CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2012-0024

WASTE DISCHARGE REQUIREMENTS
FOR
WILDHURST VINEYARDS
WASTEWATER TREATMENT FACILITY
LAKE COUNTY

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

1. Wildhurst Vineyards (hereafter Discharger) submitted a Report of Waste Discharge (RWD) dated 12 July 2005 for treatment and land application of wastewater generated at its wine processing and storage facility. The RWD includes information on plans to increase the amount of wine production at the facility. The Discharger submitted additional information on 5 April 2007, 29 May 2007, 14 March 2008, 6 June 2008, 29 December 2008**,** 3 May 2011, 9 May 2011, and 11 May 2011 .
2. Wildhurst Vineyards is located two miles north of Kelseyville, California in Lake County (Assessor's Parcel Nos. 008-025-21 and 008-026-21) T3N, R9W, Section 3 MDB&M. The location of the winery and associated treatment facility is shown on Attachment A, which is attached hereto and is made part of this Order by reference.
3. The Discharger owns the property where the facility is located. The facility was constructed in 1997. Activities at the winery facility include receiving, crushing, pressing, and fermentation of grapes; and bottling of wine. Occasionally, the winery will receive grape wine from other wineries to be bottled on-site. Wastewater is generated during grape crushing, equipment cleaning, and sanitation activities.
4. The Discharger has been operating a septic tank and leachfield disposal system to treat winery wastewater. The Discharger is not currently regulated under Waste Discharge Requirements.
5. Domestic wastewater is treated with four septic tank and leachfield systems regulated by the Lake County Environmental Health Department. These systems are separate from the winery wastewater septic tank system.

FACILITY CHANGES

6. The Discharger is expanding the winery which will change the quantity and quality of the wastewater generated. The following are the expansion activities:
   a. The Discharger plans to increase wine production from 10,000 cases of wine per year to approximately 60,000 cases of wine per year (approximately 144,000 gallons of wine per year).
   b. The Discharger plans to discontinue use of the winery wastewater septic tank and replace it with a new wastewater treatment system.

c. The new system will remove residual solids, biologically treat in HDPE lined ponds, and then land apply the wastewater. A process flow diagram of the plant is shown on Attachment B, which is attached hereto and made part of this Order by reference.

d. Currently, the land application area (LAA) is cropped as pear orchards, but some or all of the acreage may be converted to vineyards.

e. Grape pomace (skin, pulp, seeds, and stalks) and diatomaceous earth containing filterable solids from wine fermentation such as lees and minor amounts of wine, are the residual solid wastes that are left over from the crushing and pressing operations. The residual solids will be disced into the LAA as a soil amendment.

WASTEWATER SYSTEM

7. The winery has been crushing grapes since 1997. The average amount of grapes crushed each year is approximately 900 tons. The Discharger has crushed a maximum of 1,200 tons of grapes in a year. Currently, winery process wastewater is discharged to a septic tank and leachfield system. The septic tank and leachfield system to treat winery wastewater is not protective of groundwater quality.

8. The winery will generate approximately 0.72 million gallons (Mgal) of process wastewater per year and crush approximately 1,200 tons of grapes per year.

9. Monthly wastewater generation rates estimated by the Discharger are presented below. Stormwater that falls into the ponds will be considered wastewater. The 100-year 365-day stormwater generation rates were obtained from the Department of Water Resources Rainfall Depth-Duration Frequency Tables. The highest winery wastewater flow rates occur in September and October**,** which is typically the crush season.

Month	Unit	Average Wastewater Flow	100-year Stormwater	Total Wastewater Flow
January	Mgal	0.051	0.179	0.230
February	Mgal	0.049	0.130	0.179
March	Mgal	0.056	0.106	0.162
April	Mgal	0.044	0.054	0.098
May	Mgal	0.026	0.017	0.043
June	Mgal	0.040	0.005	0.045
July	Mgal	0.035	0.002	0.037
August	Mgal	0.047	0.004	0.051
September	Mgal	0.118	0.017	0.135
October	Mgal	0.145	0.050	0.195
November	Mgal	0.070	0.119	0.189
December	Mgal	0.039	0.149	0.188
Total	Mgal	0.720	0.831	1.551

10. Most of the winery operations will be conducted under covered areas to avoid stormwater commingling with wastewater.

    a. During crushing operations and cleaning activities of the crush pad, stormwater that falls on the uncovered portion will mix with the wastewater and flow into the wastewater treatment system.

    b. During all other times, the diversion valve will be closed and uncontaminated stormwater from the crush pad will infiltrate into the ground within the surrounding area. The location of the stormwater diversion system is shown on Attachment C, which is attached hereto and made part of this Order by reference.

11. No ion-exchange units, water softeners, or boilers are used at the winery.

12. Wastewater will be collected in floor drains and treated as described below:

    a. Wastewater from the winery building and the crush pad will gravity flow into Pump Station 1.

    b. A mechanical screen will be used to filter and separate pomace from the wastewater. Pomace will be collected in a storage bin, evenly distributed and disced into the LAA as a soil amendment.

    c. Aqueous ammonia will be used at Pump Station No. 2 as needed to control pH. The ammonia injection will be adjustable and controlled automatically by pH probe sensors. Other chemicals may be acceptable to adjust the pH, but must be approved by the Executive Officer prior to use.

    d. From the settling tanks, Pump Station 3 will pump the wastewater to treatment Ponds 1 and 2. A meter will measure the inflow of wastewater entering the ponds. The wastewater will be passed through two settling tanks for clarification.

    e. Ponds 1 and 2 will be constructed with two individual layers of 40-mil high-density polyethylene (HDPE) liner and equipped with mechanical aerators. The ponds will provide approximately 1.05 million gallons (Mgal) of combined treatment and storage capacity with a two foot freeboard.

    f. An irrigation/recirculation pump will pump treated wastewater to the LAA or recirculate wastewater back into the treatment ponds. Treated wastewater applied to the LAA will be metered.

    g. Treated wastewater will be applied to the LAA through drip or flood irrigation.

13. The RWD states treated wastewater will be below the following monthly average parameters before application onto the LAA:

    a. Biochemical Oxygen Demand (BOD): 425 mg/L

    b. Total Dissolved Solids (TDS): 1,300 mg/L

    c. Total Nitrogen: 40 mg/L

14. The Discharger will use a number of chemicals in the wine-making process and the cleaning and sanitation activities at the facility. The chemicals to be used are identified below:

a. Winemaking Process: polymers, malic acid, tartaric acid, diammonium phosphate, tannin, and potassium meta-bisulfate.

b. Sanitation Process: caustic soda beads, chlorinated trisodium phosphate, and citric acid.

SOURCE CONTROL

15. The RWD describes the following treatment and control measures that will be incorporated into the design of the facility:

    a. The treatment ponds will be lined with two individual layers of 40-mil HDPE.

    b. The Discharger will service the treatment ponds on an as-needed basis. Winery sludge and other solids will be removed from the ponds to maintain effective operation and adequate hydraulic capacity. Sludge will be evaluated as described in Section E, Solids/Sludge Disposal Requirements. This Order requires the Discharger to complete and implement an *Operations and Maintenance Plan* that will include routine pond inspections and maintenance.

    c. Wastewater is collected by floor drains and piped to pump stations. Routine solids removal from the sumps will reduce organic loading to the ponds, which will help prevent odor generation.

    d. Crops planted in the LAA will take up some of the waste constituents in the treated wastewater.

    e. In the event of a power outage, a diesel generator will be available to provide power to the facility.

    f. Each pump station will utilize dual, alternating pumps. In the event of a pump failure, an alarm will notify treatment staff and the remaining pump will perform until such time the failed pump is placed back online.

    g. In the event the mechanical screening system is offline, a basket strainer will be used to manually separate the winery solids.

    h. Pomace collected at the crush pad and at the mechanical screen will be placed in water tight containers for later use as a soil amendment. These containers will be stored onsite for a short term, generally less than 24 hours. The pomace will be disced daily into the LAA during the crush period.

    i. The stormwater diversion system will allow collection of wastewater/stormwater mixture and treatment in the wastewater system, but prevent uncontaminated stormwater from being collected.

    j. Implementation of Best Management Practices (BMPs), Standard Operating Procedures (SOPs) and employee orientation and training will increase employee awareness of source control activities.

WATER BALANCE

16. A revised water balance was submitted as an RWD addendum on 29 December 2008 for the wastewater treatment, pond storage, and land application system. The water balance was based on an annual wastewater discharge of 0.72 Mgal, 100-year annual return rainfall amounts of 45.46 inches, and a total of 17.5 acres of LAA.

    a. Pond storage was designed to hold treated wastewater and precipitation for the months of November, December, January, February, and March during a 100-year storm. The wastewater storage and treatment ponds will allow storage of wastewater through the winter and application during the growing and harvest season.

    b. The Discharger anticipates supplemental irrigation water will be required during the months of April, May, June, July, August, September, and October. Supplemental irrigation water is supplied by an on-site well, which produces good quality water with respect to TDS at a concentration of approximately 180 mg/L.

    c. Climatic conditions or LAA conditions (saturated soil, odors, etc.) may require winery process schedule changes. The Discharger will have to carefully schedule winery activities to manage the allowable storage of wastewater in the treatment ponds and application of wastewater to the LAA to comply with this Order.

LAND APPLICATION SYSTEM

17. The LAA will consist of 30 acres of pear orchards. Some or all of the LAA may be converted to grape vines. The LAA location is shown on Attachment C.

18. Treated wastewater will be applied by drip, spray, or flood irrigation. The irrigation methods are acceptable as long as wastewater applications are performed consistent with the requirements in this Order, allow even distribution, and prevent spills outside the LAA. Tailwater**,** if any**,** shall be collected for reapplication and infiltration.

19. The maximum total nitrogen concentration in the wastewater was estimated to be 50 mg/L (or 300 lb/yr). Based on the information submitted in the RWD, an additional 1,639 lb of nitrogen is expected from the injected aqueous ammonia. Therefore, a maximum of 1,934 lb (or 65 lb/ac/yr) of nitrogen will be applied to the LAA. Based on information obtained from *The Western Fertilizer Handbook*, pears and grapes take up approximately 85 lb/ac/yr and 125 lb/ac/year of nitrogen**,** respectively**.** Cover crops were not specified in the RWD and their nutrient uptake capacity is therefore unknown.

20. TDS is composed of both Volatile Dissolved Solids (VDS) and Fixed Dissolved Solids (FDS). The proportion of VDS to FDS in wastewater varies with the source, but 50 percent of TDS in winery wastewater may be in the volatile form. The VDS can be biologically treated by soil microorganisms in a well-managed wastewater treatment and land application system, when wastewater is not over-applied. Based on the anticipated total annual process wastewater volume of 0.72 Mgal and an estimated concentration of 1,300 mg/L of TDS in winery wastewater, approximately 7,800 lbs of TDS (or 260 lbs/acre/year) will be applied to the LAA annually.

21. The Discharger anticipates application of treated wastewater to the LAA during the months between April and October. Applications will be managed to minimize over-application, which could result in more rapid leaching of wastewater constituents. Therefore, this Order prohibits irrigation with treated wastewater during, prior or within 24 hours after a rain event, or when soils are saturated.

22. Slow rate systems, or controlled application of treated wastewater to a vegetated land surface, can encompass a wide variety of land treatment facilities. The design objectives can include wastewater treatment, water reuse, nutrient recycling, and crop production.[1] As described in the RWD, the wastewater application is consistent with operation of a slow rate wastewater application system.

