

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2012-0126

WASTE DISCHARGE REQUIREMENTS
FOR
VILLA TOSCANO INC.
VILLA TOSCANO WINERY
AMADOR COUNTY

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

1. On 3 May 2010, Villa Toscano, Inc. (hereafter "Discharger") submitted a Report of Waste Discharge (RWD) to apply for revised Waste Discharge Requirements (WDRs) to regulate treatment and land application of wastewater generated at the Villa Toscano Winery (the "Facility"). The Discharger submitted additional information to complete the RWD in February and May 2012.
2. Villa Toscano Inc. owns and operates the Facility and is responsible for compliance with the WDRs. The Jerry B and Erika Wright Living Trust owns the parcel where the Villa Toscano Winery is located.
3. Villa Toscano Winery is at 10600 Shenandoah Road, two miles northeast of the City of Plymouth (Section 36, T 8N, R10E, MDB&M). The Assessor's Parcel Number is 007-100-016-000. The facility location is shown on Attachment A, which is attached hereto and made part of this Order by reference.
4. WDRs Order R5-2002-0169, adopted by the Central Valley Water Board on 6 September 2002, prescribes requirements for treatment and disposal of wastewater at the Villa Toscano Winery. Order R5-2002-0169 allows a maximum flow of 20,000 gallons per month with an annual maximum of 80,000 gallons. However, the Discharger's operations have expanded, and flows routinely exceed this limit. The Discharger proposes to upgrade the wastewater treatment facility and requests to increase the flow limit to 400,000 gallons per year. This Order will rescind and replace Order R5-2002-0169.

Existing Facility and Discharge

5. The Facility currently processes approximately 200 tons of grapes per year. Operations at the Facility include grape crushing, fermentation, wine processing, and wine bottling and storage. The winery operations are conducted indoor or under covered areas.
6. The current wastewater treatment system consists of a 1,200-gallon septic tank used as a clarifier, a constructed wetland with a capacity of 22,000 gallons, a 142,000-gallon storage pond, and 23 acres of land application areas ("LAAs"). The LAAs consist of 19 acres of vineyards and four acres of horse pasture. The constructed wetland and the storage pond have double geosynthetic liners and leak detection systems.
7. Winery wastewater generated from tank cleaning, grape crushing, barrel washing, and equipment/floor cleaning is collected into floor drains and conveyed into the septic tank. The supernatant from the septic tank is treated in the constructed wetland. The treated

wastewater is discharged into the storage pond and then is applied to the LAAs via a drip irrigation system on the vineyards and sprinklers on the horse pasture. The solids from the constructed wetland are composted and used as a soil amendment on the vineyards.

8. The influent and effluent monitoring data for January 2009 through March 2012 are summarized below. The influent samples were collected prior to entering the constructed wetland and the effluent samples were collected from the storage pond.

Influent and Effluent Constituent Concentrations

<u>Constituent</u>	<u>Influent</u>			<u>Effluent</u>		
	<u>Minimum</u>	<u>Maximum</u>	<u>Average</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Average</u>
Biochemical Oxygen Demand (mg/L)	317	29,000	4,880	11	6,400	1,048
Total Dissolved Solids	--	--	--	415	2,770	1,130
Nitrate as N (mg/L)	--	--	--	<0.1	5.0	0.5
Total Kjeldahl Nitrogen (mg/L)	--	--	--	2.5	79	17
pH (Std.)	4.3	6.8	5.5	4.4	9.2	6.7

The average effluent BOD was much greater than the current effluent limitation of 40 mg/L as a 30-day average. The Discharger stated that the current treatment system does not work efficiently and some problems have occurred, including clogging, motor burning, and pond liner leaking. To solve these issues and to increase the treatment capacity, the Discharger proposed to improve the existing wastewater treatment facilities. This Order requires that the Discharger undertake these upgrades.

Planned Changes in the Facility and Discharge

9. The Discharger plans to accept grapes from nearby vineyards to increase wine production from the current 200 tons per year to 336 tons per year. The projected wastewater flow will be 400,000 gallons per year with a peak production of 6,300 gallons per day (gpd) and an annual average of 1,096 gpd.
10. Chemicals used for cleaning and sanitizing the equipment in wine processing are summarized as follows:

<u>Chemicals</u>	<u>Usage</u>	<u>Current Quantity</u>	<u>Proposed Quantity</u>
Potassium Hydroxide (50%)	Cross-flow filter	45 gal/year	76 gal/year
Hydrogen Peroxide (35%)	Cross-flow filter	4 gal/year	7 gal/year
Phosphoric Acid (75%)	Storage solution	4 gal/year	7 gal/year
Sodium Percarbonate	General cleaning	50 lbs/month	84 lbs/month
Citric Acid	General cleaning	25 lbs/month	42 lbs/month

11. The proposed wastewater treatment system is an activated sludge system. It will consist of an initial sump, a rotary screen, a 3,000-gallon flow equalization tank with a pH controller, two 5,000-gallon aeration tanks, a 12,000-gallon holding tank, and the 23-acre LAAs. Blowers will be installed in the equalization tank and aeration tanks. The proposed treatment system will have a treatment capacity of 6,000 gpd as a monthly average.

A site plan is shown on Attachment B, which is attached hereto and made part of this Order by reference.

12. The septic tank will not be used as a clarifier anymore and the constructed wetland and the storage pond will be eliminated. The liners in the wetland and the pond and pea gravel in the pond will remain in place. The storage pond and wetland will be cleaned up, backfilled and capped with onsite soils.
13. The process wastewater from drain inlets will be collected into an initial sump and then pumped through a rotary screen, where solids will be removed. The wastewater will be conveyed into the flow equalization tank, where potassium hydroxide will be added to maintain a pH of 4.2 to 7. From the equalization tank, the wastewater will flow into two aeration tanks in series and then will be stored in the holding tank prior to being applied to the LAAs. The first aeration tank will receive recycled sludge from the second aeration tank for microorganisms seeding. All the solids collected from the waste treatment process including seeds, stems, skin and solids will be composted and used as a soil amendment on the vineyards.
14. The treated wastewater will be applied to the LAAs by the existing drip irrigation system on the vineyards and the existing sprinkler system on the four-acre horse pasture. The LAAs do not have tailwater or runoff control structures, and are located on moderately sloped land. Drip irrigation systems typically do not produce tailwater, but sprinkler systems can. Tailwater runoff from LAAs with sprinkler systems can be prevented by carefully timing and monitoring of irrigation events to ensure that applied wastewater remains within the LAAs. The Discharger will apply the wastewater to the LAAs at rates that will prevent runoff leaving the LAAs. The wastewater treatment process schematic is shown on Attachment C, which is attached hereto and made part of this Order by reference.
15. The following table presents the average monthly flows from the facility from 2010 through 2011 and the projected future monthly wastewater flows. The highest flow rate occurs in August through November during the crush period.

