

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2002-0169

WASTE DISCHARGE REQUIREMENTS
FOR
JERRY AND ERIKA WRIGHT
VILLA TOSCANO WINERY
AMADOR COUNTY

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

1. Jerry and Erika Wright (hereafter Discharger) submitted a Report of Waste Discharge (RWD) on 14 March 2001 with additional information submitted on 30 October 2001, 6 May 2002 and 5 June 2002, for the treatment and disposal of wastewater generated at the Villa Toscano Winery (winery).
2. The Discharger owns and operates an existing winery, wine tasting facility, vineyard, septic system, and winery wastewater treatment and disposal system.
3. The winery is two miles northeast of the City of Plymouth on 40 acres (Assessor's Parcel No. 07-100-016) in Section 36, T8N, R10E, MDB&M, at 10600 Shenandoah Road, in Amador County. The Discharger owns additional vineyards at 19990 Shenandoah School Road (APN 08-030-034). The location of the winery facility is shown on Attachment A, which is attached hereto and made part of this Order by reference.
4. The winery currently processes approximately 200 tons of grapes per year, but plans to expand production over the next ten years to 375 tons per year. Activities at the winery include receiving, crushing and pressing of grapes, fermentation, processing into finished wines, and bottling and storage for distribution. The winery does not operate a still.
5. During wine production, various chemicals can be used as either an additive, a fining agent, or as a cleaner/sanitizer. These compounds may include the following:

<u>Wine Additive</u>	<u>Wine Fining Agent</u>	<u>Cleaner/Sanitizer</u>
Tartaric Acid	Bentonite	Calcium Hypochlorite
Diammonium Phosphate	Diatomaceous Earth	Citric Acid
Potassium Metabisulfite	Potassium Bitartrate	

6. The RWD estimated the average daily wastewater flow rate at 219 gallons per day (gpd) with a peak process flow rate of 3,750 gpd. The total annual maximum flow is estimated to be approximately 80,000 gallons per year, which is based on a peak production of 375 tons of grapes. The majority of wastewater derived from winery processing activities will occur primarily during late summer and early fall when grapes are harvested and crushed. A typical crush period is around 45 days in length and occurs from September through November. The total volume of

wastewater produced during the crush is estimated to be 60,000 gallons, while that generated through the remainder of the year is approximately 20,000 gallons.

7. The Discharger used separate flow rates to distinguish flow generated during the crush and noncrush periods to calculate the hydraulic loading for the water balance. Due to the seasonal nature of the winery operation, two flow limitations are appropriate.
8. The Discharger has collected samples of the wastewater discharged from the winery’s septic tank; however, sampling was limited to non-crush periods. The sample data are presented below along with typical winery wastewater data for comparison purposes:

<u>Compound</u>	<u>Units</u>	<u>Septic Tank Effluent Range</u>	<u>Typical Winery Concentration Range¹</u>
pH	pH units	5.3 - 7.5	2.5 – 9.5
Biochemical Oxygen Demand (BOD ₅) ²	mg/l	19 - 1,480	500 – 12,000
Total Dissolved Solids (TDS)	mg/l	89 - 1,240	80 – 2,900
Nitrogen	mg/l	1.0 - 3.9	1 – 40
Nitrate (as Nitrate)	mg/l	0.05 - 0.66	0.5 – 4.8
Sulfate	mg/l	0.05 -5.5	10 - 75

¹Typical chemical analyses of winery wastewater from Summit Engineering, Process Wastewater Management System, Design Criteria and Calculations, 5 June 1998.

² Five-day, 20° Celsius Biochemical Oxygen Demand.

