.g., January = 1, February = 2, etc.)
8.345	=	unit conversion factor

REPORTING

All monitoring reports should be converted to a searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50 MB should be emailed to:

centralvalleysacramento@waterboards.ca.gov

Documents that are 50 MB or larger should be transferred to a CD, DVD, or flash drive and mailed to the following address:

Central Valley Regional Water Quality Control Board
ECM Mailroom
11020 Sun Center Drive, Suite 200
Rancho Cordova, California 95670

To ensure that your submittals are routed to the appropriate staff, the following information block should be included in any correspondence used to transmit documents to this office:

Facility Name: Sutter Home Winery – Westside Facility		
Program: Non-15	Order: R5-2015-0085	CIWQS Place ID: 237277

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent wastewater, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported in the monitoring report.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all groundwater monitoring reports shall be prepared under the direct supervision of a registered professional engineer or geologist and signed by the registered professional.

A. Monthly Monitoring Reports

Monthly reports shall be submitted to the Regional Board by the **1st day of the second month** following the end of the reporting period (i.e. the January monthly report is due by 1 March). Monthly reports for the months of March, June, September, and December may be submitted as part of the Quarterly Monitoring Report, if desired. The monthly reports shall include the following:

1. Daily and total monthly flow volumes for influent and effluent wastewater.

2. Calculation of the cumulative influent wastewater flow volume for the calendar year to date.

3. Results of influent and effluent wastewater monitoring, including quarterly monitoring results if quarterly monitoring was performed during the month.

4. Results of wastewater and storm water pond monitoring.

5. Results of supplemental irrigation water monitoring if quarterly monitoring was performed during the month.

6. For each LAA, land application area monitoring data, including calculations of daily

maximum and cycle average BOD loading rates and total nitrogen loading rate for each LAA for the calendar year to date.

7. A comparison of monitoring data to the discharge specifications and effluent limitations, disclosure of any violations of the WDRs, an explanation of the reason for each violation, and a description of any corrective action taken. If requested by staff, copies of laboratory analytical report(s).

8. A calibration log verifying calibration of all hand held monitoring instruments and devices used to comply with the prescribed monitoring program;

B. Quarterly Monitoring Reports

The Discharger shall establish a quarterly sampling schedule for groundwater monitoring such that samples are obtained approximately every three months. Quarterly monitoring reports shall be submitted to the Regional Board by the **1st day of the second month after the quarter** (e.g. the January-March quarter is due by May 1st) each year. The Quarterly Monitoring Report submittal schedule is shown in the table below.

Quarter	Month	Quarterly Report Due Date
First	January – March	1 May
Second	April – June	1 August
Third	July – September	1 November
Fourth	October - December	1 February

The Quarterly Monitoring Report shall include the following:

1. Results of groundwater monitoring;

2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDR, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; method of purging and parameters measured before, during, and after purging. Low or no-purge sampling methods are acceptable if described in an approved Sampling and Analysis Plan;

3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement;

4. Summary data tables of historical and current water table elevations and analytical results;

5. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and

6. If requested by staff, copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Monitoring Report

An Annual Monitoring Report shall be submitted to the Central Valley Water Board by **1 February** each year. The Annual Monitoring Report shall include the following:

1. The contents of a regular Monthly Monitoring Report for the month of December.

2. The contents of the regular Quarterly Monitoring Report for the fourth quarter of the year.

3. Tabular and graphical summaries of monthly total loading rates for wastewater and supplemental irrigation water for each irrigation block within each LAA (hydraulic loading in gallons/acre and inches), a comparison to limits for BOD, total nitrogen, total dissolved solids, and fixed dissolved solids.

4. A tabular summary of monthly influent flow volumes for the calendar year and calculation of the maximum monthly and total annual influent wastewater flow volume and comparison to the flow limits of the WDRs.

5. A narrative discussion of groundwater flows and analytical results, including spatial and temporal trends, with reference to summary data tables, time v. concentration graphs, and water table elevation contour maps for each monitoring event.

6. Determination of whether any trigger concentrations were exceeded in any compliance well. If any groundwater trigger concentrations were exceeded, include acknowledgment that the appropriate technical report described in the Groundwater Trigger Concentrations section of this MRP will be submitted in accordance with the specified schedule.

7. A statistical determination of compliance with the groundwater limitations of the WDRs in accordance with the approved *Groundwater Limitations Compliance Assessment Plan*.