SOLID WASTE

23. Grape pomace (skin, pulp, seeds, and stalks) are the organic solid wastes collected at the crush pad and mechanical screen and placed in water-tight containers. The containers will be stored in a temporary location, generally for less than 24 hours, prior to land application. On a daily basis during the crushing period, the pomace will be spread and disced into the LAA as a soil amendment.

24. Lees (solids remaining in the unfermented juice and sediment that settles during fermentation), diatomaceous earth (containing filterable solids from the fermentation process), and other finer organic material that has passed through the mechanical screen will be collected in the settling tanks. Removal of this material will take place as needed to ensure optimal operation and adequate hydraulic capacity.

GROUNDWATER CONDITIONS

25. The winery is served by an existing groundwater supply well located on the parcel directly south of the winery. The well is 270 feet deep with a surface seal that extends to a depth of 25 feet below ground surface (bgs). Four screen intervals at the following depths below the surface were recorded: 100-150, 150-180, 180-200, and 200-230 feet. The depth to groundwater is approximately 20 feet. The location of the supply well is shown on Attachment C.

    a. Groundwater samples were collected from the supply well on 27 December 2005 and the results are presented in the table below.

Constituents	Analytical Results
pH	7.6
Total Dissolved Solids	180 mg/L
Kjeldahl Nitrogen	<1.0 mg/L [1]
Nitrate (NO_3)	<1.0 mg/L [1]

[1] Detection limits were not reported in the RWD. Typical detection values for Kjeldahl Nitrogen and Nitrate are 1.0 mg/L

[1] Small and Decentralized Wastewater Management Systems, Crites and Tchobanoglous, 1998.

26. Three groundwater monitoring wells (MW-1, MW-2, MW-3) were installed in December 2007 as part of a baseline groundwater quality assessment study prior to the land application of process wastewater. The location of the groundwater monitoring wells is shown on Attachment C. The soil borings for the installation of each groundwater monitoring well were advanced approximately 45 feet bgs. Groundwater monitoring took place on the following dates: December 2007, February 2008, May 2008, August 2008, and November 2008. The well construction details are summarized below.

Well ID	Date Constructed	Well Depth (feet, bgs)	Well Casing Relative Elevation [1] (feet)	Average Depth to Groundwater (feet, btoc [2])	Relative Groundwater Elevation (feet)
MW-1	12/19/07	44.5	102.6	25.7	77.0
MW-2	12/19/07	44.5	101.7	25.2	76.6
MW-3	12/19/07	43.5	100.0	24.1	75.9

Construction details from Table 2, Quarterly Report-Fourth Quarter 2008, Wildhurst Vineyards, Advanced GeoEnvironmental, Inc., 13 January 2009.

[1] Monitoring well casings were surveyed relative to the top of MW-3 casing, which was arbitrarily designated 100 feet.

[2] btoc denotes below top of well casing.

27. In general, MW-1 is located upgradient of the LAA, MW-2 is located within the LAA, and MW-3 is located downgradient of the LAA. Calculated groundwater depths and gradients from the five sampling events are presented below.

	Depth to Groundwater (ft)[1]				
Monitoring Period	MW-1	MW-2	MW-3	Direction	Calculated Gradient (ft/ft)
December 2007	26.25	25.08	24.74	Southwest	0.0017
February 2008	17.32	17.21	16.32	North	0.002
May 2008	20.20	20.47	19.45	North-northwest	0.002
August 2008	33.23	32.39	30.92	North-northeast	0.0004
November 2008	31.35	30.71	29.22	North	0.0003 to 0.001

[1] The vertical datum for the well elevation survey was 100 feet below the top of the MW-3 casing.

The December 2007 groundwater flow direction appears to be an isolated case and is inconsistent with the likely groundwater flow direction based on local topography.

28. Based on five quarterly monitoring events, groundwater quality in the monitoring wells is presented below.

		Range of Concentrations		
Constituents	Units	MW-1	MW-2	MW-3
pH	-	6.63 - 7.19	6.67 – 7.07	6.63 – 7.39
Chloride	mg/L	5.5 - 66	2.9 – 6.3	5.1 – 13.0
Nitrate (as N)	mg/L	<1 - 11	3.2 – 6.6	6.2 – 6.8
Total Kjeldahl Nitrogen	mg/L	<1.0 - 3.8	<1.0 – 6.6	<1.0 – 2.2

		Range of Concentrations		
Constituents	Units	MW-1	MW-2	MW-3
Total Dissolved Solids	mg/L	240 - 350	190 - 250	220 - 280
Calcium	mg/L	26 - 150	22 - 150	33 - 78
Magnesium	mg/L	46 - 410	35 - 440	67 - 200
Boron	mg/L	<0.1 - 0.25	<0.10 – 0.16	<0.10 – 0.13
Iron	mg/L	17 - 810	2.3 - 870	46 - 310
Potassium	mg/L	3.7 - 25	1.8 – 21	5.3 - 13
Sodium	mg/L	9.3 - 43	7.6 – 17.0	7.8 – 14.0
Sulfate	mg/L	7.3 - 25	3.8 – 12.0	7.4 – 12.0
Total Alkalinity	mg/L	210 - 260	180 - 200	200 - 240
Carbonate Alkalinity	mg/L	<5.0	<5.0	<5.0
Bicarbonate Alkalinity	mg/L	210 - 260	180 – 220	200 - 240
Hydroxide Alkalinity	mg/L	<5.0	<5.0	<5.0
Hardness as $CaCO_3$	mg/L	255 - 2050	197 - 2200	361 - 993

Groundwater values from Table 3, Quarterly Report – Fourth Quarter 2008, Wildhurst Vineyards, Advanced GeoEnvironmental, Inc., 13 January 2009.

29. The highly variable results for iron, magnesium, and hardness appear to be due to a one-time sampling or laboratory error. Therefore, the Discharger sampled the wells again on 13 April 2011. Central Valley Water Board staff obtained split samples for independent analysis. The data from that sampling event are presented below.

		MW-1		MW-2		MW-3	
Constituents	Units	Discharger	Staff	Discharger	Staff	Discharger	Staff
Depth to Groundwater [1]	ft	16.92	16.92	17.35	17.35	15.70	15.70
Iron	mg/L	ND/0.10 [2]	0.02	ND/0.10 [2]	0.12	ND/0.10 [2]	0.05
Magnesium	mg/L	41	42	33	33	39	37
Sodium	mg/L	7.6	8.3	6.4	7.1	7.2	7.2
TDS	mg/L	290	276	230	241	250	264
Sulfate as SO_4	mg/L	7.4	10.2	7.9	7.2	10	9.7

[1] Relative to the top of MW-3 casing
[2] ND denotes non detect, reporting limit shown.

The results of the more recent sampling are consistent with the non-suspect iron, magnesium, and hardness results. Excluding the outlier data for iron, magnesium, and hardness, shallow groundwater at the site exhibits low salinity.

SITE SPECIFIC CONDITIONS

30. The winery is located in the 100-year flood zone of Kelsey Creek. The estimated 100-year flood zone is presented on Attachment D, which is attached hereto and made part of this Order by reference. The treatment ponds will be constructed to prevent inundation by floodwaters.

31. Kelsey Creek is constrained within the channel generally west and northwest of the LAA. Based on a 1995 topographic map from the County of Lake Department of

Public Works submitted by the Discharger, seasonal high and average depths of groundwater appear to be below the elevation of the creek bottom.

32. Based on reports prepared for the Lake County Water Conservation District, including the *Big Valley Groundwater Management Plan* (May 1999), *Big Valley Ground Water Recharge Investigation Update* (May 2003), *California Groundwater Bulletin 18 – Big Valley Groundwater Basin* (February 2004), and *Kelsey Creek Watershed Assessment* (February 2010), the Discharger has presented the following hydrogeology assessments:

    a. Aquifer recharge is predominately from Kelsey Creek.

    b. The LAA is within the area of the basin that demonstrates a confined aquifer system.

    c. The watersheds of Kelsey Creek are mountainous areas underlain by metamorphic and igneous rocks, with some volcanic and sedimentary rocks in the lower watershed areas. Large quantities of serpentine and sepentinized peridotite occurring in these mountains can attribute to iron and magnesium-rich water.

33. Land use in the vicinity of the site consists of vineyards, pear, and walnut orchards. The topography of the surrounding area is level (less than 1% slope). The ground surface near the treatment ponds will slope to the northeast, away from Kelsey Creek.

34. Based on the *Monitoring Well Installation and Quarterly Report* dated 21 March 2008, shallow subsurface soils encountered in the soil borings consisted of two units: a fine-grained unit and a coarse-grained unit. The upper-most unit consisted predominately of fine-grained material composed of clayey silt, silt, silty clay, and clay, from ground surface to depths ranging from approximately 25 to 28 feet bgs. The fine-grained unit is underlain by a unit of relatively coarse-grained material composed of layers of medium to coarse sand, sandy gravel, and sandy gravel with silt, extending from approximately 28 feet bgs to the total depth of each soil boring, approximately 45 feet bgs.

35. Based on the California Department of Water Resources rainfall data, the mean annual rainfall is approximately 25.09 inches; the 100-year return annual precipitation is 45.46 inches. The water balance submitted by the Discharger estimated the evapotranspiration to be 55.86 inches per year.

36. The facility currently employs two full time employees and three seasonal employees. With the proposed increase in wine production, the number of full time employees is expected to remain at two and the number of seasonal employees will increase by six.

37. The winery does not have a tasting room on-site, nor are there plans to build one in the near future.

38. Domestic wastewater is discharged to septic tank and leachfield systems regulated by the Lake County Environmental Health Department. The location of the four domestic septic tanks and leachfields are shown on Attachment C.

OTHER CONSIDERATIONS FOR FOOD PROCESSING WASTE

39. Excessive application of wine processing wastewater to land application areas can create objectionable odors, soil conditions that are harmful to crops, and degradation of underlying groundwater by overloading the shallow soil profile and causing waste constituents (organic carbon, nitrate, other salts, and metals) to percolate below the root zone. Ordinarily, it is reasonable to expect some attenuation of various waste constituents that percolate below the root zone within the vadose (unsaturated) zone. Specifically, excess nitrogen can be mineralized and denitrified by soil microorganisms, organic constituents (measured as both BOD and volatile dissolved solids) can be oxidized, and some salinity species will undergo cation exchange with clay minerals, effectively immobilizing them.

40. Loading of BOD will be limited to prevent nuisance conditions. The maximum BOD loading rate that can be applied to land without creating nuisance conditions can vary significantly depending on the operation of the land application system. *Pollution Abatement in the Fruit and Vegetable Industry*, published by the United States Environmental Protection Agency (US EPA Publication No. 625/3-77-0007) (hereafter *Pollution Abatement*), cites BOD loading rates for irrigation purposes in the range of 36 lbs/acre/day to 100 lbs/acre/day but indicates the loading rates can be even higher under certain conditions.

41. Acidic and/or reducing soil conditions can be detrimental to land treatment system function, and may cause groundwater degradation if the buffering capacity of the soil is exceeded. If soil pH decreases below 5 and the soil remains in a reducing state for prolonged periods, naturally occurring metals (including iron and manganese) could dissolve and degrade underlying groundwater. In practice, prolonged reducing conditions may not occur because: 1) the cycle of increased pH during loading with either wastewater or fertilizer is followed by pH recovery during cropping and organic matter cycling and; 2) the dose-and-rest cycle of wastewater application creates alternate anoxic and aerobic conditions. *Pollution Abatement* recommends that water applied to crops have a pH within 6.4 to 8.4 to protect crops. The soils and underlying groundwater are expected to adequately buffer the discharge.