WASTE TREATMENT SYSTEM

9. Winery wastewater from tank cleaning, grape crushing, barrel washing, and equipment/floor cleaning water are discharged to the wastewater disposal system. The former wastewater disposal system consisted of a septic tank and leachfield; however, the Discharger has recently constructed a new wastewater system. This new treatment system consists of gravity piping, a septic tank used as a clarifier, a subsurface flow constructed wetland (CW), and a storage pond. Effluent will be discharged to 19-acre vineyard for irrigation (defined hereafter as the “land reclamation area”). This system is shown on Attachment B, which is attached hereto and made part of this Order by reference.
10. Floor drains collect all the winery’s wastewater. Screened baskets will be installed on the floor drain, which exit the crushing, bottling and barrel cleaning areas of the winery. The wastewater is then conveyed through piping, by gravity, to a 1200-gallon septic tank for solid separation. The RWD states that the retention time for the septic tank at peak flow during crush is approximately eight hours. The septic tank provides two basic functions, waste treatment and solids storage, but it is essential to the long-term function of the CW that both solids and scum be kept from exiting the tank. For this reason, the exit of the second chamber draws from the tank below the scum and above the sludge, and it is imperative that regular inspections and cleanings assure that neither

solids layer increases to the extent that solids are scoured and discharged from the tanks. The RWD indicates that accumulated solids in the tank will be periodically removed and disposed of offsite. The separated solids consist of organic solids, lees, and inorganic material.

11. A water-level activated pump will transfer the wastewater from the septic tank to the CW where biological treatment will occur. The CW is 80 feet long, 35 feet wide and 5 feet deep including two feet of freeboard. The CW is designed with a 1.0 percent grade to promote hydraulic conductivity. The CW will have a volume of approximately 22,000 gallons (with two feet of freeboard) and a minimum retention time of approximately 16 days. The CW will be retrofitted with a double liner, overlain with three feet of pea gravel. In order to prevent stormwater runoff from entering the CW and storage pond, the Discharger will construct berms or drainage grading around them.
12. The CW has been planted with bulrushes and cattails in the center and irises or other oriental hydrophytic plants along the parameter. According to the RWD, wastewater treatment in the CW is not dependent on plant diversity. In addition, plant establishment is not required for the initial system operation but is required for long-term treatment. Plant maintenance will consist of cutting back vegetation and removing plant litter on an annual basis.
13. Wastewater is applied to the CW through a distribution manifold on the surface of the CW bed. Wastewater is removed from the CW via a manifold pipe located at the bottom of the bed. The water depth in the CW is controlled using an adjustable riser. Effluent from the CW will be discharged to a 142,000 gallon storage pond. Wastewater can be returned from the storage pond to the CW for additional treatment.
14. Wastewater treatment within the CW depends on detention time, which is a function of flow paths through the gravel media and plant roots. The CW may be subject to clogging and short-circuiting which adversely affects the treatment efficiency. A reduction in the hydraulic conductivity of 15 percent or greater indicates that clogging is occurring in the system. In order to ensure optimal treatment within the CW, the Discharger needs to conduct annual tracer tests on the CW to verify system is operating within designed specifications.
15. Winery wastewater may range in pH value from 2.5 to 9.5 standard units. The RWD states that the CW system will consistently provide pH neutralization to within 6.5 to 8.5 standard units because the CW's anoxic environment will utilize sulfate and nitrate as oxidants and consume hydrogen ions in the redox process. However, if the CW does not neutralize acidic wastewater, then wastewater discharged to the storage pond may be acidic which can create nuisance conditions. Therefore, the pH of the wastewater discharged to the storage pond needs to have a range of 6.5 to 8.5 standard units. If the monthly monitoring finds that the CW does not adequately control the pH, then the Discharger will be required to install additional treatment or control measures to ensure adequate pH concentrations.
16. The total amount of wastewater generated by winery activities is approximately 80,000 gallons per year and this volume was used as the design criteria for the CW. However, this volume of

wastewater is increased by direct rainfall on the CW and storage pond. The RWD states that approximately 205,000 gallons of wastewater will be discharged each year from the CW to the storage pond based on an annual precipitation using a return period of 100 years.

17. The capacity of the storage pond, with two feet of freeboard, will be approximately 142,000 gallons. Aeration equipment may be added to the storage pond to provide further treatment if necessary.
18. In order to ensure that the potential for groundwater impacts are mitigated, the CW and storage pond will be retrofitted such that they are underlain by a double liner and leak detection system. At a minimum, a 24-mil vinyl liner will be used. The installation of groundwater monitoring wells around the CW and storage pond is not necessary because they will be constructed with a double liner and leachate collection system, the liner will be installed under the direction of a Registered Engineer using an approved CQA plan, and because the Discharger is required to monitor the quality and quantity of leachate.