8. A comprehensive evaluation of the effectiveness of the past year's wastewater application operation in terms of odor control, even application of wastewater between the LAAs and within each irrigation block of each LAA, and groundwater protection, including consideration of application management practices (e.g.: waste constituent and hydraulic loadings, application cycles, drying times, and cropping practices), and groundwater monitoring data.

9. A summary of crops grown and removed from the LAAs. The summary shall include planting and harvest dates for each LAA, crop type and published nitrogen demand.

10. A summary of the quantity of each type of solids generated and disposed of off-site.

11. A summary of storm water pond monitoring data and an evaluation of the effectiveness of operations practices in preventing waste constituents from being discharged to the storm water ponds.

12. A description of any new salinity reduction or control methods that have been implemented in the calendar year and a quantification of the reductions achieved compared to previous years.

13. Estimated total wastewater flows for the next calendar year.

14. **Every five years beginning in 2018**, the results of pond liner and leak detection system integrity tests as required pursuant to Discharge Specification D.13. If significant liner leaks were detected, include a plan and schedule for leak repair or liner replacement.

15. **Every five years beginning in 2018**, the results of pond sludge monitoring and details of sludge removal and disposal as required pursuant to Discharge Specification D.14.

16. A discussion of compliance and corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.

17. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain a statement by the Discharger, or the Discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate and complete.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: Pamela C Creedon
PAMELA C. CREEDON, Executive Officer

June 5, 2015
(Date)

SAA: 06/10/2015

INFORMATION SHEET

ORDER R5-2015-0085
SUTTER HOME WINERY, INC.
SUTTER HOME WINERY WESTSIDE FACILITY
WASTE DISCHARGE REQUIREMENTS
SAN JOAQUIN COUNTY

Facility Description

Sutter Home Winery, Inc., ("Discharger") owns and operates a winery located at 18667 Jacob Brack Road, Lodi, in San Joaquin County. The facility comprises approximately 270 acres of agricultural land, several administrative and wine production buildings, three lined wastewater treatment ponds, and 111 acres of cropped Land Application Areas (LAAs) for the discharge of winery wastewater. The property has been used winery operations since 1998. Order R5-2009-0073, adopted by the Central Valley Water Board on 13 March 2009, and amended on 3 August 2012, prescribes waste discharge requirements for the facility. On 30 May 2014, a Report of Waste Discharge (RWD) was submitted to allow an increase of wastewater treatment and land application as a result of planned expansion of winery production activities at the facility. In January and March 2015, the Discharger submitted additional information to support the RWD.

Current Wastewater Process and Land Application Areas

The winery operates year-round, with maximum wastewater discharge occurring during the crush season of September through November. The facility currently crushes approximately 100,000 tons of grapes and produces 21 million gallons of wine annually. Process wastewater is pumped to a treatment system consisting of three lined wastewater treatment and storage ponds that were constructed in 2009. Treated wastewater is used irrigate 111 acres of cropped Land Application Area (LAAs). The Discharger is planning to increase winery production and to crush up to 200,000 tons of grapes annually. The Discharger has recently constructed a bottling plant and is planning to increase wastewater flow and expand the LAAs to include a total of 268 acres of cropped LAAs.

WDRs Order R5-2009-0073 allows a maximum daily wastewater flow of up to 7.0 million gallons per day (MGD), and a total annual flow of 30 million gallons per year (MGY). In 2014, the Discharger discharged 29.8 MG and proposes to further expand winery operations, increasing daily wastewater discharge to 13 MGD and annual flow to 70 MGY.

Wastewater Characterization and Salinity Reduction Efforts

Wastewater monitoring data indicate that the annual average annual flow-weighted FDS concentrations of wastewater from Pond 3 since 2010 has ranged from 1,239 milligrams per liter (mg/L) in 2012 to 1,432 mg/L in 2014. In contrast, average annual effluent BOD concentrations from Pond 3 between 2010 and 2014 ranged between 133 mg/L to 286 mg/L. The Discharger is implementing salinity source control and reduction measures as part of current winery production activities; however, operations have also included water conservation measures, which tend to increase the concentration of salinity in the wastewater.

Groundwater Quality

The Discharger currently maintains twenty two shallow-interval groundwater monitoring wells and has been monitoring groundwater quality at the site since 2002. The existing monitoring wells are located at strategic locations to provide water quality data from upgradient, cross-gradient, and downgradient of process areas and LAAs. Groundwater generally flows to the west-southwest, with some variability on the eastern side of the site.