<u>Month</u>	<u>Wastewater Influent Flow Rates</u>		
	<u>2010 (gal)</u>	<u>2011 (gal)</u>	<u>Projected Future (gal)</u>
January	50,800	61,800	51,620
February	28,400	63,800	26,560
March	28,700	28,000	18,830
April	14,900	6,400	23,880
May	21,100	28,000	13,450
June	28,200	0	18,660
July	16,000	24,280	23,540
August	9,200	23,320	72,130
September	16,900	53,500	33,630
October	45,500	31,100	47,410
November	18,300	15,540	34,970
December	51,000	6,660	35,310
Annual Total	329,000	278,500	400,000

16. Recently, influent flows in some months have exceeded the current flow limit of 20,000 gallons per month; and the annual flows in 2010 and 2011 exceeded the current annual flow limit of 80,000 gallons. The RWD did not describe how the excess wastewater was managed. However, an annual application of 400,000 gallons of wastewater over the 23 acres of LAAs equates to an annual application depth of 0.7 inches, which could be readily assimilated by the surface soils.
17. The RWD states that treated wastewater will supply approximately five percent of the annual crop irrigation demand. Each year, approximately 7.1 million gallons of supplemental irrigation water provided by the onsite supply wells are applied to the LAAs via irrigation systems. The supplemental irrigation water has an average TDS concentration of 186 mg/L based on the three sets of supply well monitoring data.
18. The proposed wastewater treatment and storage tank system will have a total capacity of 22,000 gallons, which is much less than the existing storage capacity of 162,000 gallons for the wetland and the storage pond. However, according to the water balance provided in the RWD, the proposed wastewater treatment and storage system and the LAAs will have enough storage and disposal capacity for the projected annual wastewater flows of 400,000 gallons. In addition, the Discharger proposes to haul away any excess wastewater for offsite disposal or storage when it is necessary in a manner compliant with all local, state and federal laws and regulations. Because of the limited storage and rainy season disposal capacity, this Order requires that the Discharger monitor wastewater flows and storage tank volume daily and demonstrate in the monitoring reports that all excess wastewater has been removed from the site for disposal at an appropriate permitted facility.
19. The Discharger did not propose a schedule for closure of the wetland and the pond or completion of the new wastewater treatment system. Therefore, this order requires the Discharger to submit an *Improvements Completion Report* that certifies completion of construction and start-up testing of the new wastewater treatment system and closure of the existing wetland and the storage pond.
20. The Discharger projected the treated wastewater quality and nutrient loading rates as follows:

Projected Treated Wastewater		
<u>Constituent</u>	<u>Average Concentration (mg/L)</u>	<u>Annual Loading Rates (lb/acre/year)</u>
Total Dissolved Solids	1,510	219
Biochemical Oxygen Demand	500	73
Total Nitrogen	22	3.2

Site-Specific Conditions

21. Based on supply well monitoring events from 2004 through 2009, the chemical character of the process water supply is summarized below.

<u>Sampling Date</u>	<u>Sampling Location</u>	<u>Process Water Supply</u>		
		<u>Total Dissolved Solids (mg/L)</u>	<u>Nitrate (mg/L)</u>	<u>Nitrite (mg/L)</u>
3/30/04	New Well	235	ND	ND
3/30/04	New Well	270	ND	ND
8/3/06	Winery Well	--	ND	ND
1/17/07	Winery Well	53	ND	ND
1/15/08	Winery Well	--	ND	ND
2/18/09	Winery Well	--	ND	ND
<u>Average</u>		186	--	--

ND=none detected

22. The winery site occupies approximately 40 acres. The topography of the site is described as rolling hills with elevations ranging from 1,320 to about 1,360 feet. The landscape around the parcel includes vineyards, scattered oak and other upland vegetation, grassland, and areas of riparian vegetation along Big Indian Creek. The LAAs contain two unnamed seasonal streams (see Attachment B).
23. All areas of the facilities are outside of the 100-year flood zone.
24. Surficial soils consist of loam to sandy loam, underlain by clay and sandy loam. According to the RWD, soil depths are often less than 15 feet.
25. Based on a boring log from an onsite supply well (approximately 330 feet below ground surface), igneous rock occurs below a depth of 20 feet, and water-bearing fractures occur in the rock from about 140 to 240 feet.
26. There are no groundwater monitoring wells onsite. It is estimated that the depth to first groundwater ranges from less than 1 foot to 21 feet below the ground surface.
27. The facility is within the Hydrologic Unit Area No. 532.21, as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.
28. Surrounding land uses are primarily agricultural.
29. Annual precipitation in the vicinity averages approximately 28 inches and the 100-year total annual precipitation is approximately 51 inches. The reference evapotranspiration rate is approximately 53 inches per year.
30. The domestic wastewater is discharged to septic and leachfield systems regulated by Amador County.

Basin Plan, Beneficial Uses, and Regulatory Considerations

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

32. Local drainage is Big Indian Creek, which is tributary to the Cosumnes River. The beneficial uses of Cosumnes River are municipal and domestic supply; agricultural irrigation and stock watering; contact, rafting, and other noncontact recreation; warm and cold freshwater habitat; migration for warm and cold water species; spawning for warm and cold water species; and wildlife habitat.
33. The beneficial uses of underlying groundwater as set forth in the Basin Plan are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.
34. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater. It also sets forth a numeric objective for total coliform organisms.
35. The Basin Plan's numeric water quality objective for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in MUN groundwater.
36. The Basin Plan's narrative water quality objectives for chemical constituents, at a minimum, requires waters designated as domestic or municipal supply to meet the Maximum Contaminant Levels (MCLs) specified in Title 22 of the California Code of Regulations (hereafter Title 22). The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.
37. The narrative toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, animal, plant, or aquatic life associated with designated beneficial uses.
38. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective.
39. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as *Water Quality for Agriculture* by Ayers and Westcot and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an electronic conductivity less than 700 $\mu\text{mhos/cm}$. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having electronic conductivity up to 3,000 $\mu\text{mhos/cm}$ if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.