WASTE DISPOSAL SYSTEM

19. Wastewater disposal will be accomplished through irrigation on 19 acres of vineyard surrounding the winery, as shown on Attachment B. The annual total volume of wastewater discharged for irrigation from the storage pond (after loss of volume to evaporation) is projected to be up to 193,000 gallons per year.
20. The RWD states that the assimilative capacity of the disposal area is approximately 11.6 million gallons per year. The quantity of effluent generated is insufficient to meet the irrigation demands of the vineyard, so the Discharger will use well water to supplement vineyard irrigation. Vineyard irrigation is achieved through a sprinkler system, which is also connected to a potable water supply. In order to protect the domestic water supply, the Discharger must label the irrigation systems as containing reclaimed wastewater and install backflow prevent devices.
21. Wastewater irrigation of the vineyard will primarily occur after the harvest and crush in the late fall. However, this period corresponds to the beginning of the wet season. If wastewater is not applied at an agronomic rate, then wastes may be leached from soil during rain events and may be discharged with the runoff to surface watercourses.
22. The RWD states that the salt concentration (measured in terms of TDS) in the treated effluent will be approximately 1,500 milligrams per liter. Excessive application of salt to land can result in the accumulation of salt in the soil column and subsequent migration to the underlying groundwater. The RWD states that the agronomic rate of uptake for salt in the entire 19-acre vineyard is 7,559 pounds per year (lb/yr), while the estimated annual loading rate for salt in the effluent is much less, 2,382 lb/yr. This TDS loading rate is based on the assumed effluent TDS concentration using the average flow rate, and shows that average TDS is within the assimilative capacity of the vineyard. The RWD did not account for the TDS contribution from irrigation performed with well water and

from fertilizers. However, these sources of TDS will be sufficiently less than the agronomic rate for the land reclamation area if proper agricultural practices for a vineyard are followed.

23. Excessive application of nitrogen to land can result in the accumulation of nitrates in the soil column and subsequent migration to the underlying groundwater. The RWD contains a nitrogen balance that shows the calculated annual total nitrogen loading to the 19 acre vineyard to be approximately 2.4 lb/acre/yr. The nitrogen balance shows that the total nitrogen removal rate for a grape crop of around five tons per acre is approximately 22 lb/acre/yr. Therefore, the nitrogen discharged in the winery wastewater should be taken up by the vines and not migrate to groundwater.

OTHER WASTE STREAMS

24. Seeds, stems, skins solids, and pomace are collected from crushing equipment and from floor drain screens, and will be trucked to 19900 Shenandoah School Road (APN 08-030-034), where the Discharger has a lined composting area. The solids will be composted on a concrete pad and then spread for soil enhancement on 60 acres of vineyards, which are owned by the Discharger. Composted solids will be spread using a manure spreader during the dry weather period.
25. Domestic wastewater is generated from the office, bistro, wine tasting room, and employee restrooms. This waste is collected separately from winery wastewater and conveyed to an existing 2,000-gallon septic tank and leachfield consisting of 360 linear feet of leach line. In order to dispose of the additional loading from the new bistro facility, an additional 170 linear feet of leach line is required. The wastewater from the food preparation facility is discharged to a grease interceptor prior to entering the septic tank. The septic system is regulated by the Amador County Environmental Health Department, and the expansion will be permitted and overseen by the County.

SITE SPECIFIC CONDITIONS

26. The topography of the site is described as rolling hills with elevations ranging from 1,200 to about 1,500 feet. The landscape around the parcel includes vineyards, scattered oak and other upland vegetation, grassland, and areas of riparian vegetation along Big Indian Creek.
27. The surrounding lands are zoned for Williamson Act, agriculture, and single family residential and agriculture uses. Industrial, agricultural, commercial, and domestic facilities exist within 1,000 feet of the property.
28. Surficial soils are described as consisting of loam to sandy loam topsoil underlain by clay and sandy loam. Soil depths are considered to be shallow and are often less than 15 feet.
29. The granitic rock underlying the site is reported to be massive in nature with some fractures. Profiles logged during the drilling of the well (330-foot depth) were generally described as follows: Surficial soils are encountered in the first several feet grading to decomposed granite to a depth of approximately 20 feet. From the depth of 20 feet down to 140 feet, competent granite was

encountered, and no groundwater was reported in this zone. A water bearing zone of fractured granite exists between 140 and 240 feet.