Pre-discharge groundwater quality data showed spatial variability across the site and that TDS and nitrate nitrogen pollution occurred in shallow groundwater prior to Sutter Home's discharge was initiated at this facility. Intrawell analysis of monitoring data from wells surrounding the existing LAAs indicate that TDS and nitrate nitrogen concentrations have generally decreased or remained relatively stable and below the water quality objectives in most of the monitoring wells, however there is some temporal and spatial variability. Currently, one monitoring well exceeds the water quality goal for TDS while six monitoring wells continue to exceed the water quality goal nitrogen.

Antidegradation

Because pre-discharge data were available for the existing LAAs, an intrawell analysis was used to determine whether the discharge to date is in compliance with the Basin Plan and whether the proposed expansion is likely to be consistent with the Basin Plan. Based on the available groundwater and wastewater FDS loading data, it appears that continuing and/or expanding the discharge at the current FDS effluent limitation would not cause significant exceedance of the water quality objective if the wastewater is carefully managed to ensure even loading between LAAs and within each LAA. If further effluent salinity increases are a consequence of water conservation beyond that which has already been implemented, it would be reasonable to expect that wastewater flows would be reduced commensurate with the FDS concentration increase, and that the FDS loading rate from wastewater would not increase significantly.

Since the discharge began, nitrate nitrogen concentrations in groundwater have remained stable or decreased to below the water quality objective, however concentrations continue to exceed the water quality objective in six monitoring wells. Based on these findings, the discharge is not causing nitrate degradation, and the expansion to new LAAs is expected not to cause or contribute to a condition of pollution. Because the discharge will not provide sufficient nitrogen to meet crop demand, nitrogen will be added from supplemental sources.

This Order sets numeric trigger concentrations for TDS and nitrate nitrogen for wells where current water quality is below the water quality objective. If a trigger concentration is exceeded, this Order requires that the Discharger demonstrate that the increasing trend will not result in exceedance of the groundwater limitation or implements additional treatment or control measures to ensure compliance with the groundwater limitation.

Flow and Effluent Limitations

Effectively immmediately, discharge from winery sumps to the existing 111-acres of LAAs shall not exceed 7.0 million gallons per day, and 35 MG annually. The allowable daily and annual flow limits can be increased to 13 million gallons and 70 million gallons, respectively, upon the completion of reconfiguring and preparing the expanded 268 acres of LAAs, and approval by the Executive Officer. Effective the date of adoption for these WDRs, wastewater discharge limits for the LAAs will include a daily maximum loading rate FDS limit of 3,800 lb/ac/yr.

The water balance included in the RWD indicated that a maximum of 5.2 inches of wastewater would be applied to any LAA in a single month. Assuming that depth of wastewater were to be applied in one day and a minimum irrigation cycle of 7 days, the estimated maximum daily BOD loading would be approximately 318 lb/ac/day, and the irrigation cycle average loading rate would be approximately 45 lb/ac/day. Therefore, this Order sets an irrigation cycle average BOD loading rate limit for the LAAs of 100 lbs/acre/day and requires that the Discharger manage land application to evenly distribute the BOD load evenly between the LAAs and within each discrete irrigation area of each LAA.

Groundwater Limitations

Effective immediately, for constituents and wells where the Controllable Factors Policy applies, the WDRs will prohibit any statistically significant increase in in any compliance well. Otherwise, degradation up to the water quality objective would be allowed. Compliance with this requirement will be determined based on an approved intrawell statistical analysis comparing the well to historic data collected from each well location rather than referring to an upgradient well. Updated values must be calculated annually as described in the MRP.

The Order requires quarterly groundwater monitoring and reporting, and submittal of an annual report. The annual report will include a comprehensive evaluation of the effectiveness of the past year's wastewater application operations in terms of odor control and groundwater protection, including consideration of application management practices (e.g., waste constituent and hydraulic loadings, application cycles, drying times, and cropping practices), and groundwater monitoring data. The annual report will also include tabular and graphical summaries of total loading rates for BOD, total nitrogen, and FDS, a description of salinity control methods implemented in the calendar year and a quantification of the reductions achieved as compared to previous years, and a discussion of compliance and corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS FOR WASTE DISCHARGE REQUIREMENTS

1 March 1991

A. General Provisions:

1. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, or protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.

2. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.

3. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

   a. Violation of any term or condition contained in this Order;

   b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;

   c. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge;

   d. A material change in the character, location, or volume of discharge.