BASIN PLAN, BENEFICIAL USES, AND REGULATORY CONSIDERATIONS

42. 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 Resources Control Board. Pursuant to section 13263(a) of the California Water Code (Water Code), waste discharge requirements (WDRs) must implement the Basin Plan.

43. Surface water drainage is to Kelsey Creek, which is a tributary to Clear Lake. The facility is within the Lakeport Hydrologic Sub Area (No. 513.55), as depicted on the interagency hydrologic maps prepared by the Department of Water Resources in August 1986.

44. The beneficial uses of Clear Lake are municipal and domestic supply; agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; spawning, reproduction, and/or early development; and wildlife habitat.

45. The beneficial uses of underlying groundwater are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.

46. State Water Resources Control Board (State Board) Resolution 68-16 (the Antidegradation Policy) requires that the Central Valley Water Board, in regulating the discharge of waste, must maintain the high quality of waters of the state until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the state, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Water Board's policies (e.g., quality that exceeds water quality objectives). Resolution 68-16 also requires that waste discharged to high quality waters be required to meet WDRs that will result in the best practicable treatment or control of the discharge. Resolution 68-16 prohibits degradation of groundwater quality as it existed in 1968, or at any time thereafter that groundwater quality was better than in 1968, other than degradation that was previously authorized. An antidegradation analysis is required for an increased volume or concentration of waste.

47. The treatment and control practices described herein provide commonly implemented treatment and control for the subject wastewater, and should prevent the discharge from creating a condition of pollution or nuisance, and maintain water quality. The following treatment and control practices will be implemented at the site:

    a. The wastewater will be treated using physical processes to reduce the residual solids.

    b. The wastewater will be treated using biological processes in the form of aerated ponds to reduce the BOD. The ponds are lined and equipped with a leak detection system.

    c. Approximately 30 acres of LAA will be available for the application of treated wastewater. Crops planted in the LAA will take up some of the waste constituents found in the wastewater. This Order limits land application of nitrogen to agronomic rates.

    d. The treated wastewater generated at the winery will not provide adequate water to meet crop demands. The Discharger will use supplemental irrigation water from the water supply well, which produces good quality water.

    e. Tailwater will be collected for reapplication and infiltration.

    f. Grape pomace will be collected in containers and disced into the LAA as a soil amendment. Any storage of pomace will be short term, generally less than 24 hours, and in an area equipped with means to contain leachate generation and prevent infiltration into the ground.

    g. This Order requires groundwater monitoring.

48. Limited degradation of high-quality groundwater by some of the typical constituents released with discharge from a winery (after source control, treatment, and control) is

consistent with maximum benefit to the people of the State. When allowed, the degree of degradation permitted depends upon many factors (e.g.) background water quality, the waste constituent, the beneficial uses and water quality objectives, management practices, source control measures, and waste constituent treatability.

49. This Order establishes requirements to ensure that the high quality of the underlying groundwater is maintained and the discharge will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives as set forth in the Basin Plan. This Order establishes effluent limitations that are protective of the beneficial uses of the underlying groundwater. In addition, this Order requires installation of additional monitoring wells; submittal of a *Groundwater Quality Investigation Report*; and an *Operation and Maintenance Plan* that includes a nutrient management plan. Additionally, the new lined ponds and LAA must be completed and in use by **1 September 2012**.

50. The Discharger expects the facility to provide six additional seasonal jobs. Prohibiting discharge pending completion of the required facility expansion could eliminate some or all those jobs. In addition, it is reasonable to assume that the facility provides an economic benefit to equipment suppliers, transportation companies, and to the growers that may supply grapes to the crushing facility. Economic prosperity of the region and associated industry is a benefit to the people of the state. The use of winery wastewater to irrigate crops in place of higher quality surface or ground water supplies is a benefit to the people of the state.

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

    a. Category 2 threat to water quality, defined as, “Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short term violation 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 above 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.”

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

The technical reports required by this Order and the attached Monitoring and Reporting Program R5-2012-0024 are necessary to assure compliance with these WDRs. The Discharger owns and operates the facility that generates the waste subject to this Order.

53. The Basin Plan encourages reclamation as described in the Wastewater Reuse Policy.

CCR TITLE 27 EXEMPTION

54. This discharge is exempt from the requirements of *Consolidated Regulation for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in California Code of Regulations, title 27, section 20005 et seq. (hereafter Title 27). The exemption, pursuant to section 20090(b), 20090(f), and 20090(h) is based on the following:

    a. The operation of the lined wastewater treatment and storage ponds, and the application of treated wastewater to the LAA is exempt based on Section 20090(b):

        i. The Central Valley Water Board has issued waste discharge requirements.

        ii. This discharge is in compliance with the Basin Plan.

        iii. The wastewater does not need to be managed according to California Code of Regulations, title 22, Division 4.5, Chapter 11, as a hazardous waste.

    b. Application of decomposable solids as a soil amendment to the LAA is exempt based on Water Code section 20090(f) because:

        i. The pomace/diatomaceous earth (DE) is nonhazardous.

        ii. The waste constituents in pomace and/or DE are decomposable.

        iii. Application to land is considered a best management practice. The practice allows the nutrients to slowly decompose, prevents odors or vector issues associated with composting pomace/DE, and improves soil tilth.

        iv. The Central Valley Water Board has issued waste discharge requirements.

    c. Application of treated wastewater to the LAA is exempt based on Water Code section 20090(h). The application will result in additional waste treatment, water reuse, and nutrient recycling. Natural processes in the LAA will provide additional treatment.

55. State regulations that prescribe procedures for detecting and characterizing the impact of waste constituents from waste management units on groundwater are found in Title 27. The data analysis methods of Title 27 are appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.

OTHER REGULATORY CONSIDERATIONS

56. California Department of Water Resources standards for the construction and destruction of groundwater wells is 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.

57. Federal regulations for storm water discharges were promulgated by the U.S. Environmental Protection Agency on 16 November 1990 (Code of Federal Regulations, title 40, parts 122, 123, and 124). The State Board adopted WQO 97-03-DWQ (General Permit No. 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 is required to submit a Notice of Non-Applicability or a Notice of Intent for coverage under the *NPDES General Permit for Discharges of Storm Water Associated with Industrial Activity* (WQO 97-03-DWQ).

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

58. This project is subject to the provisions of the California Environmental Quality Act (CEQA, Public Resources Code section 21000 et seq.) in accordance with Public Resources Code section 21065. Lake County is the CEQA Lead Agency for this project under the CEQA Guidelines. A Mitigated Negative Declaration (MND) for the Wildhurst Vineyards Use Permit 05-15 was approved by Lake County on 26 June 2007.

59. Mitigation measures related to water quality identified in the MND are listed below.

Issue Identification	Environmental Issue	Mitigation Requirements
Item E.4.	Violation of any water quality standard or waste discharge requirement.	If grading will occur over more than one acre of land, the permit holder shall submit a Notice of Intent (NOI) to comply with the Construction General Permit with the Central Valley Water Board (CVWB) along with a Storm Water Pollution Prevention Plan (SWPPP). A copy of the NOI and SWPPP shall be submitted to the Lake County Community Development Department.
Item H.1.	Violation of any water quality standard or waste discharge requirement.	Prior to wine production in excess of 10,000 cases of wine annually, the permit holder shall prepare a new Report of Waste Discharge to be reviewed and approved by the CVWB. The permit holder shall comply with any additional requirements of the CVWB to maintain compliance with

Issue Identification	Environmental Issue	Mitigation Requirements
		their regulations. A copy of the WDRs and Report shall be submitted to the Lake County Community Development Department as proof of complying with this condition.
Item H.2.	Violation of any water quality standard or waste discharge requirement.	Prior to abandonment of the septic system currently used for treatment of winery wastewater, the permit holder shall contact the Division of Environmental Health to insure the system is abandoned in accordance with Lake County On-site Septic Rule 1-80 (1) & (2).

60. A Minor Modification of Use Permit was approved by the Lake County Planning Commission on 2 June 2008 to allow the replacement of the constructed wetlands with aeration ponds for winery wastewater treatment.

61. On 9 November 2011, a subsequent MND was approved for the Minor Modification to Use Permit 05-15, which permitted the Discharger to increase the land application area from 4.5 acres to 30 acres. Lake County evaluated the project and determined that the previously approved MND based on Initial Study IS 05-53 meets the requirements under the CEQA Guidelines, and that no additional environmental review is required based on the following findings:

    a. There has been no change in the project which would create new significant environmental impacts.

    b. There has been no substantial change in circumstances resulting in new significant environmental impacts.

    c. No new information of substantial importance to the project has become available.

62. The Central Valley Water Board, acting as a CEQA Responsible Agency in compliance with California Code of Regulations, title 14, section 15096(g)(2), evaluated the potentially significant impacts to water quality identified in the MND. The Central Valley Water Board has determined that additional mitigation is necessary to prevent potentially significant water quality impacts as a result of discharges to the treatment ponds and land application area. The mitigation measure includes compliance with this Order which will ensure that best practicable treatment and controls for the treatment and application of wastewater are implemented.

63. The Central Valley Water Board finds these mitigation measures, as specified in this Order, are adequate to reduce water quality impacts to less than significant.

64. Pursuant to Water Code Section 13263(g), discharge of waste into waters of the state is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

PUBLIC NOTICE

65. All the above and the supplemental information and details in the attached Information Sheet, incorporated by reference herein, were considered in establishing the following conditions of discharge.
66. The Discharger and interested agencies and persons were notified of the intent to prescribe WDRs for this discharge and provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
67. In a public meeting, all comments pertaining to the discharge were heard and considered.

IT IS HEREBY ORDERED that pursuant to sections 13263 and 13267 of the California Water Code, Wildhurst Vineyards, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted there under, shall comply with the following:

Note: Other prohibitions, conditions, definitions, and the method of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991.

A. Discharge Prohibitions:

1. Discharge of wastes, including irrigation tailwater and stormwater runoff from the LAA, to surface waters or surface water drainage courses is prohibited.
2. Bypass or overflow of untreated or partially treated wastewater is prohibited.
3. Discharge of waste classified as "hazardous," defined in Title 27, section 20164 or "designated," as defined in Water Code section 13173 is prohibited.
4. The discharge of wastewater in a manner other than as described in the Findings is prohibited.
5. The discharge of toxic substances into the Discharger's treatment ponds such that biological mechanisms are disturbed is prohibited.
6. The discharge of treated wastewater other than to the approved LAA identified in this Order is prohibited.
7. The discharge of domestic wastewater to the winery wastewater treatment system and ponds is prohibited.
8. Effective **1 September 2012**, the discharge of winery wastewater to the septic tank and leachfield system is prohibited.
9. The discharge of winery wastewater to the domestic wastewater system is prohibited.

10. Land application of wastewater to the LAA that does not have a fully functional tailwater return and runoff control system is prohibited.
11. Discharge of stormwater not consistent with the procedures described in this Order or more stringent measures if developed and approved by the State Water Board or Central Valley Water Board, is prohibited.
12. The discharge of any water softening ion exchange regeneration brine in the wastewater system is prohibited.