30. Near-surface seasonal groundwater occurs frequently in the foothill areas due to relatively shallow soils over low permeability bedrock. Based on the above profile description, it is anticipated that shallow groundwater would be found within 20 feet of ground surface, at least during certain times of the year. Naturally occurring springs are known to exist within the Shenandoah Valley, which indicates the presence of near-surface groundwater.
31. The mean annual rainfall, based on data from Electra Power House CIMIS weather station, is 28 inches per year.
32. All portions of the wastewater treatment, storage, and disposal facilities are outside of the 100-year flood zone.
33. The winery lies within the Middle Sierra Hydrologic Area No. 532.21, as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.

SPECIAL CONSIDERATIONS FOR FOOD PROCESSING WASTE

34. Excessive application of food 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 pollutants (organic carbon, nitrate, dissolved solids, and metals) to percolate below the root zone.
35. According to *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*), in applying food-processing wastewater to land for biological treatment, the loading of BOD₅ should not exceed 100 lbs/acre•day (average) to prevent development of nuisance conditions. Since treatment in the CW will reduce the effluent BOD to 40 mg/L, the Discharger's application rate for BOD will be less than 1 lbs/acre•day and therefore should not create a nuisance condition.
36. Acidic soil conditions can be detrimental to land treatment system function, and may also cause groundwater degradation. If the buffering capacity of the soil is exceeded and soil pH decreases below 5, naturally occurring metals (including iron and manganese) may dissolve and degrade underlying groundwater. Near neutral pH is also required to maintain adequate active microbial populations in the soil.
37. Shock loadings of acidic or basic waste can interfere with the microorganisms responsible for oxidation of the organic waste constituents, and *Pollution Abatement* recommends that water applied to crops have a pH within 6.4 to 8.4 to protect crops from damage. Therefore, wastewater effluent limits include upper and lower limits on the pH.

BASIN PLAN, BENEFICIAL USES, AND REGULATORY CONSIDERATIONS

38. 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 (State Board). These requirements implement the Basin Plan.
39. Surface water drainage in the area is to Big Indian Creek, which is tributary to the Cosumnes River.
40. The beneficial uses of the Cosumnes River are municipal and domestic supply; agricultural supply for irrigation and stock watering; contact, canoeing, and non-contact recreation; warm and cold freshwater habitat; warm and cold water migration; warm and cold water spawning; and wildlife habitat.
41. The beneficial uses of underlying groundwater are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.
42. State Board Resolution No. 68-16 requires that the Regional Board, in regulating the discharge of waste, must maintain high quality 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 Board's policies (e.g., quality that exceeds water quality objectives).
43. The Regional Board has considered anti-degradation pursuant to State Board Resolution No. 68-16 and finds that this discharge of waste should not degrade surface water or groundwater quality. The waste will be treated and stored a double lined CW and storage pond, and will be applied to land at agronomic rates. This Order establishes effluent limitations that are protective of all beneficial uses of the underlying groundwater, requires a salinity source reduction study, and requires an annual inspection of the pond's liner.
44. Section 13267(b) of the California Water Code 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 No. R5-2002-0169" are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

45. Federal regulations for stormwater discharges were promulgated by the U.S. Environmental Protection Agency on 16 November 1990 (40 CFR Parts 122, 123, and 124). The regulations require specific categories of facilities which discharge stormwater associated with industrial activities to obtain NPDES permits. Villa Toscano Winery's operation has a Standard Industrial Classification Number of 2084 and therefore the Discharger is required to apply for a stormwater NPDES permit.
46. This discharge is exempt from the requirements of *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq., (hereafter Title 27). The exemption pursuant to Section 20090(b), is based on the following:
 - a. The Regional Board is issuing waste discharge requirements,
 - b. The discharge complies with the Basin Plan, and
 - c. The wastewater does not need to be managed according to Title 22 CCR, Division 4.5, and Chapter 11, as a hazardous waste.
47. Amador County approved a Negative Declaration for this project, dated 14 June 2002, in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.) and the State CEQA Guidelines. The project as approved by Amador County will not have a significant impact on water quality.
48. Pursuant to California Water Code Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

PUBLIC NOTICE

49. 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.
50. 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.
51. In a public meeting, all comments pertaining to the discharge were heard and considered.