Antidegradation Analysis

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

- a. The degradation is consistent with the maximum benefit to the people of the State.
 - b. The degradation will not unreasonably affect present and anticipated future beneficial uses.
 - c. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives, and
 - d. The Discharger employs best practicable treatment or control (BPTC) to minimize degradation.
41. Constituents of concern that have the potential to degrade groundwater include salts (primarily TDS), and nutrients, as discussed below:
- a. The Secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. The projected effluent TDS concentration of 1,500 mg/L exceeds the recommended Secondary MCL of 500 mg/L. However, the treated wastewater is only five percent of the annual crop irrigation demand; and the flow-weighted average TDS concentration of the wastewater and the supplemental irrigation water is 257 mg/L, which is less than the recommended Secondary MCL of 500 mg/L for TDS. The overall TDS loading rate for the wastewater and the supplemental irrigation water is 700 pounds per acre per year (lbs/ac/yr). The wastewater TDS loading rate of 219 lbs/ac/yr is 31 percent of the overall TDS loading rate. It is anticipated that cropping will take up approximately 700 to 1000 lbs/ac/yr of dissolved solids. Therefore, the discharge is not likely to degrade groundwater quality for TDS. This Order includes a performance-based effluent limitation of 1,500 mg/L for TDS as an annual average.
 - b. For nutrients such as nitrate, the potential for unreasonable degradation depends not only on the quality of the treated effluent, but the ability of the vadose zone underneath the LAAs to provide an environment conducive to nitrification and denitrification to convert the effluent nitrogen to nitrate and the nitrate to nitrogen gas before it reaches the water table. The projected effluent total nitrogen concentration of 22 mg/L is greater than the secondary MCL of 10 mg/L for nitrate. However, the projected nitrogen loading rate of 3.2 lb/ac/yr is much less than the crop demand. Based on information obtained from *Western Fertilizer Handbook*, grapes and pasture crops take up at least 126 lbs/ac/yr and 320 lbs/ac/yr of nitrogen, respectively. Additional nitrogen fertilizer will be required to support crop health. Therefore, the discharge is not likely to degrade groundwater quality for nitrogen. This Order does not allow the total nitrogen mass loading to the LAAs exceed the agronomic rate for the crop grown.
 - c. Excessive application of food processing wastewater to land application areas can create objectionable odors (a possible nuisance condition), soil conditions that are harmful to crops, and degrade the 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. 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. 625/3-77-007C) (hereafter *Pollution Abatement*), cites BOD

loading rates for irrigation purposes in the range of 36 to 100 pounds per acre per day (lbs/ac/day). The projected average BOD loading rate of 0.2 lbs/ac/day is significantly less than the published design range and will not cause adverse conditions or odors.

42. Based on the projected treated wastewater quality and waste constituent loading rates, the proposed discharge will not degrade groundwater for the constituents of concern: TDS, nitrogen and BOD. This Order is in compliance with Resolution 68-16 because the discharge of low-strength wastewater authorized by this Order is not expected to degrade groundwater. Minor localized degradation may have occurred in the past as a result of the problems associated with the current treatment system described in Finding 8, however, this Order requires that this treatment system be replaced as the Discharger has proposed.

Other Regulatory Considerations

43. Based on the threat and complexity of the discharge, the facility is determined to be classified as 2B as defined below:
- a. Category 2 threat to water quality, defined as, "Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."
 - b. Category B complexity, defined as, "Any discharger not included [as Category A] that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal) or any Class 2 or Class 3 waste management units."
44. Title 27 of the California Code of Regulations (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to provisions that exempt domestic sewage, wastewater, and reuse. Title 27, section 20090 states, in part:

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

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

- (1) the applicable RWQCB has issued WDRs, reclamation requirements, or waived such issuance;
- (2) the discharge is in compliance with the applicable water quality control plan; and
- (3) the wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

(i) Fully Enclosed Units - Waste treatment in fully enclosed facilities, such as tanks, or in concrete-lined facilities of limited areal extent, such as oil-water separators designed, constructed, and operated according to American Petroleum Institute specifications.

45. The discharge authorized herein, and the treatment and storage facilities associated with the discharge, are exempt from the requirements of Title 27 as follows:
 - a. The treatment tanks are exempt pursuant to 20090 (i).
 - b. The LAAs are exempt pursuant to Title 27, section 20090(b) because:
 - i. The Central Valley Water Board is issuing WDRs.
 - ii. The discharge is in compliance with the Basin Plan, and;
 - iii. The treated effluent discharged to the LAAs does not need to be managed as hazardous waste.
46. Although the facility is exempt from Title 27, the statistical data analysis methods of Title 27, section 20415(e) are appropriate for determining whether the discharge complies with Groundwater Limitations specified in this Order.
47. The State Water Board adopted Order 97-03-DWQ (NPDES General Permit CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. The Discharger uses outdoor processing areas that have the potential to contribute pollutants to storm water runoff from the winery. Therefore, the Discharger is required to apply for coverage under the NPDES General Permit for Discharges of Storm Water Associated with Industrial Activities.

48. 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 discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

The technical reports required by this Order and the attached Monitoring and Reporting Program R5-2012-0126 (MRP) are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

49. Flows at the Villa Toscano Winery have already increased, and portions of the treatment system must be upgraded to handle the increased flows. This Order will impose additional requirements to ensure that water quality is not degraded as a result of the discharges authorized by this Order. To the extent that this Order requires reconstruction of portions of the Villa Toscano Winery's treatment system, this action is exempt from the requirements of the California Environmental Quality Act (CEQA) pursuant to California Code of Regulations, title 14, section 15302 (c). The discharges to the 23-acre LAAs are ongoing, and this Order imposes requirements to ensure that these discharges will not

degrade groundwater. Therefore, authorizing the continued discharge to the LAAs is exempt from CEQA pursuant to California Code of Regulations, title 14, section 15301.

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

Public Notice

51. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.
52. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
53. All comments pertaining to the discharge were heard and considered in a public hearing.