B. Discharge Specifications:

1. Effective **1 September 2012**, all wastewater shall be discharged to the wastewater treatment ponds and 30 acre LAA. Influent flows to the treatment ponds shall not exceed 0.182 Mgal per calendar month. In addition, influent flows to the wastewater treatment ponds shall not exceed an annual total of 1.13 Mgal for any calendar year (1 January through 31 December).
2. Neither the treatment nor the discharge of wastewater shall cause a nuisance or condition of pollution as defined by the Water Code section 13050.
3. The use of a chemical other than aqueous ammonia to adjust pH in the wastewater, as described in this Order may only be used with written approval by the Executive Officer.
4. The Discharger may blend treated wastewater with supplemental irrigation water to meet crop irrigation demand.
5. No wastewater constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations.
6. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the property owned by the Discharger.
7. Sufficient dissolved oxygen must be maintained in the upper zone (one foot) of any pond in order to prevent objectionable odors.
8. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge.
9. All ponds shall be lined and managed to prevent the breeding of mosquitoes. In particular:
    a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
    b. Weeds shall be minimized through control of water depth, harvesting, and/or use of herbicides.
    c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
    d. Coordination with the local Mosquito Abatement District to minimize the potential for mosquito breeding can supplement the measures described above in cases where other methods are infeasible.

10. The wastewater treatment ponds shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
11. No physical connection shall exist between wastewater piping and any domestic water supply, domestic/industrial supply well, irrigation water pipeline, or irrigation canal without an air gap or approved reduced pressure device.
12. The freeboard in each pond shall never be less than two feet, as measured vertically from the water surface to the lowest point of overflow or from the flood base elevation as determined by the Federal Emergency Management Agency (FEMA), whichever is greater.
13. The wastewater treatment and land application system shall have sufficient capacity to accommodate wastewater flow and seasonal precipitation. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
14. On or about **1 November** each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specifications No. B.12 and No. B.13.

C. Effluent Limitations:

1. Treated wastewater applied to the LAA shall not exceed the following effluent limits.

Constituents	Units	Daily Maximum	Monthly Maximum	Annual Average
Biochemical Oxygen Demand	lb/ac/day	100	NA [1]	NA [1]
Total Dissolved Solids	mg/L	NA [1]	1,300	NA [1]
Total Nitrogen	lbs/ac/yr	NA [1]	NA [1]	85 [2] / 125 [3]

[1] NA denotes not applicable.
[2] Nitrogen annual average loading rate limit based on pears grown in the LAA.
[3] Nitrogen annual average loading rate limit based on grapes grown in the LAA.

a. The mass of BOD discharged from the wastewater ponds to each discrete field within the LAA shall not exceed a daily maximum 100 pounds per acre per day. Compliance with this requirement shall be determined using the following formula:

$$M = \frac{C \times V \times (8.345)}{A}$$

Where M = daily BOD mass for a given field in pounds per acre per day (lb/ac/day);

C = BOD monitoring results for the last weekly sampling event in milligrams per liter (mg/L);

V = total volume of effluent discharged to the field on that day in millions of gallons (MG);

A = Area of the field irrigated in acres; and

8.345 = units conversion factor for mg/L and MG to pounds.

b. The mass of total nitrogen discharged from the wastewater ponds to each discrete field within the LAA shall not exceed an annual maximum of 85 lb/ac/yr for pears or 125 lb/ac/yr for grapes grown in the LAA. Compliance with this requirement shall be determined using the following formula:

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

Where M = total annual nitrogen mass in pounds per acre per year (lb/ac/yr);
C_i = total nitrogen monitoring results for calendar month i in mg/L;
V_i = total effluent discharged to the field during calendar month in MG;
A = Area of the field irrigated in acres,
i = the number of the month (i.e., January = 1, February = 2, etc.); and
n = 12.

2. Wastewater applied to the LAA shall not have a pH of less than 6.5 or greater than 10.0.

D. Land Application Area Requirements:

1. The discharge shall be distributed uniformly on adequate acreage in compliance with the Discharge Specifications and Effluent Limitations.
2. Crops shall be grown on the LAA. Crops shall be selected based on nutrient uptake capacity, tolerance to high soil moisture conditions, consumptive use of water, and irrigation requirements. Cropping activities shall be sufficient to take up the nitrogen applied, and crops shall be harvested and removed from the land at least on an annual basis.
3. Discharge of treated wastewater, including runoff, spray or droplets from the irrigation system, shall not occur outside the boundaries of the approved LAA. Treated wastewater application using sprinklers, flood, or drip irrigation is acceptable if the discharge complies with all requirements of the Order.
4. Hydraulic loading of treated wastewater and irrigation water shall be at reasonable agronomic rates designed to minimize the potential impact to groundwater quality by percolation of wastewater and irrigation water below the root zone (i.e., deep percolation).
5. Wastewater conveyance lines shall be clearly marked as such. Wastewater controllers, valves, etc. shall be affixed with reclaimed water warning signs; quick couplers and sprinkler heads shall be of a type, or secured in such a manner, that permits operation by authorized personnel only.
6. Irrigation systems shall be labeled as containing reclaimed wastewater. If treated wastewater and irrigation water utilize the same pipeline, then backflow prevention devices shall be installed to protect the potable/irrigation water supply.

7. Application of treated wastewater to the LAA using sprinkler irrigation is prohibited when wind velocities exceed 30 miles per hour.
8. Public contact with wastewater shall be precluded through such means as fences, signs, and/or irrigation management practices. Signs with proper wording of sufficient size shall be placed at areas of access and around the perimeter of the LAA to alert the public of the presence of wastewater.
9. The LAA shall be managed to prevent breeding of mosquitoes. More specifically:
   a. All applied irrigation water must infiltrate completely within 24 hours.
   b. Ditches not serving as wildlife habitat should be maintained free of emergent, marginal, and floating vegetation.
   c. Low pressure pipelines, unpressurized pipelines, and ditches that are accessible to mosquitoes shall not be used to store wastewater.
10. The application of wastewater to the LAA shall comply with the following setback requirements:

Setback Definition [1]	Minimum Irrigation Setback (feet)
Edge of land application area [2] to any surface watercourse.	50[3]
Edge of land application area [2] to any properties with an occupied residence	50
Edge of land application area [2] to any industrial, domestic or irrigation well	50[3]

[1] Additional setbacks may be needed to comply with other requirements of this Order.
[2] As defined by the wetted area produced during irrigation.
[3] Unless otherwise approved by the Executive Officer.

11. Discharges to the LAA shall be managed to minimize both erosion and runoff from the irrigated area.
12. A berm shall be maintained around the perimeter of the LAA to prevent the runoff of treated wastewater.
13. The resulting effect of the wastewater discharge on the soil pH shall not exceed the buffering capacity of the soil profile and shall not cause significant mobilization of soil constituents such as iron and manganese.
14. The Discharger may not discharge effluent to the LAA within 24 hours of a predicted storm event, during periods of precipitation, and for at least 24 hours after cessation of precipitation, or when soils are saturated.
15. All applied wastewater must infiltrate before the next irrigation event using wastewater. No pooling or ponding of irrigated wastewater shall occur beyond 24 hours after application.

E. Solids/Sludge Disposal Requirements:

1. Collected screenings and other solids removed from winery wastewater shall be disposed of in a manner that is consistent with California Code of Regulations, title 27 and approved by the Executive Officer.
2. Winery sludge and other solids shall be removed from sumps, screens, wastewater ponds, etc. as needed to ensure optimal operation and adequate hydraulic capacity. Winery solids drying operations, if any, shall be designed and operated to minimize leachate generation and prevent the infiltration of leachate into the subsurface.
3. Storage of pomace and/or diatomaceous earth (DE) shall be on areas equipped with the means to contain any generated leachate and prevent infiltration into the ground. Pomace or DE shall not be stored on unpaved ground. Acceptable alternatives include storage on paved areas or water tight containers that are equipped with liquid collection systems or other alternatives that contain and/or prevent infiltration of leachate, such as roofed areas or use of agricultural bags for well-drained materials.
4. Any proposed change in solids use or disposal practice from a previously approved practice shall be reported to the Executive Officer at least 90 days in advance of the change.

F. Groundwater Limitations:

1. Effective immediately as interim groundwater limitations, the discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations greater than the background concentration limit as listed below. If insufficient data are available to determine background water quality, the interim limit shall be the water quality objectives.

Constituent	Background Concentration Limit, mg/L	Water Quality Objective, mg/L
Boron	0.4	0.7
Chloride	92	106
Iron	insufficient data	0.3
Manganese	Insufficient data	0.05
Sodium	57	69
Total Dissolved Solids	400	450
Nitrate (as N)	5.8	10

2. Effective **1 November 2014**, the final groundwater limits will be the background groundwater concentrations of each constituent of concern, including: boron, chloride, iron, manganese, sodium, TDS, nitrate, and total phosphate. The background concentrations shall be determined pursuant to the required studies of Provision G.1.h. of this Order. The statistical methods of the study are subject to the approval of the Executive Officer. Background values shall be updated annually as described in the MRP.

3. The discharge shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality except as allowed by State Water Board Resolution 68-16 and this Order. Background groundwater quality shall be calculated using the methods provided in Title 27, section 20415(e)(8) and section 20415(e)(10).

G. Provisions:

1. The following reports shall be submitted pursuant to Water Code section 13267, and prepared by a California registered professional as described in Provision G.3.

   a. By **1 June 2012**, the Discharger shall submit a Notice of Non-Applicability or a Notice of Intent for coverage under WQO 97-03-DWQ, *Discharges of Storm Water Associated with Industrial Activities*.

   b. By **1 June 2012**, the Discharger shall submit a Notice of Intent for coverage under the Construction Activities Storm Water General Permit Order 2009-0009-DWQ. If the Discharger determines that the project is exempt from Order 2009-0009-DWQ, the Discharger shall submit a letter that specifies the basis of the exemption.

   c. By **1 July 2012**, the Discharger shall submit a *Monitoring Well Installation Workplan* prepared in accordance with, and including the items listed in, the first section of Attachment E: "*Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports.*" The workplan shall describe the proposed expansion to the existing groundwater monitoring network, specifically designed to ensure that background water quality is adequately characterized and any potential water quality impacts from the existing industrial septic tank and leachfield system, new treatment ponds, and discharge to the LAA are detected. The system shall be designed to yield samples representative of the uppermost portion of the first aquifer underlying the site. At a minimum, two additional wells shall be installed to monitor groundwater downgradient of the existing process wastewater leach field and planned wastewater ponds, and between the ponds/LAA and Kelsey Creek.

   d. By **1 September 2012**, the Discharger shall submit a *Preliminary Wastewater Treatment System Completion and Construction Quality Assurance Report*. The report shall certify that the installation of the wastewater treatment system, lined wastewater ponds, land application area irrigation system, and land application area tailwater and storm water runoff control systems (including the land application area berms) is complete and the systems are fully functional.

   e. By **1 October 2012**, the Discharger shall submit and implement an *Operation and Management Plan (O&M Plan)* that addresses operation of the wastewater treatment and disposal facility, and documents that the facility will be operated as described in the Findings and in compliance with this Order. A copy of the *O&M Plan* shall be kept at the facility for reference by operating personnel and they shall be familiar with its contents. At a minimum, the *O&M Plan* will describe the following:

i. The daily operation and maintenance of the treatment system.

ii. The practices used to treat the wastewater within limits specified in this Order.