4. Before making a material change in the character, location, or volume of discharge, the discharger shall file a new Report of Waste Discharge with the Regional Board. A material change includes, but is not limited to, the following:

   a. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements.

   b. A significant change in disposal method, location or volume, e.g., change from land disposal to land treatment.

   c. The addition of a major industrial, municipal or domestic waste discharge facility.

   d. The addition of a major industrial waste discharge to a discharge of essentially domestic sewage, or the addition of a new process or product by an industrial facility resulting in a change in the character of the waste.

5. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Board. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.

6. The discharger shall take all reasonable steps to minimize any adverse impact to the waters of the state resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature and impact of the noncompliance.

7. The discharger shall maintain in good working order and operate as efficiently as possible any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.

8. The discharger shall permit representatives of the Regional Board (hereafter Board) and the State Water Resources Control Board, upon presentations of credentials, to:

   a. Enter premises where wastes are treated, stored, or disposed of and facilities in which any records are kept,

   b. Copy any records required to be kept under terms and conditions of this Order,

   c. Inspect at reasonable hours, monitoring equipment required by this Order, and

   d. Sample, photograph and video tape any discharge, waste, waste management unit, or monitoring device.

9. For any electrically operated equipment at the site, the failure of which would cause loss of control or containment of waste materials, or violation of this Order, the discharger shall employ safeguards to prevent loss of control over wastes. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means.

10. The fact that it would have been necessary to halt or reduce the permitted activity in Order to maintain compliance with this Order shall not be a defense for the discharger's violations of the Order.

11. Neither the treatment nor the discharge shall create a condition of nuisance or pollution as defined by the California Water Code, Section 13050.

12. The discharge shall remain within the designated disposal area at all times.

B. General Reporting Requirements:

1. In the event the discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the discharger shall notify the Board by telephone at **(916) 464-3291** *[Note: Current phone numbers for all three Regional Board offices may be found on the internet at http://www.swrcb.ca.gov/rwqcb5/contact_us.]* as soon as it or its agents

have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing within **two weeks**. The written notification shall state the nature, time and cause of noncompliance, and shall include a timetable for corrective actions.

2. The discharger shall have a plan for preventing and controlling accidental discharges, and for minimizing the effect of such events.

   This plan shall:

   a. Identify the possible sources of accidental loss or leakage of wastes from each waste management, treatment, or disposal facility.

   b. Evaluate the effectiveness of present waste management/treatment units and operational procedures, and identify needed changes of contingency plans.

   c. Predict the effectiveness of the proposed changes in waste management/treatment facilities and procedures and provide an implementation schedule containing interim and final dates when changes will be implemented.

   The Board, after review of the plan, may establish conditions that it deems necessary to control leakages and minimize their effects.

3. All reports shall be signed by persons identified below:

   a. <u>For a corporation</u>: by a principal executive officer of at least the level of senior vice-president.

   b. <u>For a partnership or sole proprietorship</u>: by a general partner or the proprietor.

   c. <u>For a municipality, state, federal or other public agency</u>: by either a principal executive officer or ranking elected or appointed official.

   d. A duly authorized representative of a person designated in 3a, 3b or 3c of this requirement if;

      (1) the authorization is made in writing by a person described in 3a, 3b or 3c of this provision;

      (2) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a waste management unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

      (3) the written authorization is submitted to the Board

Any person signing a document under this Section shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of the those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

4. Technical and monitoring reports specified in this Order are requested pursuant to Section 13267 of the Water Code. Failing to furnish the reports by the specified deadlines and falsifying information in the reports, are misdemeanors that may result in assessment of civil liabilities against the discharger.

5. The discharger shall mail a copy of each monitoring report and any other reports required by this Order to:

California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114
Note: Current addresses for all three Regional Board offices may be found on the internet at http://www.swrcb.ca.gov/rwqcb5/contact_us.
or the current address if the office relocates.

C. Provisions for Monitoring:

1. All analyses shall be made in accordance with the latest edition of: (1) *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA 600 Series) and (2) *Test Methods for Evaluating Solid Waste* (SW 846-latest edition). The test method may be modified subject to application and approval of alternate test procedures under the Code of Federal Regulations (40 CFR 136).

2. Chemical, bacteriological, and bioassay analysis shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. In the event a certified laboratory is not available to the discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Board staff. The Quality Assurance-Quality Control Program must conform to EPA guidelines or to procedures approved by the Board.