IT IS HEREBY ORDERED that Jerry and Erika Wright and Villa Toscano Winery, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

[Note: Other prohibitions, conditions, definitions, and some methods 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 to surface waters or surface water drainage courses is prohibited.
2. The discharge shall not cause the degradation of any water supply.
3. Bypass or overflow of untreated or partially treated waste is prohibited.
4. Discharge of waste classified as 'hazardous,' defined in Section 20164 of Title 27, CCR, or 'designated,' as defined in Section 13173 of the California Water Code, is prohibited.
5. The discharge of toxic substances into the discharger's constructed wetland such that biological mechanisms are disturbed is prohibited.
6. The discharge of stillage wastes is prohibited.
7. The discharge of effluent from the storage pond other than to the land reclamation area identified in Finding No. 19 is prohibited.
8. The discharge of domestic waste to the winery wastewater treatment system is prohibited.
9. Only domestic wastewater shall be discharged to the domestic wastewater treatment system (septic system). The discharge of winery waste, including wastewater from equipment wash down or bottling, to septic systems is prohibited after 30 September 2002.
10. The discharge of seeds, stems, skin solids, or pumice to the 19-acre land reclamation area is prohibited.

B. Discharge Specifications:

1. The total *monthly* discharge of winery wastewater into the constructed wetlands shall not exceed 20,000 gallons per month, while the total *annual* discharge of winery wastewater into the constructed wetlands shall not exceed 80,000 gallons per year. These volumes do not include water recirculated into the wetlands from the storage pond.
2. Neither the treatment nor the discharge shall cause a nuisance or condition of pollution as defined by the California Water Code, Section 13050.

3. No waste 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 Limitation.
4. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the property owned by the Discharger.
5. As a means of discerning compliance with Discharge Specification No. 4, the dissolved oxygen content in the upper zone (1 foot) of all wastewater in the ponds shall not be less than 1.0 mg/l.
6. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge. In particular,
 - a. The Discharger shall conduct annual tracer tests on the constructed wetlands to determine the hydraulic conductivity and retention time.
 - b. The Discharger shall annually cut the vegetation and remove the plant litter from the constructed wetlands.
 - c. The Discharger shall evaluate the integrity of the liners on an annual basis, as described in the Monitoring and Reporting Program No. R5-2002-0169.
7. The CW shall be managed to prevent the breeding of mosquitoes.
8. The Discharger's wastewater treatment system and land disposal system shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
9. The Discharger shall comply with the following requirements for a double liner and leak detection system (LDS):
 - a. Double liners with LDS shall be installed to cover all natural geologic materials at the CW and storage pond that may come in contact with waste.
 - b. The LDS shall be installed between the inner and outer liner of a double liner system, and shall be designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of seepage from the CW and storage pond.
 - c. The LDS shall be designed, constructed, maintained, and operated to minimize the amount of head applied to the second liner. Seepage shall be removed and returned to the wastewater treatment system.
 - d. Discharges to the CW and storage pond shall be stopped in the event of any containment system failure, including liners, which causes a threat to water quality.
10. The freeboard in the CW and storage pond shall never be less than two feet as measured vertically from the water surface to the lowest point of overflow.

11. The CW and storage pond shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with the historical rainfall patterns.
12. On or about 15 October each year, available CW and storage pond capacity shall at least equal the volume necessary to comply with Discharge Specifications No. 10 and No. 11.