iii. Detailed stormwater diversion system operation procedures including but not limited to routine flush operations for the removal of residual wastewater from the crush pad, drainage area, and piping; best management practices for the prevention of any on-site surface drainage of wastewater or contaminated stormwater; procedures and requirements for first flush grab samples and monitoring to comply with WQO 97-03-DWQ, *Discharges of Storm Water Associated with Industrial Activities*; and process season and non season valve schedules.

iv. Detailed wastewater pond inspection and maintenance, including inspection of the pond leak detection system and operational procedures for replacement or repair of liner when a leak is detected.

v. Schedules and procedures for routine pond berm condition assessments and an erosion control plan to ensure berm integrity and prevent impacts to surface water quality.

vi. Nutrient Management Plan that includes the location of the LAA; irrigation protocols for the application of wastewater (blended and unblended) to the LAA; management practices to maintain and secure the LAA; operation and maintenance of the tailwater system; identify crop selection and crop nutrient uptake information; and pollution prevention management practices and procedures to prevent excessive BOD, nitrogen, or dissolved solids loading of LAA.

vii. The locations of influent and effluent (blended and unblended) sampling points.

viii. Quality control sampling procedures necessary to obtain representative samples.

ix. The locations of solid waste disposal areas, methods of disposal, and the daily practices associated with the disposal of solid waste.

x. Planning for potential response to natural disasters.

xi. Institutional controls such as Best Management Practices (BMPs).

xii. Standard Operating Procedures (SOPs).

xiii. Specific procedures to ensure that contaminated stormwater is discharged to the winery wastewater treatment system and uncontaminated stormwater is managed as part of the facility's Stormwater Prevention Pollution Plan.

xiv. Employee orientation and training.

f. By **1 November 2012**, the Discharger shall submit a *Monitoring Well Installation Report* prepared in accordance with, and including the items listed in, the second section of Attachment E. The report shall describe the installation and

development of the new monitoring wells and explain any deviations from the approved workplan.

g. By **1 December 2012**, the Discharger shall submit a *Final Wastewater Treatment System Completion and Construction Quality Assurance Report*. The report shall certify that the improvements specified in Provision G.1.d were constructed as described in the Report of Waste Discharge and the Findings of this Order. In addition, the report shall include a pond liner installation certification including, but not limited to, testing results that ensure that the pond liners were installed as per industry standard and that all geomembrane seams were tested and found to be leak-free prior to use of the ponds. If significant design modifications are made to the wastewater ponds subsequent to adoption of this Order, the report shall include a description and explanation of all deviations from the original design and as-built drawings depicting the final geometry and details.

h. By **1 June 2014**, the Discharger shall submit a *Groundwater Quality Investigation Report* that further characterizes and determines background groundwater quality and identifies a background monitoring well if an interwell analysis is selected, or determines background groundwater quality at each well if an intrawell approach is selected. The analysis must be consistent with the methods provided in Title 27, section 20415(e)(8) and 20415(e)(10). The determination of background groundwater quality shall be made based on data from at least 6 groundwater quarterly monitoring events.

i. **At least 90 days** prior to any sludge removal from the wastewater treatment ponds, the Discharger shall submit a *Pond Sludge Management Plan*. The plan shall include a detailed plan for sludge removal, drying, and disposal. The plan shall specifically describe measures to be used to control runoff and percolate from the sludge as it is drying, and a schedule that shows how all dried sludge will be removed from the site or land applied prior to the onset of the rainy season (1 October).

2. If the Discharger wishes to use spray irrigation within the LAA, the Discharger shall submit for review and approval by the Executive Officer a *Spray Irrigation System Compliance Plan* **at least 90 days** before any planned use of spray irrigation. The plan shall include the location, direction, and area covered by each sprinkler head and a plan for regular sprinkler system inspection and maintenance to ensure that all wastewater remains within the LAA at all times.

3. 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, 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 contain a statement of qualifications of the responsible licensed professional(s) as well as the professional's signature and/or stamp of the seal.

4. The Discharger shall comply with the Monitoring and Reporting Program R5-2012-0024, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
5. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and by reference a part of this Order. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."
6. In the event of any change in control or ownership of the facility or wastewater disposal areas, 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 this office. 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 California Water Code. Transfer shall be approved or disapproved by the Executive Officer.
7. The Discharger shall submit to the Central Valley Water Board on or before each compliance report due date the specified document, or if appropriate, a written report detailing compliance or noncompliance with the specified schedule date and task. If noncompliance is reported, then the Discharger shall state the reasons for noncompliance and shall provide a schedule to come into compliance.
8. 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.”
9. 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.
10. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
11. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

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 may be found on the Internet at:

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

or will be provided upon request.

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 or with the WDRs 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.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 30 March 2012.

Original signed by

PAMELA C. CREEDON, Executive Officer

LLA:022312

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2012-0024

FOR
WILDHURST VINEYARDS
WASTEWATER TREATMENT FACILITY
LAKE COUNTY

This Monitoring and Reporting Program (MRP) incorporates requirements for monitoring of the **i**nfluent flow, wastewater ponds, septic system, effluent, 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 wastewater samples should be representative of the volume and nature of the discharge. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form. Winery wastewater flow monitoring shall be conducted continuously using a flow meter and shall be reported in cumulative gallons per day.

Field test instruments (such as pH and dissolved oxygen) may be used provided that:

1. The operator is trained in the proper use of the instrument;
2. The instruments are field calibrated prior to each use;
3. 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 this MRP.

INFLUENT FLOW MONITORING

Effective 1 October 2012 or on the first day discharge to the ponds, whichever occurs first, winery wastewater samples shall be collected from Settling Tank 2 prior to discharge into the wastewater treatment ponds. Monitoring shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow	gpd	Continuous	Daily[1]	Monthly
Total Flow[1]	gallons	Continuous	Totalizer[1]	Monthly

[1] Continuous monitoring requires daily meter reading or automated data collection using a meter equipped with a totalizer. Total flow means the cumulative total for the calendar year.

WASTEWATER POND MONITORING

Effective 1 October 2012 or on the first day of discharge to the ponds, whichever occurs first, monitoring of all ponds shall include, at a minimum, the following parameters listed below. 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.

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
Electrical Conductivity	umhos/cm	Grab	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Berm Condition [2]	--	Observation	Weekly	Monthly
Leak Detection System [3]	--	Observation	Weekly	Monthly
Sludge Depth	--	Measurement	Annually	Annually [4]

[1] Samples shall be collected at a depth of one foot, opposite the inlet. Samples shall be collected between 0700 and 0900 hours.
[2] Containment levees shall be observed for signs of erosion, burrowing rodents or other damage.
[3] If water is detected, then a sample shall be collected and tested for total dissolved solids. Results shall be reported in the monthly report for the month during which monitoring occurred.
[4] Results of sludge depth monitoring shall be reported in the Annual Monitoring Report.

SEPTIC SYSTEM MONITORING

Effective immediately and continuing until 1 October 2012 or the first day of discharge to the ponds, whichever occurs first, the wastewater in the existing industrial septic system shall be sampled and monitored for the following constituents listed below.

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Total Nitrogen	mg/L	Grab	Monthly	Monthly
Fixed Dissolved Solids	mg/L	Grab	Monthly	Monthly
Total Phosphorus	mg/L	Grab	Monthly	Monthly

EFFLUENT MONITORING

Effective 1 October 2012 or on the first day of discharge to the ponds, whichever occurs first, treated wastewater samples shall be collected from the downstream treatment pond, Pond 2 (unblended) and/or an established sampling station (blended) that will provide representative samples of the wastewater that will be applied to land. Flow monitoring of the outflow from Pond 2 to the LAA shall be reported in accordance with the Land Application Area Monitoring section of this MRP. Effluent monitoring shall include at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Biochemical Oxygen Demand	mg/L	Grab	Weekly	Monthly
Nitrate as Nitrogen	mg/L	Grab	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Fixed Dissolved Solids	mg/L	Grab	Monthly	Monthly
Total Phosphorus	mg/L	Grab	Monthly	Monthly

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
General Minerals [1]	mg/L	Grab	Quarterly	Quarterly[2]

[1] General minerals include the following: boron, calcium, chloride, iron, magnesium, manganese, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.

[2] Results for constituents monitored quarterly shall be reported in the monthly monitoring report for the month during which samples were obtained.

LAND APPLICATION AREA MONITORING

Effective 1 October 2012 or on the first day of discharge to the ponds, whichever occurs first, the Discharger shall monitor treated wastewater discharged for irrigation to the land application area. Monitoring shall be conducted **daily during operation** and the results shall be included in the monthly monitoring report. Evidence of erosion, field saturation, runoff, or the presence of nuisance conditions shall be noted in the report. Loading rates for the land application areas shall be calculated using applied wastewater and any supplemental irrigation water. Samples only need be collected during the irrigation season. If irrigation does not occur during a reporting period, the monitoring report shall so state. Monitoring of the land application areas shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Supplemental Irrigation Water Flow	gpd	Continuous	Daily	Monthly
Wastewater Flow [1]	gpd	Continuous	Daily	Monthly
Local Rainfall [2]	inches	Local Gauge Station	Daily	Monthly
Acreage Applied	acres	Calculated	Daily	Monthly
Application Rate	gal/acre·day	Calculated	Daily	Monthly
BOD Loading Rate	lbs/acre·day	Calculated	Daily	Monthly
Total Nitrogen Loading Rate [3]	lbs/acre·month[4]	Calculated	Monthly	Monthly
TDS Loading Rate	lbs/acre·month[4]	Calculated	Monthly	Monthly
FDS Loading Rate	lbs/acre·month[4]	Calculated	Monthly	Monthly
Crop Removal Mass	pounds	Measured	Monthly	Monthly

[1] Continuous monitoring requires daily meter reading or automated data collection and shall define the volume of wastewater discharged to the land application areas from the wastewater treatment pond 2

[2] Data may be obtained from a Department of Water Resource gauge station.

[3] Total nitrogen applied from all sources, including fertilizers and supplemental irrigation water if used.

[4] Report monthly total and cumulative annual to date.

At least **once per week** when treated wastewater is being applied to the land application areas, the entire application area shall be inspected and observations from those inspections shall be documented for inclusion in the monthly monitoring reports. If no irrigation with wastewater takes place during a given month, then the monthly monitoring report shall so state. The following items shall be documented for each check or field to be irrigated:

1. Evidence of erosion;
2. Containment berm condition;
3. Soil saturation;
4. Ponding;
5. Tailwater ditches and potential runoff to off-site areas;
6. Potential and actual discharge to surface waters; and
7. Odors that have the potential to be objectionable at or beyond the property boundary.

SOLIDS MONITORING

Effective immediately, the Discharger shall report monthly the generation rate, application, and storage of any industrial residual solids (pomace and/or diatomaceous earth). The following items shall be reported:

1. Amount of solids generated;
2. Amount of solids stored (including location of storage and measures implemented to prevent leachate generation or control and disposal of any leachate that is generated;
3. Amount applied on-site as a soil amendment; and
4. If applicable, amount applied off-site at an appropriate permitted facility (including amount disposed off-site, location of disposal site, and hauler identification).

GROUNDWATER MONITORING

Effective immediately, the Discharger shall monitor groundwater quality in accordance with the following. Prior to construction and/or sampling of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for approval. Any new wells may be added to the monitoring network (which currently consists of Monitoring Wells MW-1, MW-2, and MW-3) and shall be sampled and analyzed according to the schedule below. All samples shall be collected using approved EPA methods or the latest edition of *Standard Methods*. Water table elevations shall be calculated to determine groundwater gradient and direction of flow.

Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Groundwater monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
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
Electrical Conductivity	umhos/cm	Grab	Quarterly	Quarterly
Total Kjeldahl Nitrogen	mg/L	Grab	Quarterly	Quarterly
Nitrate as Nitrogen	mg/L	Grab	Quarterly	Quarterly

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Total Dissolved Solids	mg/L	Grab	Quarterly	Quarterly
Total Phosphorus	mg/L	Grab	Quarterly	Quarterly
General Minerals[2]	mg/L	Grab	Quarterly	Quarterly

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

[2] General Minerals include the following: boron, calcium, chloride, iron, magnesium, manganese, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., wastewater pond monitoring, groundwater monitoring well, 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 next scheduled 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

Effectively immediately, monthly reports shall be submitted to the Central Valley Water 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). The monthly reports shall include the following:

1. Results of influent flow, wastewater pond, septic system, effluent, land application area, and solids monitoring.
2. A comparison of monitoring data to the discharge specifications and effluent limitations, disclosure of any violations of the WDRs, and an explanation of any violation of those requirements. Data shall be presented in tabular format.
3. If requested by staff, copies of laboratory analytical report(s);
4. A calibration log verifying calibration of all hand held monitoring instruments and devices used to comply with the prescribed monitoring program;
5. The cumulative volume of wastewater generated during the year to date;
6. The total pounds of total dissolved solids and fixed dissolved solids (year to date) that have been applied to the land application areas, as calculated from the sum of monthly loadings;
7. The total pounds of nitrogen (year to date, from all sources including fertilizer) applied to the land application area as calculated from the sum of monthly loadings; and

8. A summary of the quantity of solid waste (stems, pomace, diatomaceous earth, pond sludge**,** crops removed, etc.) generated and disposed of on-site as a soil amendment or off-site at an appropriately permitted facility.

B. Quarterly Monitoring Reports

Effective immediately, in addition to the monthly 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 Water Quality Control Board by the **1st day of the second month after the quarter** (i.e. the January-March quarter is due by May 1st) each year. The Quarterly 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 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; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;
3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any;
4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable);
5. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements;
6. Summary data tables of historical and current water table elevations and analytical results;
7. 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
8. Copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Report

Effective immediately, in addition to the monthly and quarterly reports, an annual report shall be prepared. The Annual Report shall be submitted to the Central Valley Water Board by **1 February** each year. At a minimum, the Annual Report shall include the following:

1. Tabular and graphical summaries of all data collected during the year.
2. Tabular and graphical summaries of historical monthly total loading rates for wastewater generation, treated wastewater used for irrigation (hydraulic loading in gallons/acre and inches), total nitrogen (lbs/ac/yr), total dissolved solids (lbs/ac/yr), and fixed dissolved solids (lbs/ac/yr). Tabular and graphical summaries of historical annual wastewater flow (million gallons).
3. A comprehensive evaluation of the effectiveness of the past year's wastewater application operation 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.
4. A summary of the vegetative material (crops) removed from the LAAs. The summary shall include harvest dates, crop type, disposal area, and estimated ash content of the harvest.
5. A summary of the quantity of solid waste (lees, stems, pomace, diatomaceous earth, etc.) generated and disposed of on-site as a soil amendment or off-site at an appropriately permitted facility.
6. An evaluation of the groundwater quality beneath the land application area.
7. Beginning with the 2014 Annual Report, use the updated groundwater values found in the report required by Provisions G.1.h. A comparison of background data for each constituent identified in Groundwater Limitations F.1 to data from downgradient monitoring wells if an interwell analysis method is used, or to current quarterly data if an intrawell analysis method is used. Monitoring data shall also be compared to water quality objectives, where applicable, for each constituent identified in the Groundwater Limitations.
8. A description of source control methods that have been implemented in the calendar year.
9. Estimated flows for the next calendar year.
10. 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.
11. 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. Such a 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: Original signed by
PAMELA C. CREEDON, Executive Officer

30 March 2012
(Date)

LLA:022311

INFORMATION SHEET

ORDER R5-2012-0024
WILDHURST VINEYARDS
WASTEWATER TREATMENT FACILITY
LAKE COUNTY

Wildhurst Vineyards owns and operates a wine processing facility located at 3495 Benson Lane, Kelseyville, Lake County. The facility was constructed in 1997. Activities at the winery include receiving, crushing, pressing, and fermentation of grapes, and bottling of wine. The Discharger is not currently regulated under Waste Discharge Requirements. The Discharger is currently discharging winery wastewater in a septic tank and leachfield system. Domestic wastewater is treated in separate septic tank and leachfield systems. Both systems are regulated under a Lake County Environmental Health Department permit.

The Discharger plans to increase annual wine production from 10,000 cases of wine and 137 tons of crushed grapes to 60,000 cases of wine and 1,200 tons of crushed grapes. The Discharger has no plans to build a distillery or a tasting room. The Discharger plans to discontinue use of the winery wastewater septic tank and leachfield system. The new wastewater treatment system will include a pre-treatment process to remove residual solids and aerated lined ponds for biological treatment. Treated wastewater will be land applied as irrigation water. The residual solid wastes such as grape pomace (skin, pulp, seeds, and stalks) will be collected and disced into the land application area (LAA) as a soil amendment.

Report of Waste Discharge Submittal

The Report of Waste Discharge (RWD) was submitted to allow an expansion of activities at the site. The Discharger submitted a RWD dated 12 July 2005 for treatment and land application of wastewater generated at the facility and an expansion that will allow increase grape crushing and fermentation. Additional information was submitted on 5 April 2007, 29 May 2007, 14 March 2008, 6 June 2008, 29 December 2008, and multiple dates in May 2011.

Wastewater Generation

Wastewater is generated from the crushing and pressing of the grapes and equipment and sanitation activities. Stormwater that falls on the winery and mixes with wastewater is treated as wastewater. Winery wastewater is typically high in total dissolved solids (TDS), fixed dissolved solids (FDS), biochemical oxygen demand (BOD), and nitrogen concentrations.

Process wastewater generated at the facility is approximately 0.72 Mgal per year. The highest wastewater flows are expected during grape crushing activities, September through October. The WDRs will allow a monthly maximum flow limit to the treatment ponds of 0.182 Mgal per month and an annual maximum flow limit of 1.13 Mgal of wastewater and/or stormwater mixtures.

The flow limit will allow the Discharger flexibility in managing wastewater application because in most months the wastewater generation will be less than the monthly maximum limit. The annual maximum flow limit is designed to control the total loading rate of LAA with waste constituents. The WDRs includes Discharge Prohibitions, Specifications, Effluent Limitations, and Land Application Area Requirements that will prevent nuisance conditions and/or overloading the land application areas.

Wastewater undergoes a pretreatment process to remove solids and then discharged into a series of aerated treatment ponds, Ponds No. 1 and 2, for biological treatment. The ponds will be double lined with 40-mil high density polyethylene liners with a leak detection system. The ponds will have the capacity to store treated wastewater for the months of November through March and allow wastewater land application during the growing season.

Land Application Areas

The Discharger has specified 30 acres of LAA. Currently the LAA is cropped as pear orchards, but some or all of the acreage may be converted to vineyards. Based on the water needs of pear orchards, the Discharger concludes that the treated wastewater will not meet crop's demands. The Discharger anticipates supplemental irrigation water, provided by the water supply well, for the growing season (April, May, June, July, August, September, and October). The water supply well is generally of good quality with respect to TDS concentrations.

The Discharger estimates 1,934 lbs of total nitrogen per year in the winery wastewater including the injected aqueous ammonia needed for pH control. The nitrogen loading rate is estimated to be 65 lb/ac/yr. Information obtained from *The Western Fertilizer Handbook* states the nitrogen crop uptake rate for pears and grapes is 85 lb/ac/yr and 125 lb/ac/yr, respectively. Cover crops were not identified in the RWD and therefore their nutrient uptake capacities are unknown.

Solids Disposal

Solid wastes from the wine processing actvities, including pomace and diatomaceous earth (DE), will be collected and stored in water tight containers, for later application onto the LAA. The WDRs prohibit placing any pomace or DE associated with the winery on unpaved ground. Acceptable storage shall contain any leachate generated and prevent infiltration into the ground.

Baseline Groundwater Quality

The Discharger prepared a baseline groundwater quality assessment study prior to land application of treated wastewater. The study included the installation and sampling of three groundwater monitoring wells. Five monitoring events took place during December 2007 and November 2008.

Groundwater quality near the winery was found to be excessively hard, but generally of good quality with respect to TDS. Average Hardness ($CaCO_3$) values from MW-1, MW-2, and MW-3 samples were 844.8 Mg/L, 746.8 Mg/L, and 644.4 Mg/L, respectively. Average TDS values were 274 Mg/L, 224 Mg/L, and 250 Mg/L, respectively. High iron and magnesium concentrations were found in the groundwater samples. Electrical Conductivity (EC) data was not analyzed.

Due to the highly variable results for iron, magnesium and hardness, the Discharger sampled the wells on 13 April 2011. These results were consistent with the non-suspect results for iron and magnesium, indicating that the previous samples were not filtered prior to analysis.

The Discharger anticipates average monthly wastewater concentrations prior to land application as the following: 425 mg/L of BOD, 1,300 mg/L of TDS, and 40 mg/L of Total Nitrogen. The Discharger will need to blend with supplemental irrigation water to meet crop demands, and therefore will provide some dilution. In addition, crops planted in the LAA will take up some of the waste constituents in the wastewater. The WDRs requires groundwater monitoring to detect whether management of the LAA ensures no impacts to groundwater quality.

The WDRs requires the Discharger to submit a *Monitoring Well Installation Workplan.* This workplan will describe the proposed expansion of the monitoring well network and at a minimum, include two additional wells to monitor the groundwater downgradient of the existing industrial wastewater leach field and planned wastewater ponds, and between the ponds/LAA and Kelsey Creek.

Interim groundwater limitations were established until additional groundwater investigations have been completed. The interim limits were determined based on statistical analyses of the baseline groundwater data using a 0.025 critical t-score. These limits are effective immediately. The Discharger is required to submit a *Groundwater Quality Investigation Report* that will determine the final groundwater limitations. Background values shall be updated annually as described in the Monitoring and Reporting Program.

The groundwater supply well serving the winery was sampled in December 2005. Limited information was submitted in the RWD regarding the water supply well quality. Both Nitrate (NO_3) and Kjeldahl Nitrogen were reported as non detect. Typical detection values for Nitrate and Kjeldahl Nitrogen are 1.0 mg/L. TDS was found to be 180 mg/L.

Stormwater

Most of the winery process operations are located under covered areas to avoid stormwater mixing with the wastewater. There is a stormwater diversion system for the uncovered portion of the crush pad. The valve will remain open during the crushing and cleaning operations of the crush pad to convey wastewater to the treatment system. The valve will remain closed during all other times and uncontaminated stormwater runoff will infiltrate into the ground within the surrounding area. The WDRs requires the Discharger to complete and implement an *Operations and Maintenance Plan* that will describe detailed stormwater diversion system operation procedures.

The WDRs requires the Discharger to submit a Notice of Non-applicability or apply for coverage under the Order 97-03-DWG, *Discharge of Storm Water Associated with Industrial Activities*. The expansion of the winery will disturb one or more acres of soil and therefore, the

Discharger is required to submit a Notice of Intent for coverage under the *Construction Activities Storm Water General Permit* Order 2009-0009-DWQ.