   Unless otherwise specified, all metals shall be reported as Total Metals.

3. The discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to

complete the application for this Order. Records shall be maintained for a minimum of three years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board Executive Officer.

Record of monitoring information shall include:

a. the date, exact place, and time of sampling or measurements,
b. the individual(s) who performed the sampling of the measurements,
c. the date(s) analyses were performed,
d. the individual(s) who performed the analyses,
e. the laboratory which performed the analysis,
f. the analytical techniques or methods used, and
g. the results of such analyses.

4. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated at least yearly to ensure their continued accuracy.

5. The discharger shall maintain a written sampling program sufficient to assure compliance with the terms of this Order. Anyone performing sampling on behalf of the discharger shall be familiar with the sampling plan.

6. The discharger shall construct all monitoring wells to meet or exceed the standards stated in the State Department of Water Resources *Bulletin 74-81* and subsequent revisions, and shall comply with the reporting provisions for wells required by Water Code Sections 13750 through 13755.22

D. Standard Conditions for Facilities Subject to California Code of Regulations, Title 23, Division3, Chapter 15 (Chapter 15)

1. All classified waste management units shall be designed under the direct supervision of a California registered civil engineer or a California certified engineering geologist. Designs shall include a Construction Quality Assurance Plan, the purpose of which is to:

   a. demonstrate that the waste management unit has been constructed according to the specifications and plans as approved by the Board.

   b. provide quality control on the materials and construction practices used to construct the waste management unit and prevent the use of inferior products and/or materials which do not meet the approved design plans or specifications.

2. Prior to the discharge of waste to any classified waste management unit, a California registered civil engineer or a California certified engineering geologist must certify that the waste management unit meets the construction or prescriptive standards and performance goals in Chapter 15, unless an engineered alternative has been approved by the Board. In the case of an engineered alternative, the registered civil engineer or a certified engineering geologist must

certify that the waste management unit has been constructed in accordance with Board-approved plans and specifications.

3. Materials used to construct liners shall have appropriate physical and chemical properties to ensure containment of discharged wastes over the operating life, closure, and post-closure maintenance period of the waste management units.

4. Closure of each waste management unit shall be performed under the direct supervision of a California registered civil engineer or a California certified engineering geologist.

E. Conditions Applicable to Discharge Facilities Exempted from Chapter 15 Under Section 2511

1. If the discharger's wastewater treatment plant is publicly owned or regulated by the Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to California Code of Regulations, Title 23, Division 4, Chapter 14.

2. By-pass (the intentional diversion of waste streams from any portion of a treatment facility, except diversions designed to meet variable effluent limits) is prohibited. The Board may take enforcement action against the discharger for by-pass unless:

   a. (1) By-pass was unavoidable to prevent loss of life, personal injury, or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a by-pass. Severe property damage does not mean economic loss caused by delays in production); and

      (2) There were no feasible alternatives to by-pass, such as the use of auxiliary treatment facilities or retention of untreated waste. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a by-pass that would otherwise occur during normal periods of equipment downtime or preventive maintenance; or

   b. (1) by-pass is required for essential maintenance to assure efficient operation; and

      (2) neither effluent nor receiving water limitations are exceeded; and

      (3) the discharger notifies the Board ten days in advance.

   The permittee shall submit notice of an unanticipated by-pass as required in paragraph B.1. above.

3. A discharger that wishes to establish the affirmative defense of an upset (see definition in E.6 below) in an action brought for noncompliance shall demonstrate, through properly signed, contemporaneous operating logs, or other evidence, that:

a. an upset occurred and the cause(s) can be identified;

b. the permitted facility was being properly operated at the time of the upset;

c. the discharger submitted notice of the upset as required in paragraph B.1. above; and

d. the discharger complied with any remedial measures required by waste discharge requirements.

In any enforcement proceeding, the discharger seeking to establish the occurrence of an upset has the burden of proof.

4. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Board by **31 January**.

5. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to disposal. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.

6. Definitions

   a. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper action.

   b. The monthly average discharge is the total discharge by volume during a calendar month divided by the number of days in the month that the facility was discharging. This number is to be reported in gallons per day or million gallons per day.