IT IS HEREBY ORDERED that Order R5-2002-0169 is rescinded except for the purpose of enforcement, and pursuant to Water Code sections 13263 and 13267, Villa Toscano Inc., its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted hereunder, shall comply with the following:

[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. **Effective 30 May 2013**, discharge of process wastewater to the constructed wetlands and wastewater storage pond is prohibited. As of that date, all process wastewater shall be treated using the system described in Findings 11 through 14 prior to discharge to the LAAs.
2. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
3. Discharge of waste classified as 'hazardous', as defined in the California Code of Regulations, title 23, section 2510 et seq., is prohibited.
4. Discharge of waste classified as 'designated', as defined in Water Code section 13173, is prohibited.
5. Treatment system bypass of untreated or partially treated waste is prohibited, except as allowed by Standard Provision E.2 of the Standard Provisions and Reporting Requirements for Waste Discharge Requirements.
6. Discharge of waste at a location or in a manner different from that described in the Findings is prohibited.
7. Discharge of toxic substances into the wastewater treatment system or land application areas such that biological treatment mechanisms are disrupted is prohibited.
8. Discharge of winery wastewater to the domestic septic system is prohibited.

- Discharge of domestic wastewater to the process wastewater tanks, land application areas or any surface waters is prohibited.

B. Flow Limitations

Wastewater flows applied to the LAAs shall not exceed the limits specified in the following table.

<u>Flow Measurement</u>	<u>Flow Limit</u>
Total Annual Flow ¹	400,000 gallons per year
Maximum Daily Flow	6,300 gpd
Average Daily Flow ²	6,000 gpd

¹ Based on the total flow for the calendar year (January through December).

² Based on the total flow for the calendar month divided by the number of days in the month.

Any wastewater generated in excess of the flow limitations above shall be disposed of at an appropriately permitted off-site facility.

C. Effluent Limitations

- Effluent discharged to the LAAs shall not exceed the following limits:

<u>Constituent</u>	<u>Units</u>	<u>Annual Average</u>
Total Dissolved Solids	mg/L	1,500 ¹

¹ Flow-weighted, based on calendar year.

Compliance with this requirement shall be determined using the following formula:

$$C = \frac{\sum_{i=1}^{12} C_i V_i}{\sum_{i=1}^{12} V_i}$$

Where C = flow-weighted annual average TDS;

C_i = TDS concentration in month *i* in mg/L;

V_i = volume of wastewater applied during calendar month *i* in million gallons;

i = the number of the month (i.e., January = 1, February = 2, etc.).

- Wastewater discharged to the LAAs shall not have a pH of less than 6.5 or greater than 8.5.

D. Mass Loading Limitations

1. The total nitrogen mass loading to the LAAs shall not exceed the agronomic rate for the crop grown. Compliance with this requirement shall be determined using published nitrogen uptake rates for the vegetation/crops grown and the following formula:

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

M = mass of nitrogen applied in lbs/ac/yr

C_i = concentration of total nitrogen in month i in mg/L

V_i = volume of wastewater applied during calendar month i in million gallons

A = the area of the LAAs in acres

i = the number of the month (e.g., January = 1, February = 2, etc.)

M_x = nitrogen mass from other sources (e.g., fertilizer and compost) in pounds

8.345 = unit conversion factor

2. The maximum BOD₅ mass loading to each LAA shall not exceed any of the following:
 - a. 100 lbs/acre on any single day;
 - b. The maximum loading rate that ensures that the discharge will not create a nuisance.

Compliance with this requirement shall be determined using the following formula:

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

M = mass of BOD applied in lbs/ac/day

C = concentration of BOD in mg/L (using data from the latest monthly result)

V = volume of wastewater applied in millions of gallons

A = the area of the LAAs in acres

8.345 = unit conversion factor

E. Groundwater Limitations:

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

1. Contain waste constituents in concentrations statistically greater than background groundwater quality.
2. Exceed a total coliform organism level of 2.2 MPN/100mL as a 7-day median.
3. Exhibit a pH of less than 6.5 or greater than 8.4 pH units.
4. Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.

F. Discharge Specifications:

1. No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations of this Order.
2. The discharge shall not cause degradation of any water supply.
3. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
4. The discharge shall remain within the permitted waste treatment/containment structures and land application areas at all times.
5. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.
6. All conveyance, treatment, storage, and disposal systems shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
7. Objectionable odors shall not be perceivable beyond the limits of the property at an intensity that creates or threatens to create nuisance conditions.
8. As a means of discerning compliance with Discharge Specification No.7, the dissolved oxygen (DO) content in any open-top wastewater tank shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If the DO in any single tank is below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Central Valley Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.
9. The Discharger shall operate and maintain all tanks sufficiently to protect the integrity and prevent overtopping and/or structural failure.
10. The treatment, storage, and disposal ponds or structures shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration during the winter while ensuring continuous compliance with all requirements of this Order. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
11. On or about **1 October** of each year, available capacity shall at least equal the volume necessary to comply with Discharge Specifications F.9 and F.10.
12. Composting or storage of pomace and/or diatomaceous earth on areas not equipped with means to prevent leachate infiltration is prohibited.

G. Land Application Area Specifications

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

2. Wastewater shall not be discharged to the LAAs in a manner that causes wastewater to stand or pond.
3. Any irrigation runoff shall be confined to the LAAs and shall not enter any surface water drainage course or storm water drainage system.
4. Discharge of process wastewater to land overlying septic system leach lines or seepage pits is prohibited.
5. Irrigation of effluent to the LAAs shall not be performed during precipitation, within 24 hours after any measurable precipitation event, or when the ground is saturated.
6. Application of effluent shall comply with the following setback requirements:

<u>Setback Definition</u> ¹	<u>Minimum Irrigation Setback (feet)</u>
Edge of LAAs to property boundary	50
Edge of LAAs to public road	50
Edge of horse pasture LAA to irrigation well	50
Edge of vineyard LAAs to irrigation well	0
Edge of LAAs to domestic well	100
Edge of horse pasture LAA to manmade or natural surface water drainage course ² or spring	50
Edge of vineyard LAAs to manmade or natural surface water drainage course ² or spring	25

^{1.} As defined by the wetted area produced during irrigation.

^{2.} Excluding ditches used exclusively for tailwater return and drainages that do not discharge to surface waters.

H. Solids/Sludge Disposal Specifications

1. Sludge, as used in this document, means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screenings generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the wastewater treatment facility.
2. Sludge and solid waste shall be removed from screens, sumps, ponds, and clarifiers as needed to ensure optimal plant operation.
3. Any handling and storage of residual sludge and solid waste at the wastewater treatment facility shall be temporary (i.e., no longer than two years) and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order.
4. Residual sludge and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27, division 2. Removal for further treatment,

disposal, or reuse at disposal sites (i.e., landfills, wastewater treatment facilities, composting sites, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy this specification.