Site Specific Conditions

The proposed treatment system will be located within the 100 year flood zone of Kelsey Creek, in Flood Zone AO (depth two feet). The WDRs requires the pond berms be two feet above the 100-year base flood elevations and designed and constructed to prevent inundation or washout due to floods with a 100-year frequency. The Discharger submitted a revised water balance that demonstrates that the ponds have adequate storage capacity with a two feet freeboard during a 100-year storm frequency.

Basin Plan, Beneficial Uses, and Regulatory Considerations

Surface water drainage is to Kelsey Creek, which is a tributary to Clear Lake. The *Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region, Fourth Edition for The Sacramento River Basin and the San Joaquin River Basin* (Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. Beneficial uses often determine the water quality objectives that apply to a water body. The receiving water for this discharge is groundwater. The applicable beneficial uses of groundwater are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.

Antidegradation

State Water Resources Control Board (State Board) Resolution 68-16 (the Antidegradation Policy) allows the degradation of groundwater quality if the Central Valley Water Board determines that:

- The degradation is consistent with the maximum benefit to the people of the State.
- The degradation will not unreasonably affect present and anticipated future beneficial uses.
- The degradation does not cause exceedance of one or more water quality objectives.
- The discharger employs best practicable treatment and control to minimize degradation.

The treatment and control practices described herein provide commonly implemented treatment and control for the subject wastewater, and should prevent the discharge from creating a condition of pollution or possible nuisance, and maintain water quality. The following treatment and control practices will be implemented at the site:

- The wastewater will be treated using physical processes to reduce the residual solids.
- The wastewater will be treated using biological processes in the form of aerated ponds to reduce the BOD. The ponds are lined and equipped with a leak detection system. The WDRs require submittal of a *Wastewater Treatment System Completion and Construction Quality Assurance Report* that certifies the complete installation of the

wastewater treatment facility, specifically the liner installation and testing of the geomembrane seams for leaks.

- Approximately 30 acres of LAA will be available for the application of treated wastewater. Crops planted in the LAA will take up the waste constituents found in the wastewater. This Order limits land application of nitrogen to agronomic rates.
- This Order requires the Discharger to install a tailwater collection system that allows collection of runoff of the applied treated wastewater for reapplication and infiltration.
- Grape pomace will be collected in containers and disced into the LAA as a soil amendment. Any storage of pomace will be short term, less than 24 hours, and in an area equipped with means to contain any leachate generated and prevent any infiltration into the ground.
- This Order requires groundwater monitoring.

Groundwater monitoring has been conducted at the site. The current method of winery wastewater treatment is a septic tank and leachfield system, which is not protective of groundwater. The generated wastewater will not meet the crop demands, and therefore supplemental irrigation water is needed. The WDRs allows the Discharger to blend wastewater with supplemental irrigation water to meet crop demands. Effluent limitations were established as preventive measures to prevent groundwater degradation. In addition, this Order requires installation of additional monitoring wells; submittal of a *Groundwater Quality Investigation Report*; and an *Operations and Maintenance Plan* that includes a *Nutrient Management Plan*. Additionally, the new lined ponds and LAA must be completed and in use by 1 September 2012.

Title 27

This discharge is exempt from the requirements of *Consolidated Regulation for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in California Code of Regulations, title 27, section 20005 et seq. (hereafter Title 27). The exemption, pursuant to section 20090(b), 20090(f), and 20090(h) is based on the following:

- The operation of lined wastewater treatment and storage ponds, and the application of treated wastewater to the LAA is exempt based on section 20090(b). The Central Valley Regional Water Board has issued waste discharge requirements. This discharge is in compliance with the Basin Plan. The wastewater does not need to be managed according to California Code of Regulations, title 22, division 4.5, chapter 11, as a hazardous waste.

- Application of decomposable solids as a soil amendment to the LAA is exempt based on section 20090(f). The pomace/DE is nonhazardous. The waste constituents in pomace and/or DE are decomposable. Application to land is considered a best management practice. The practice allows the nutrients to slowly decompose, prevents odors or vector issues associated with composting pomace/DE, and improves soil tilth. The Central Valley Water Board has issued waste discharge requirements.

- Application of treated wastewater to the LAA is exempt based on section 20090(h): The application will result in additional waste treatment, water reuse, and nutrient recycling.

California Environmental Quality Act (CEQA)

A Mitigated Negative Declaration (MND) was approved by the Lake County Community Development Department on 26 June 2007 for the expansion of the facility per the provisions of CEQA. Compliance with this Order and the following mitigation measures from the MND listed below should mitigate the discharge and protect water quality.

Issue Identification	Environmental Issue	Mitigation Requirements
Item E.4	Violation of any water quality standard or waste discharge requirement.	If grading will occur over more than one acre of land, the permit holder shall submit Notice of Intent (NOI) to comply with the Construction General Permit with the Central Valley Water Board, along with a Storm Water Pollution Prevention Plan (SWPPP).
Item H.1.	Violation of any water quality standard or waste discharge requirement	Prior to wine production in excess of 10,000 cases of wine annually, the permit holder shall prepare a new Report of Waste Discharge to be reviewed and approved by the Central Valley Water Board.
Item H.2	Violation of any water quality standard or waste discharge requirement	Prior to abandonment of the septic system currently used for treatment of winery wastewater, the permit holder shall contact the Division of Environmental Health to insure the system is abandoned in accordance with Lake County On-site Septic Rule 1-80 (1) & (2).

A Minor Modification of Use Permit was approved by Lake County on 2 June 2008 to allow the replacement of the constructed wetlands with aeration ponds for winery wastewater treatment. A subsequent MND was approved on 9 November 2011 by Lake County to increase the LAA from 4.25 acres to 30 acres.

Effluent Limitations

Effluent limitations for treated and/or blended wastewater applied to land for biochemical oxygen demand (BOD), total dissolved solids (TDS) and total nitrogen are included in the WDRs.

Wastewater loading limits for the LAA are included for BOD. The BOD limit is intended to minimize the possiblity of odors being generated by the land application. The BOD limit is 100 lb/ac/yr as a daily maximum.

The TDS limit is intended to minimize degradation of groundwater with respect to salinity. Supplemental irrigation water necessary to meet crop demands will provide dilution. Crops planted in the LAA will take up some of the waste constituents in the wastewater. The TDS limit is 1,300 mg/L as a monthly maximum.

The total nitrogen limit is based on the nitrogen uptake value of the proposed and existing crops harvested in the LAA (grapes and pear orchards). The nitrogen limit is 125 lb/ac/yr (grapes) and 85 lb/ac/yr (pears) as an annual average. Cover crops were not specified.

Treatment Technology and Control

Given the character of food processing wastewater, slow rate land treatment or secondary treatment technology is generally sufficient to control degradation of groundwater from decomposable organic constituents.

Food processing wastewater typically contains nitrogen in concentrations greater than water quality objectives. Groundwater degradation by nitrogen can be controlled by an appropriate screening, settling, and slow rate land application with cropping activities when crops are harvested and removed from the land application area. The effectiveness varies, but generally best practicable treatment and control is able to control nitrogen degradation of groundwater at a concentration well below the water quality objectives. Pear orchards are currently harvested in the land application areas and will take up the nutrients in the wastewater.

Dissolved solids can pass through the treatment process and soil profile; effective control of such constituents relies primarily upon source control and pretreatment measures. If not managed carefully, long-term land discharge of food processing wastewater is likely to degrade groundwater with dissolved solids (as measured by FDS). Source control is an effective means to prevent groundwater degradation by FDS. The Discharger will implement a number of best practicable treatment and control measures to ensure minimal to no impacts on the groundwater including the following:

- Treatement ponds are lined.
- Crops are planted in the LAA and will to take up some of the waste constituents in the treated wastewater;

- Pomace is collected in water tight containers that will contain generated leachate and prevent infiltration into the ground. Daily application of residual solids to the LAA further decreases the likelihood of groundwater impacts due to leachate.
- Operation of a stormwater diversion system for outdoor winery work areas prevents the likelihood of contaminated stormwater discharges.

A discharge of wastewater that overloads soils with nutrients and organics can result in anaerobic conditions in the soil profile, which in turn creates organic acids and decreases soil pH. Under conditions of low soil pH (below 5), iron and manganese compounds in the soil can solubilize and leach into groundwater. Overloading the land application areas is preventable. Based on the quality of the wastewater and the amount available for land application, the soil is expected to provide adequate buffering of acidic or basic wastewater.

Monitoring Requirements

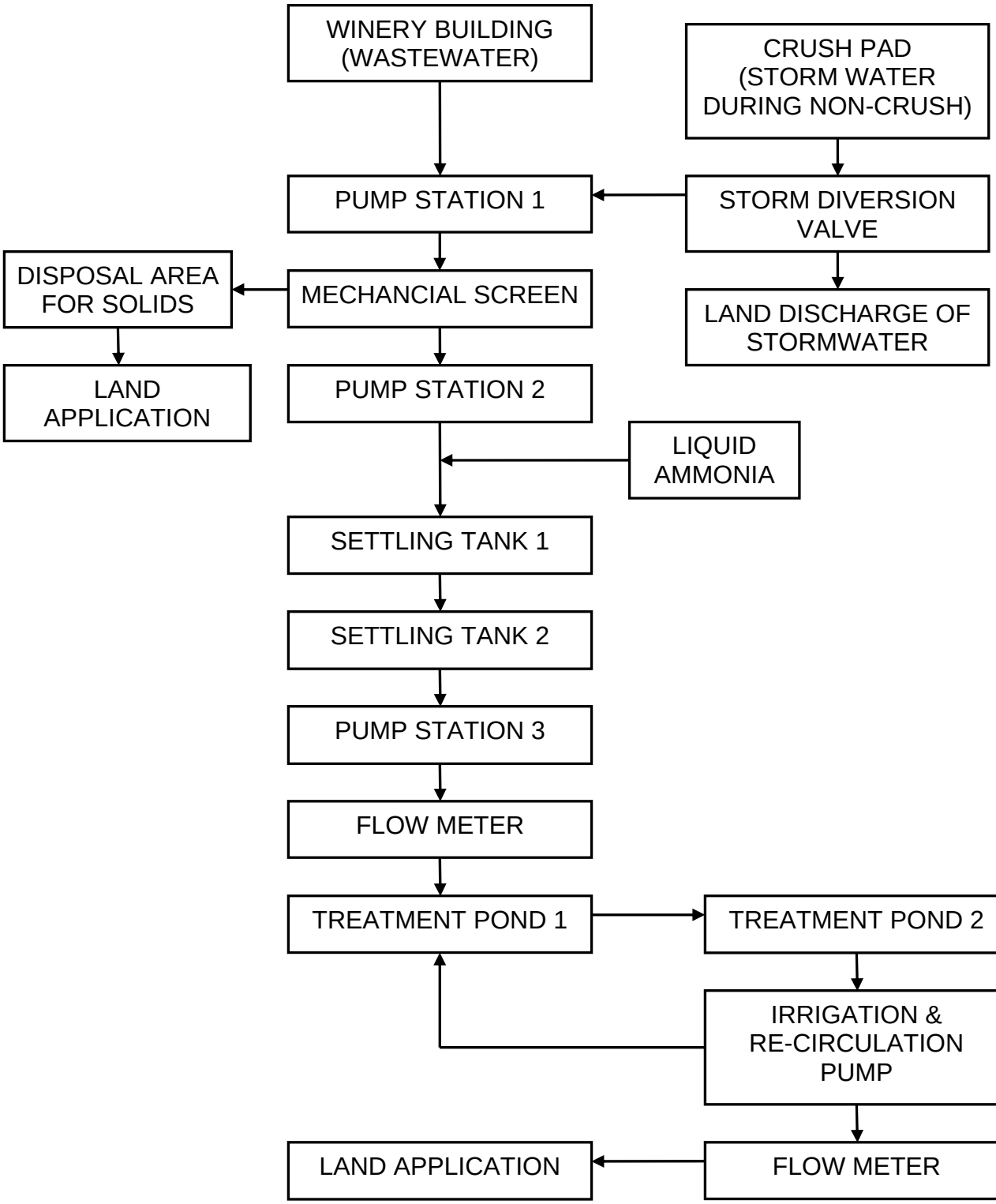
Water Code section 13267 authorizes the Regional Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. In recent years there has been increased emphasis on obtaining all necessary information, assuring the information is timely as well as representative and accurate, and thereby improving accountability of any discharger for meeting the conditions of discharge. Water Code section 13268 authorizes assessment civil administrative liability where appropriate.