      Where less than daily sampling is required by this Order, the monthly average shall be determined by the summation of all the measured discharges by the number of days during the month when the measurements were made.

   c. The monthly average concentration is the arithmetic mean of measurements made during the month.

   d. The "daily maximum" **discharge** is the total discharge by volume during any day.

e. The "daily maximum" **concentration** is the highest measurement made on any single discrete sample or composite sample.

f. A "grab" sample is any sample collected in less than 15 minutes.

g. Unless otherwise specified, a composite sample is a combination of individual samples collected over the specified sampling period;

(1) at equal time intervals, with a maximum interval of one hour

(2) at varying time intervals (average interval one hour or less) so that each sample represents an equal portion of the cumulative flow.

The duration of the sampling period shall be specified in the Monitoring and Reporting Program. The method of compositing shall be reported with the results.

7. Annual Pretreatment Report Requirements:

Applies to dischargers required to have a Pretreatment Program as stated in waste discharge requirements.)

The annual report shall be submitted **by 28 February** and include, but not be limited to, the following items:

a. A summary of analytical results from representative, flow-proportioned, 24-hour composite sampling of the influent and effluent for those pollutants EPA has identified under Section 307(a) of the Clean Water Act which are known or suspected to be discharged by industrial users.

The discharger is not required to sample and analyze for asbestos until EPA promulgates an applicable analytical technique under 40 CFR (Code of Federal Regulations) Part 136. Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as the influent and effluent sampling analysis. The sludge analyzed shall be a composite sample of a minimum of 12 discrete samples taken at equal time intervals over the 24-hour period. Wastewater and sludge sampling and analysis shall be performed at least annually. The discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants which may be causing or contributing to Interference, Pass Through or adversely impacting sludge quality. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto.

b. A discussion of Upset, Interference, or Pass Through incidents, if any, at the treatment plant which the discharger knows or suspects were caused by industrial users of the system. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of the industrial user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any

additional limitations, or changes to existing requirements, may be necessary to prevent Pass Through, Interference, or noncompliance with sludge disposal requirements.

c. The cumulative number of industrial users that the discharger has notified regarding Baseline Monitoring Reports and the cumulative number of industrial user responses.

d. An updated list of the discharger's industrial users including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The discharger shall provide a brief explanation for each deletion. The list shall identify the inddustrial users subject to federal categorical standards by specifying which set(s) of standards are applicable. The list shall indicate which categorical industries, or specific pollutants from each industry, are subject to local limitations that are more stringent that the federal categorical standards. The discharger shall also list the noncategorical industrial users that are subject only to local discharge limitations. The discharger shall characterize the compliance status through the year of record of each industrial user by employing the following descriptions:

(1) Complied with baseline monitoring report requirements (where applicable);

(2) Consistently achieved compliance;

(3) Inconsistently achieved compliance;

(4) Significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);

(5) Complied with schedule to achieve compliance (include the date final compliance is required);

(6) Did not achieve compliance and not on a compliance schedule;

(7) Compliance status unknown.

A report describing the compliance status of any industrial user characterized by the descriptions in items (d)(3) through (d)(7) above shall be **submitted quarterly from the annual report date** to EPA and the Board. The report shall identify the specific compliance status of each such industrial user. This quarterly reporting requirement shall commence upon issuance of this Order.

e. A summary of the inspection and sampling activities conducted by the discharger during the past year to gather information and data regarding the industrial users. The summary shall include but not be limited to, a tabulation of categories of dischargers that were inspected and sampled; how many and how often; and incidents of noncompliance detected.

f. A summary of the compliance and enforcement activities during the past year. The summary shall include the names and addresses of the industrial users affected by the following actions:

(1) Warning letters or notices of violation regarding the industrial user's apparent noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the apparent violation concerned the federal categorical standards or local discharge limitations;

(2) Administrative Orders regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations;

(3) Civil actions regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations;

(4) Criminal actions regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.

(5) Assessment of monetary penalties. For each industrial user identify the amount of the penalties;

(6) Restriction of flow to the treatment plant; or

(7) Disconnection from discharge to the treatment plant.

g. A description of any significant changes in operating the pretreatment program which differ from the discharger's approved Pretreatment Program, including, but not limited to, changes concerning: the program's administrative structure; local industrial discharge limitations; monitoring program or monitoring frequencies; legal authority of enforcement policy; funding mechanisms; resource requirements; and staffing levels.

h. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases.

i. A summary of public participation activities to involve and inform the public.

j. A description of any changes in sludge disposal methods and a discussion of any concerns not described elsewhere in the report.

Duplicate signed copies of these reports shall be submitted to the Board and:

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

and

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

Revised January 2004 to update addresses and phone numbers