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

I. Provisions:

1. The following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared as described in Provision I.3.
 - a. By **1 March 2013**, the Discharger shall submit a copy of the Notice of Intent submitted to the State Water Resources Control Board to apply for coverage under WQO No. 97-03-DWQ, *Discharges of Storm Water Associated with Industrial Activities*.
 - b. By **30 May 2013**, the Discharger shall submit an *Improvements Completion Report* that certifies completion of construction and start-up testing of the new wastewater treatment system and closure of the existing wetland and the storage pond as described in the findings. The report shall include as-built drawings of the new wastewater treatment system.

This Order prohibits irrigation runoff from entering any surface water drainage course, and contains setback requirements as described in section G. (Land Application Area Specifications). Therefore, the *Improvements Completion Report* shall also describe how the setbacks will be met and the specific structural and /or operational methods that will be used to prevent tailwater in the horse pasture and the vineyards from entering the creeks.

2. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Central Valley Water Board by **31 January**.
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 for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall bear the professional's signature and stamp.
4. The Discharger shall submit the technical reports and work plans required by this Order for consideration by the Executive Officer, and incorporate comments the Executive Officer may have in a timely manner, as appropriate. Unless expressly stated otherwise

in this Order, the Discharger shall proceed with all work required by the foregoing provisions by the due dates specified.

5. The Discharger shall comply with Monitoring and Reporting Program R5-2012-0126, which is part of this Order, and any revisions thereto as ordered by the Executive Officer. The submittal dates of Discharger self-monitoring reports shall be no later than the submittal date specified in the MRP.
6. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."
7. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports. On or before each report due date, the Discharger shall submit the specified document to the Central Valley Water Board or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharger shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
8. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger only when the operation is necessary to achieve compliance with the conditions of this Order.
9. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this Order.
10. As described in the Standard Provisions, the Discharger shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.
11. 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."
12. The Discharger shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal systems in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

13. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or reclamation areas, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.
14. In the event of any change in control or ownership of the facility, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.
15. 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 CWC. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.
16. A copy of this Order including the MRP, Information Sheet, Attachments, and Standard Provisions, shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
17. 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.

WASTE DISCHARGE REQUIREMENTS ORDER R5-2012-0126
VILLA TOSCANO INC.
VILLA TOSCANO WINERY
AMADOR COUNTY

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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 7 December 2012.

Original signed by

PAMELA C. CREEDON, Executive Officer

LF: 10/30/12

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2012-0126

FOR
VILLA TOSCANO INC.
VILLA TOSCANO WINERY
AMADOR COUNTY

This monitoring and reporting program (MRP) presents requirements for monitoring of the winery wastewater and vineyard irrigation. 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.

Specific sampling station locations shall be approved by Central Valley Water Board staff shall approve specific sampling locations prior to any sampling activities. 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.

Field test instruments (such as those used to measure 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 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.

FLOW MONITORING

The Discharger shall monitor wastewater flows as follows:

<u>Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
Prior to Completion of the New Wastewater Treatment System:				
Influent flow to septic tank	gpd	Meter Observation	Daily	Monthly
Effluent flow to each vineyard LAA	gpd	Meter Observation	Daily	Monthly
Effluent flow to pasture LAA	gpd	Meter Observation	Daily	Monthly
Effluent removed from site for off-site disposal	gpd	Meter Observation	Daily	Monthly
Wastewater volume in holding tank	gallons	Sight Gauge Observation	Daily	Monthly

<u>Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
After Completion of the New Wastewater Treatment System:				
Effluent flow to each vineyard LAA	gpd	Meter Observation	Daily	Monthly
Effluent flow to pasture LAA	gpd	Meter Observation	Daily	Monthly
Effluent removed from site for off-site disposal	gpd	Meter Observation	Daily	Monthly
Total effluent flow to the LAAs	gpd	Meter Observation	Daily	Monthly
Wastewater volume in holding tank	gallons	Sight Gauge Observation	Daily	Monthly

INFLUENT MONITORING

Winery wastewater samples shall be collected prior to entering the flow equalization (septic) tank. Influent monitoring shall include, at a minimum, the following:

<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
pH	pH units	Grab	Weekly	Monthly
BOD ₅ ¹	mg/L	Grab	Monthly	Monthly

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

EFFLUENT MONITORING

Effluent samples shall be representative of the treated wastewater prior to discharge to the land application areas. Samples shall be collected from an established sampling station downstream of the holding tank. At a minimum, effluent monitoring shall include the following:

<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
pH	pH units	Grab	Weekly	Monthly
Dissolved oxygen	mg/L	Grab	Weekly	Monthly
BOD ₅ ¹	mg/L	Grab	Monthly	Monthly
Total nitrogen	mg/L	Grab	Monthly	Monthly
Total dissolved solids	mg/L	Grab	Monthly	Monthly
Electrical conductivity	umhos/cm	Grab	Monthly	Monthly

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

LAND APPLICATION AREA MONITORING

The Discharger shall monitor the wastewater discharged to the land application areas. Monitoring shall be conducted daily (when wastewater is discharged) and the results shall be included in the monthly monitoring report. Evidence of erosion, field saturation, runoff, and the presence of nuisance conditions shall be noted in the report. Calculations shall be used to ascertain loading rates in the land application areas. Monitoring of the land application areas shall include, at a minimum, the following:

<u>Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Supplemental irrigation water applied to each LAA	Gallons	Meter Observation	Daily	Monthly
Rainfall ¹	Inches	Measurement	Daily	Monthly
Acreage applied ²	Acres	Calculated	Daily	Monthly
Wastewater application rate	gal/acre/day	Calculated	Daily	Monthly
Total nitrogen loading rate ³	lbs/acre/month	Calculated	Monthly	Monthly
Total dissolved solids loading rate from winery wastewater	lbs/acre/month	Calculated	Monthly	Monthly
BOD ₅ loading rate ⁴	lbs/acre/day	Calculated	Daily	Monthly
Tailwater runoff ⁵	NA	Observation	Daily	Monthly

¹ Rainfall data shall be obtained from a public weather station nearest the facility that measures daily precipitation.

² Land Application Area(s) in use shall be identified by name or number and the acreage provided. If a portion of an area is used, then the acreage shall be estimated.

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

⁴ Calculate the daily application rate, based on the most recent BOD effluent results.

⁵ When wastewater is being applied to the land application areas, the entire application area shall be inspected **daily** to identify any equipment malfunction or other circumstance that might allow irrigation runoff to leave the area and/or create ponding conditions that violate the Waste Discharge Requirements.