The Order requires monitoring of the 1) wastewater in the treatment pond, 2) discharges to the land application area, and 3) groundwater monitoring. The nearest water body, Clear Lake, has a total maximum daily limit (TMDL) for phosphorous, and therefore total phosphorous will be monitored in the effluent and in the groundwater.

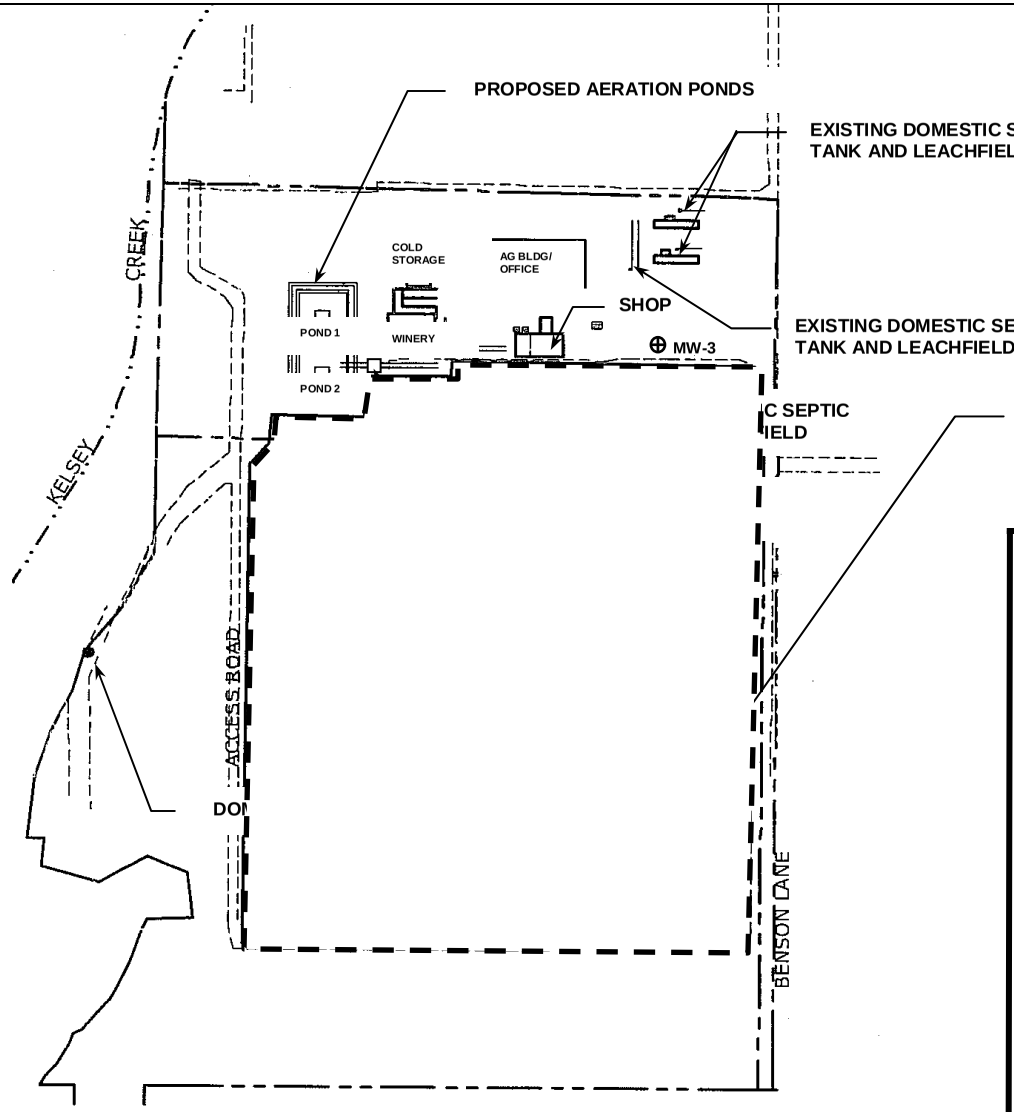
Drawing Reference:
U.S.G.S
Lucerne Quadrangle
TOPOGRAPHIC MAP
7.5 MINUTE QUAD

SITE LOCATION MAP
WILDHURST VINEYARDS
LAKE COUNTY

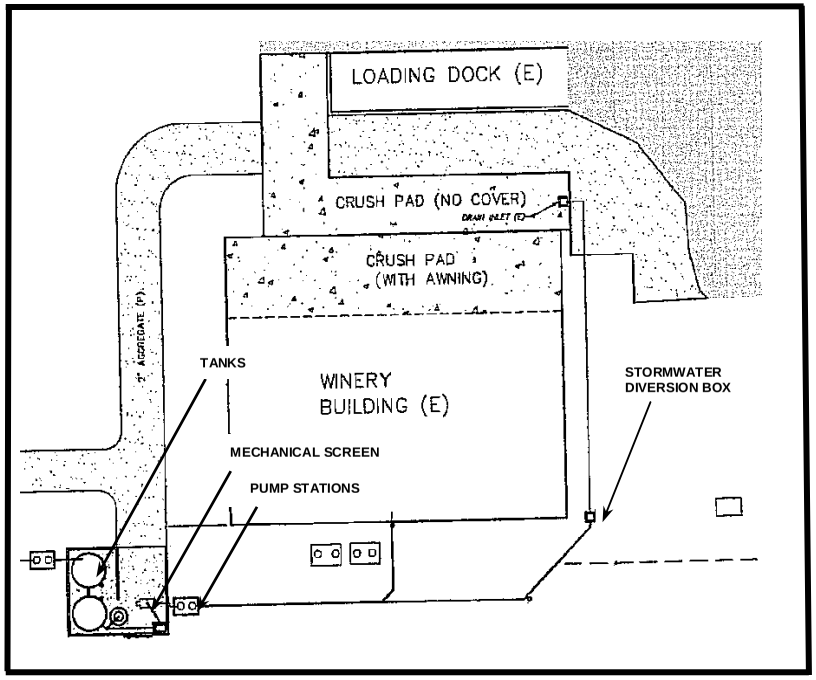
N
W E
S
1 in = 2,000 ft



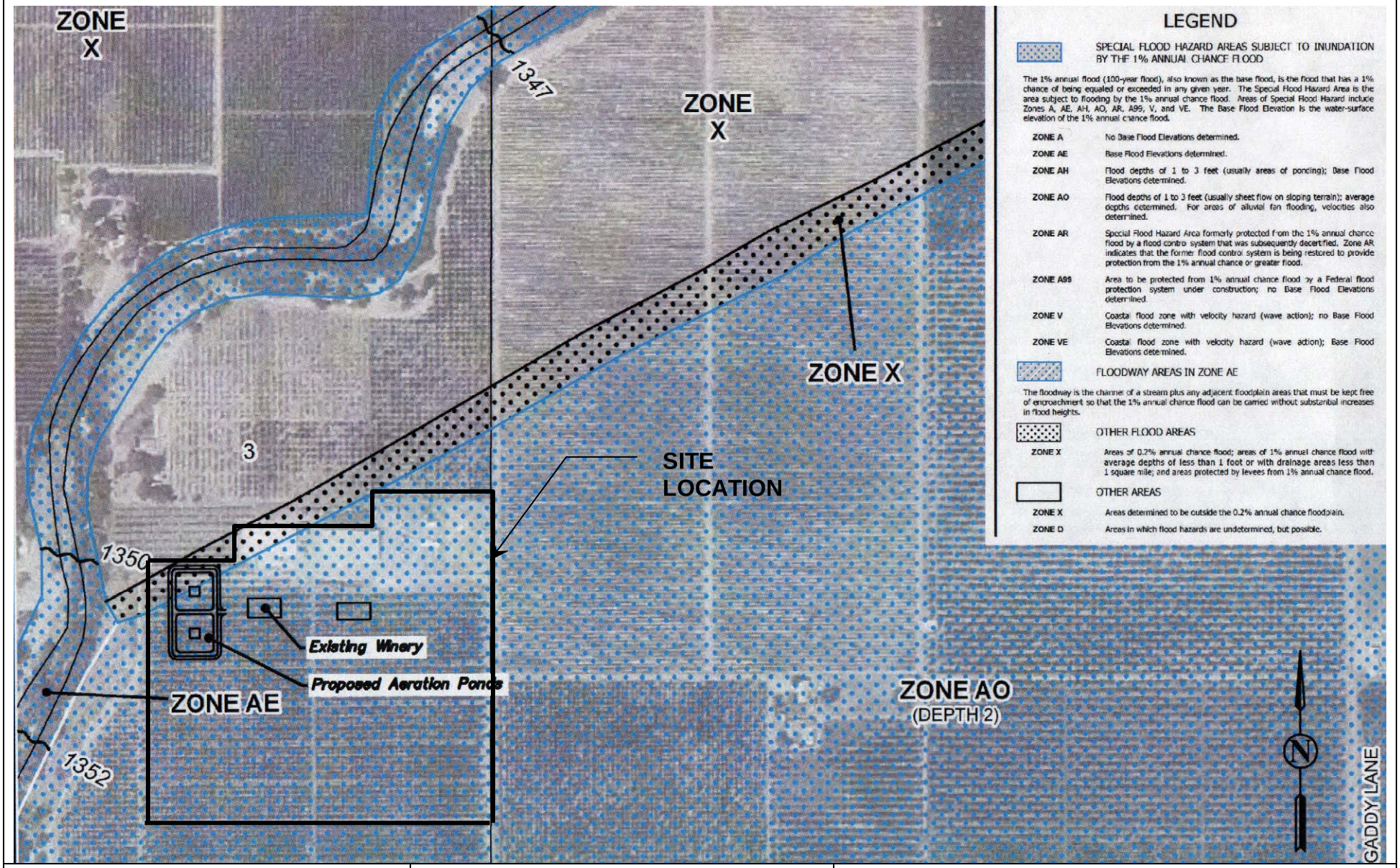
Drawing Reference: VanDerWall Engineering	**PROCESS FLOW DIAGRAM** WILDHURST VINEYARDS LAKE COUNTY



PRE-TREATMENT SYSTEM DETAIL



Not to Scale 	Drawing Reference: VanDerWall Engineering	**SITE PLAN** WILDHURST VINEYARDS LAKE COUNTY



Approximate Scale 1" = 400' 	Drawing Reference: VanDerWall Engineering	**FLOOD INSURANCE RATE MAP** WILDHURST VINEYARDS LAKE COUNTY

ORDER R5-2012-0024
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