C. Effluent Limitations:

1. Effective **30 September 2002**, the discharge of effluent from the storage pond in excess of the following limits is prohibited:

<u>Parameter</u>	<u>30-day Average Limit</u>	<u>Daily Maximum Limit</u>
BOD ₅ ¹	40 mg/L	80 mg/L
Total Nitrogen	40 mg/L	

¹ 5-day 20° C Biochemical Oxygen Demand

2. The effluent from the CW which enters the storage pond shall not have a pH of less than 6.5 or greater than 8.5.
3. Effective **30 September 2002**, the maximum total nitrogen loading (from wastewater, fertilizers, and irrigation water) to the land reclamation areas shall not exceed the agronomic rate for plant available nitrogen (PAN) for the type of crop to be grown, as specified in the most recent edition of the Western Fertilizer Handbook. PAN shall be calculated as 100% of the total nitrogen content of the waste, unless and until the Discharger demonstrates that another proportion is technically justified, as described in Provision G.6.
4. Effective **30 September 2002**, the maximum BOD₅ loading to the land application area shall not exceed:
 - a. 300 lbs/acre on any single day;
 - b. 100 lbs/acre/day as a 7-day average; and;
 - c. The maximum loading rate that ensures that the discharge will not create a nuisance.
5. Effective **30 September 2002**, the maximum total dissolved solids loading from winery wastewater discharged to the land application area shall not exceed 2,400 lbs per year.

D. Reclamation Requirements:

1. The discharge shall be distributed uniformly on adequate acreage in compliance with the Discharge Specifications.
2. Crops shall be grown on the application area. Crops shall be selected based on nutrient uptake capacity, tolerance to high soil moisture conditions, and consumptive use of water and irrigation requirements. Cropping activities shall be sufficient to take up all the nitrogen applied. Any annual crop shall be harvested and removed from the application area.
3. Hydraulic loading of wastewater and irrigation water shall be at reasonable agronomic rates designed to minimize the percolation of process wastewater and irrigation water below the root zone (i.e., deep percolation).
4. Reclaimed wastewater conveyance lines shall be clearly marked as such. Reclaimed water controllers, valves, etc. shall be affixed with reclaimed water warning signs, and these and quick couplers and sprinkler heads shall be of a type, or secured in such a manner, that permits operation by authorized personnel only.
5. Public contact with reclaimed wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.
6. Areas irrigated with reclaimed water 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 and un-pressurized pipelines and ditches which are accessible to mosquitoes shall not be used to store reclaimed water.
7. Discharges to the land reclamation area shall be managed to minimize both erosion and runoff from the disposal area.
8. The Discharger may not discharge effluent to the vineyard 24 hours before predicted precipitation, during periods of precipitation, and for at least 24 hours after cessation of precipitation, or when soils are saturated.
9. A 50-foot buffer zone shall be maintained between any watercourse and the wetted area produced during drip irrigation used for effluent disposal.

10. A 100-foot buffer zone shall be maintained between any spring, domestic well or irrigation well and the wetted area produced during drip irrigation used for effluent disposal.
11. A 50-foot buffer zone shall be maintained between effluent disposal areas and all property boundaries.
12. The resulting effect of the wastewater discharge on the soil pH shall not exceed the buffering capacity of the soil profile.

E. Sludge Disposal:

1. Collected screenings, sludges, and other solids removed from winery wastewater shall be disposed of in a manner that is consistent with Title 27 and approved by the Executive Officer.
2. Sludge and other solids shall be removed from septic tank, CW, and storage pond as needed to ensure optimal operation and adequate hydraulic capacity. Drying operations shall take place as described in Finding No. 24 and shall be conducted in a manner such that leachate does not impact groundwater or surface water.
3. Any proposed change in sludge disposal from a previously approved practice (as described in these WDRs) shall be reported to this office at least 90 days in advance of the change.

F. Groundwater Limitations:

The discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality.

G. Provisions:

1. All of the following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared by registered professionals as described by Provision 7:
 - a. By **30 September 2002**, the Discharger shall submit a technical report proposing an engineered alternative to groundwater monitoring wells around the CW and storage pond. At a minimum, this alternative to the monitoring wells must describe a double liner and leak detection system for the CW and storage pond, and shall be designed to ensure that the potential for groundwater impacts are mitigated. The technical report shall include (a) a description of the liner installation for the CW and storage pond, (b) the selected liner material, thickness, subgrade preparation, level of care during construction, (c) the level of Construction Quality Assurance testing/documentation used for the liner installation, and (d) a determination of the maximum daily volume of seepage from the CW and storage pond produced by the finished product.