A log of these inspections shall be kept at the facility and be submitted with the monthly monitoring reports. If wastewater was not applied to the land application area, then the monthly monitoring reports shall so state.

SOLIDS MONITORING

The Discharger shall monitor the solid waste generated and disposed of on a monthly basis. Solid waste monitoring only relates to winemaking/processing activities. The following shall be monitored and reported:

1. Amount of solids generated. Solids may include pomace, seeds, stems, diatomaceous earth, screening, and sump/clarifier solids, or other material.
2. Storage for all solids waste streams. Describe the location of storage and measures implemented to prevent leachate generation or control and disposal of any leachate

that is generated.

3. Disposal of all solid waste streams. Describe the disposal method (e.g. animal feed, land application, off-site composting, landfill, etc.), the amount disposed (tons), and the name of the hauling company.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent 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.

A. Monthly Monitoring Reports

Monthly reports shall be submitted to the Regional Board by the **1st day of the second month** following the end of the reporting period (i.e. the September monthly report is due by 1 November). The monthly reports shall include the following:

1. Whether the new treatment system is in use and date of startup;
2. Results of flow, influent, effluent, land application area and solids monitoring;
3. Average daily flow and maximum daily flow based on daily total effluent flows for the calendar month;
4. The volume of wastewater transported offsite for disposal; the name and contact information for the hauler and the disposal facility; and copies of receipts for each load transported that clearly show the date, and volume received by the disposal facility;
5. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements. Data shall be presented in tabular format;
6. Calculation of a) Flow-weighted effluent TDS concentration to date; b) Total nitrogen loading to each LAA to date; c) BOD mass loading for each LAA for each day that wastewater was applied; d) total annual wastewater flow to each LAA to date;
7. Copies of laboratory analytical report(s);
8. A calibration log verifying calibration of all hand held monitoring instruments and devices used to comply with the prescribed monitoring program;
9. The amount of solids which have been hauled offsite and the location hauled to.

B. Annual Report

In addition to the monthly reports, a stand-alone annual report shall be prepared. The Annual Report shall be submitted to the Central Valley Water Board by **1 February** each year. 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 total loading rates for wastewater and supplemental irrigation water (hydraulic loading in gallons and inches), BOD, total nitrogen, and total dissolved solids;
3. Comparison of the total annual nitrogen mass loading in lb/ac/yr to published agronomic rates for the crop grown.
4. The effluent TDS concentration as an annual flow-weighted average and comparison to the effluent TDS limit of the WDRs;
5. The maximum daily flow and total annual wastewater flow (million gallons) and comparison to the flow limits of the WDRs;
6. 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);
7. An evaluation of the performance of the wastewater treatment system, as well as a forecast of the flows anticipated in the next year;
8. An evaluation of the integrity of the wastewater treatment and storage system;
9. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements; and
10. 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

7 December 2012

(Date)

LF: 10/31/12

INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS ORDER R5-2012-0126
VILLA TOSCANO INC.
VILLA TOSCANO WINERY
AMADOR COUNTY

Background

Villa Toscano Winery is at 10600 Shenandoah Road, two miles northeast of the City of Plymouth, as shown on Attachment A. The winery site occupies approximately 40 acres. The winery currently processes approximately 200 tons of grapes per year. Operations at the winery include grape crushing, fermentation, wine processing, and wine bottling and storage. The wastewater generated from the winery is discharged into onsite land application areas ("LAAs").

WDRs Order R5-2002-0169, adopted by the Central Valley Water Board on 6 September 2002, prescribes requirements for treatment and disposal of wastewater at Villa Toscano Winery. The Discharger proposes to upgrade the wastewater treatment facility and requests a flow limit increase to 400,000 gallons per year, which reflects the increased flows that have resulted from the Discharger's expanded operations. Order R5-2002-0169 will be rescinded and replaced with this Order.

The current wastewater treatment system consists of a 1,200-gallon septic tank used as a clarifier, a constructed wetland with a capacity of 22,000 gallons, a 142,000-gallon storage pond and 23 acres of LAAs. The LAAs consist of 19 acres of vineyards and four acres of horse pasture. The constructed wetland and the storage pond have double geosynthetic liners and leak detection systems. The supernatant from the septic tank is treated in the constructed wetland and then is discharged into the storage pond prior to land application. There are no groundwater monitoring wells onsite. It is estimated that the depth to groundwater ranges from less than 1 foot to 21 feet below the ground surface.

The annual wastewater influent flows were 329,000 gallons in 2010 and 278,500 gallons in 2011, which exceeds the total annual flow limit of WDRs Order R5-2002-0169.

The influent and effluent monitoring data for January 2009 through March 2012 are summarized below. The influent samples were collected prior to entering the constructed wetland and the effluent samples were collected from the storage pond.

Influent and Effluent Constituent Concentrations

<u>Constituent</u>	<u>Influent</u>			<u>Effluent</u>		
	<u>Minimum</u>	<u>Maximum</u>	<u>Average</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Average</u>
Biochemical Oxygen Demand (mg/L)	317	29,000	4,880	11	6,400	1,048
Total Dissolved Solids	--	--	--	415	2,770	1,130
Nitrate as N (mg/L)	--	--	--	<0.1	5.0	0.5
Total Kjeldahl Nitrogen (mg/L)	--	--	--	2.5	79	17
pH (Std.)	4.3	6.8	5.5	4.4	9.2	6.7

The average effluent BOD was much greater than the current effluent limitation of 40 mg/L as a 30-day average. The Discharger stated that the current treatment system does not work efficiently and some problems have occurred, including clogging, motor burning, and pond liner leaking. To solve these issues and to increase the treatment capacity, the Discharger proposed to improve the existing wastewater treatment facilities.

Planned Changes in the Facility and Discharge

The Discharger plans to accept grapes from nearby vineyards to increase wine production from the current 200 tons per year to 336 tons per year. The projected wastewater flow will be 400,000 gallons per year with a peak production of 6,300 gallons per day (gpd) and an annual average of 1,096 gpd.

The proposed wastewater treatment system is an activated sludge system. It will consist of an initial sump, a rotary screen, a 3,000-gallon flow equalization tank with a pH controller, two 5,000-gallon aeration tanks, and a 12,000-gallon holding tank and the 23-acre LAAs. Blowers will be installed in the equalization tank and aeration tanks. The proposed treatment system will have a treatment capacity of 6,000 gpd as a monthly average. The Discharger requests to increase the flow limit to 400,000 gallons per year. A site plan is shown on Attachment B.