- b. By **1 October 2002**, the Discharger shall submit a Notice of Intent to seek coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 for Discharges of Storm Water Associated With Industrial Activities.
 - c. By **1 November 2002**, the Discharger shall submit and implement a workplan for a salinity reduction study. The study shall evaluate all aspects of winery waste and shall investigate methods to reduce the salinity of the waste which enters the constructed wetlands and/or the land reclamation area.
 - d. By **30 December 2002**, the Discharger shall submit and implement an Operation and Management Plan (O&M Plan) that addresses operation of the wastewater treatment and disposal facility. At a minimum, the O&M Plan will describe (a) the daily operation of the wastewater facility to prevent disposal of water with excessive BOD, total nitrogen, or total dissolved solids concentrations, (b) the daily operation and maintenance practices required to prevent odors and to maintain pH and dissolved oxygen values within the specified limitations in this Order, (c) tracer tests for determining hydraulic conductivity and retention time for the constructed wetlands, and (d) the locations where samples will be collected, freeboard measurements taken, and flow measurements taken.
 - e. By **30 December 2002**, the Discharger shall submit a report that documents that the constructed wetland, storage pond, and effluent disposal system have been retrofitted in a manner as described in this Order. The report shall also describe the location of the flow meter which will be used to determine compliance with the flow limitation of this Order, and shall include a description of the installation of the double liner/leachate collection system showing that the installation met the specifications in the approved workplan.
 - f. By **1 February 2003**, the Discharger shall submit a report showing that it has installed backflow prevention devices to protect irrigation wells from reclaimed water and has implemented all necessary procedures to secure control mechanisms and valves in a manner that permits operation by authorized winery personnel only. The report must also show that all pipelines, valves, wastewater storage areas, and wastewater disposal areas have been properly posted with "reclaimed water" warning labels or signs.
 - g. By **1 November 2003**, the Discharger shall submit a report describing how it has reduced the salinity of the waste which enters the CW or land reclamation area.
2. If monitoring data shows that wastewater in the storage pond contains pH concentrations less than 6.5 or greater than 8.5 standard units, then within **90 days** of receiving notification from the Executive Officer, the Discharger shall implement treatment and control measures that are capable of maintaining the pH within Effluent Limitations.
 3. If monitoring data shows that the reliability of the constructed wetlands or storage pond liners is compromised, then within **90 days** of receiving notification from the Executive Officer, the Discharger shall repair the liners.

4. The Discharger shall comply with the Monitoring and Reporting Program No. R5-2002-0169, 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. If the Discharger can demonstrate to the satisfaction of the Executive Officer that higher nitrogen loadings than that specified in Effluent Limitation No. C.3 will not cause or contribute to cause waste constituents to leach into and degrade underlying groundwater, or cause any other violation of the terms and conditions of this Order, then this Order may be reopened for consideration of revision of nitrogen loading limits. The demonstration shall include the submittal of a technical report that describes, at a minimum, the results of a field demonstration project conducted over the course of at least two years on similar soil types as those in the Designated Disposal Areas and using similar food processing wastewater as that described in the Findings. Any proposed field demonstration project will be regulated under the terms and conditions of separate waste discharge requirements. As such, at least 120 days prior to conducting the field demonstration project, the Discharger (and/or other reasonable party) must submit a complete Report of Waste Discharge for the proposed field demonstration project.
7. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for, 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.
8. In the event of any change in control or ownership of land or waste discharge facilities described herein, the Discharger shall 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.
9. The Discharger shall report to the 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."
10. The Discharger must comply with all conditions of this Order, including timely submittal of all technical reports and monitoring reports as directed by the Executive Officer. Violations

may result in enforcement action, including Regional Board orders, the imposition of civil liability, revision or rescission of this Order, or referral to the Attorney General.

11. The Discharger shall report promptly to the Board any material change or proposed change in the character, location, or volume of the discharge.
12. The Discharger shall manage the facility as required by the Standard Provision A.7, with particular attention paid to the effectiveness of the salinity control measures identified for implementation through Provision G. 1. c.
13. 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.
14. The Board will review this Order periodically and will revise requirements when necessary.

I, THOMAS R. PINKOS, Acting 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 6 September 2002.

THOMAS R. PINKOS, Acting Executive Officer