The septic tank will not be used as a clarifier anymore and the constructed wetland and the storage pond will be eliminated. The liners in the wetland and the pond and pea gravel in the pond will remain in place. The storage pond and wetland will be cleaned up, backfilled and capped with onsite soils.

The process wastewater from drain inlets will be collected into an initial sump, where it is then pumped through a rotary screen where solids will be removed. The wastewater will be conveyed into the flow equalization tank, where potassium hydroxide will be added to maintain a pH of 4.2 to 7. From the equalization tank, the wastewater will flow into two aeration tanks in series and then will be stored in the holding tank prior to being applied to the LAAs. The first aeration tank will receive recycled sludge from the second aeration tank for microorganisms seeding. All the solids collected from the waste treatment process including seeds, stems, skin and solids will be composted and used as a soil amendment on the vineyards. The treated wastewater will be applied to the LAAs by the existing drip irrigation system on the vineyards and the existing sprinkler system on the horse pasture.

The LAAs do not have tailwater or runoff control structures, and are located on moderately sloped land. Drip irrigation systems typically do not produce tailwater, but sprinkler systems can. Tailwater runoff from LAAs with sprinkler systems can be prevented by carefully timing and monitoring of irrigation events to ensure that applied wastewater remains within the LAAs. The Discharger will apply the wastewater to the LAAs at rates that will prevent runoff leaving the LAAs. The wastewater treatment process schematic is shown on Attachment C.

The annual application of 400,000 gallons of wastewater over the 23-acre LAAs, equates to an annual application depth of 0.7 inches. The RWD states that treated wastewater will supply approximately five percent of the annual crop irrigation demand. Each year, approximately 7.1 million gallons of supplemental irrigation water provided by the onsite supply wells are applied to the LAAs via irrigation systems. The supplemental irrigation water has an average TDS concentration of 186 mg/L based on the three sets of supply well monitoring data.

The Discharger projected the treated wastewater quality and nutrient loading rates as follows:

<u>Constituent</u>	<u>Projected Treated Wastewater</u>	
	<u>Average Concentration (mg/L)</u>	<u>Annual Loading Rates (lb/acre/year)</u>
Total Dissolved Solids	1,510	219
Biochemical Oxygen Demand	500	73
Total Nitrogen	22	3.2

The projected effluent TDS concentration of 1,500 mg/L exceeds the recommended Secondary MCL of 500 mg/L. However, the treated wastewater is only five percent of the annual crop irrigation demand; and the flow-weighted average TDS concentration of the wastewater and the supplemental irrigation water is 257 mg/L, which is less than the Secondary MCL of 500 mg/L for TDS. The overall TDS loading rate for the wastewater and the supplemental irrigation water is 700 pounds per acre per year (lbs/ac/yr). The wastewater TDS loading rate of 219 lbs/ac/yr is 31 percent of the overall TDS loading rate. It is anticipated that cropping will take up approximately 700 to 1000 lbs/ac/yr of dissolved solids. Therefore, the discharge is not likely to degrade groundwater quality for TDS. This Order includes a performance-based effluent limitation of 1,500 mg/L for TDS as an annual average.

The projected effluent total nitrogen concentration of 22 mg/L is greater than the secondary MCL of 10 mg/L for nitrate. However, the projected nitrogen loading rate of 3.2 lb/ac/yr is much less than the crop demand. Based on information obtained from *Western Fertilizer Handbook*, grapes and pasture crops take up at least 126 lbs/ac/yr and 320 lbs/ac/yr of nitrogen, respectively. Additional nitrogen fertilizer will be required to support crop health. Therefore, the discharge is not likely to degrade groundwater quality for nitrogen. This Order does not allow the total nitrogen mass loading to the LAAs exceed the agronomic rate for the crop grown.

Discharge Prohibitions, Specifications and Provisions

Wastewater flows applied to the LAAs shall not exceed the limits specified in the following table. Any wastewater generated in excess of the flow limitations above shall be disposed of at an appropriately permitted off-site facility.

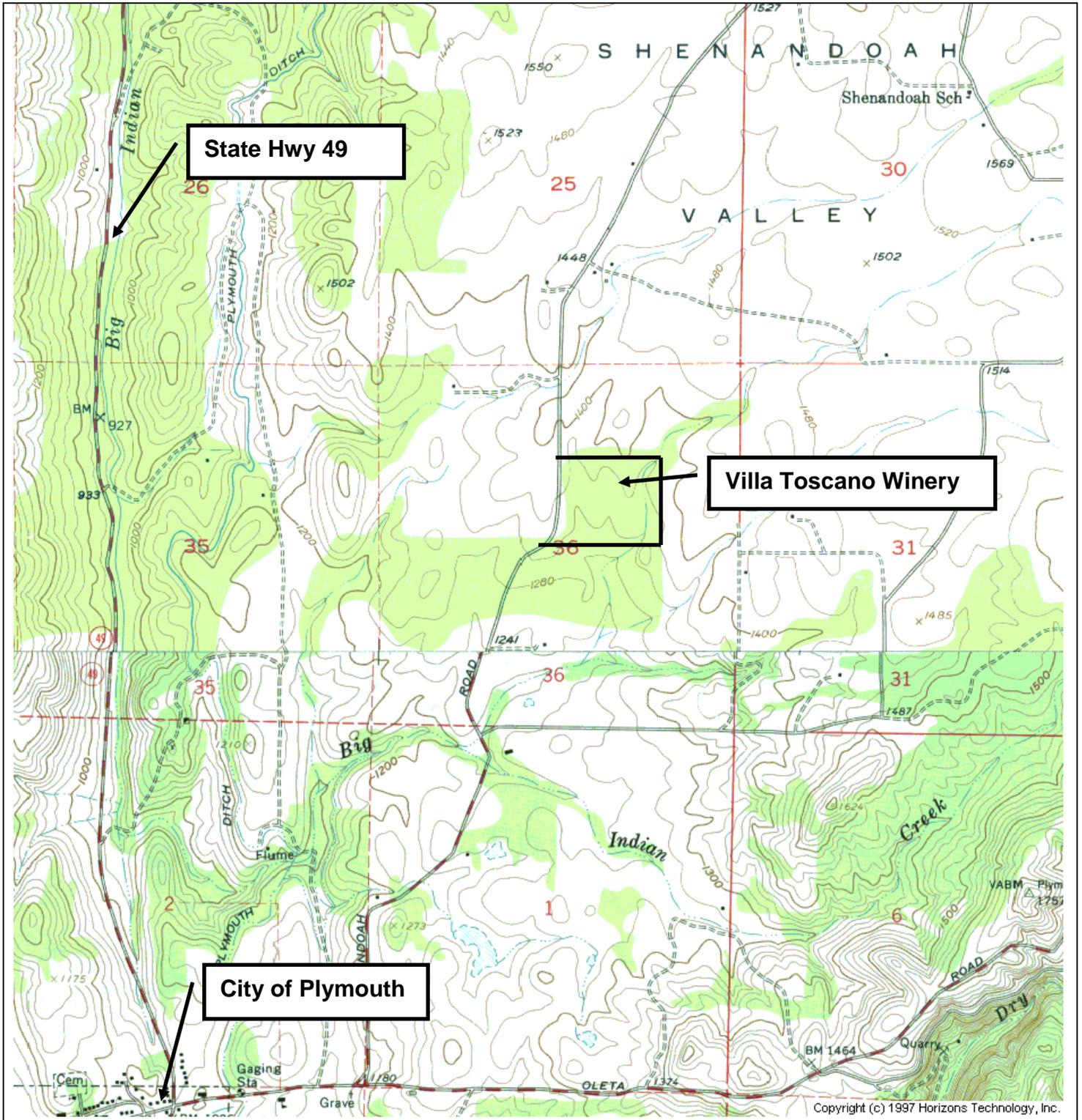
<u>Flow Measurement</u>	<u>Flow Limit</u>
Total Annual Flow ¹	400,000 gallons per year
Maximum Daily Flow	6,300 gpd
Average Daily Flow ²	6,000 gpd

1 Based on total flows during the calendar year (January through December).

2 Based on total flows for the calendar month divided by the number of days in the month.

The Provisions require that the proposed improvements be completed, as well as the submittal of *Improvements Completion Report* and a Notice of Intent for coverage under WQO No. 97-03-DWQ.

The Monitoring and Reporting Program is designed to verify compliance with flow limits, effluent limitations, and operational requirements of the WDRs.

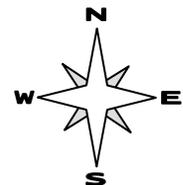


Drawing Reference:

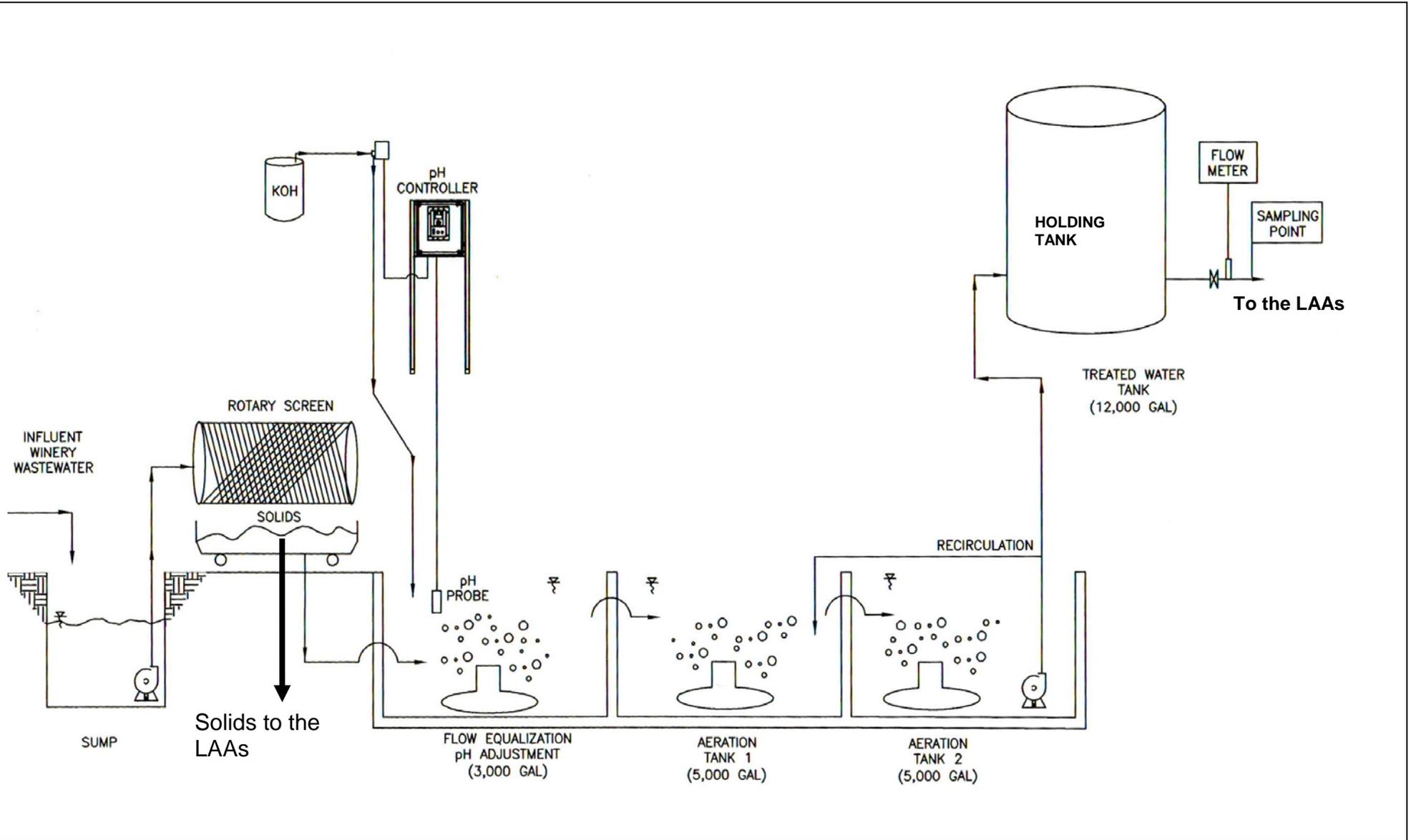
U.S.G.S
Fiddletown 7.5' Quadrangle

SITE PLAN

VILLA TOSCANO, INC.
VILLA TOSCANO WINERY
AMADOR COUNTY



Approximate Scale
1 inch = 2000 ft



Drawing Reference:
Villa Toscano Winery
Report of Waste Discharge Supplement
February 2012

PROPOSED PROCESS SCHEMATIC
VILLA TOSCANO, INC.
VILLA TOSCANO WINERY
AMADOR COUNTY