

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2003-0179

WASTE DISCHARGE REQUIREMENTS  
FOR  
VAN RUITEN - TAYLOR RANCH LTD.  
VAN RUITEN - TAYLOR WINERY LLC  
SAN JOAQUIN COUNTY

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

1. Van Ruiten – Taylor Ranch Ltd. dba Van Ruiten – Taylor Winery LLC (hereafter Discharger) submitted a Report of Waste Discharge (RWD) dated 4 March 2002 for the treatment and disposal of winery waste. Additional information was submitted on 12 June 2002, 24 July 2002, and 16 January 2003.
2. The Discharger’s winery and tasting facility is at 340 West Highway 12, Lodi (Assessors Parcel No. 058-020-05) in Section 16, T3N, R6E, MDB&M. The location of the winery is presented on Attachment A, which is attached hereto and made part of this Order by reference.

**BACKGROUND**

3. The Discharger developed the 200-acre winery and vineyard in 2000. Buildings at the facility consist of a 4,000 square foot winery and a 1,200 square foot tasting room.
4. The Discharger will process approximately 800 to 900 tons of grapes annually to produce approximately 60,000 cases of wine (approximately 144,000 gallons of wine).
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>
Citric Acid	Bentonite	Caustic Soda
Fumaric Acid	Diatomaceous Earth	Sodium Hypochlorite
Malic Acid	Carbon	Chlorinated Trisodium Phosphate
Tartaric Acid	Copper Sulfate	Caustic/Wetting Agent
Phosphate	Nylon Polymer	
Sulfur Dioxide	Potassium Bitartrate	
Diammonium Phosphate		
Potassium Metabisulfite		

6. Because process wastewater monitoring data for the Discharger’s winery is not yet available, typical winery wastewater data are presented below. Constituent concentrations are the highest during the crush season, and are typically in the following ranges:

<u>Compound</u>	<u>Units</u>	<u>Concentration Range<sup>1</sup></u>
pH	pH units	2.5 – 9.5
Dissolved Oxygen	mg/L	0.5 – 8.5
Biochemical Oxygen Demand (BOD <sub>5</sub> ) <sup>2</sup>	mg/L	500 – 12,000
Chemical Oxygen Demand (COD)	mg/L	800 – 15,000
Grease	mg/L	5 – 30
Settleable Solids	mg/L	25 – 100
Nonfilterable Residue	mg/L	40 – 800
Volatile Suspended Solids	mg/L	150 – 700
Total Dissolved Solids (TDS)	mg/L	80 – 2,900
Nitrogen	mg/L	1 – 40
Nitrate (as Nitrate)	mg/L	0.5 – 4.8
Phosphorous	mg/L	1 – 10
Sodium	mg/L	35 – 200
Alkalinity (CaCO <sub>3</sub> )	mg/L	40 – 730
Chloride	mg/L	3 – 250
Sulfate	mg/L	10 - 75

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

<sup>2</sup> Five-day, 20° Celsius Biochemical Oxygen Demand

### **WASTEWATER SYSTEM**

7. Wastewater from winery processes such as tank cleaning, grape crushing, barrel washing, and equipment/floor cleaning is treated using a bioreactor. The treatment consists of collection of wastewater in floor drains, discharge to a settling sump, rotary screening, biological treatment in a bioreactor, pH neutralization, clarification, and land application. Applied wastewater will be mixed with supplemental irrigation water. Sludge from the clarifier will be recirculated to the bioreactor or wasted. The location of the land application area is presented on Attachment B, which is attached hereto and made part of this Order by reference
8. A mobile contract wine bottling service will perform bottling. The bottles arrive at the site clean and no rinsing occurs prior to filling. Therefore, bottling activities will not generate a high strength waste stream.
9. The Discharger does not have the means to store wastewater during rain events.
10. With the exception of the land application portion of the wastewater treatment system, all the wastewater treatment takes place in above ground tanks or concrete lined sumps. Screened solids are deposited directly into bins and wasted sludge is applied to the land application area.
11. The treatment system is anticipated to reduce the concentration of Biochemical Oxygen Demand (BOD) from 10,000 mg/L to 600 mg/L. Combined with the size of the land application area, it is anticipated that odors will not be generated by the discharge. Biological treatment is also likely to reduce total nitrogen concentrations.

12. The bioreactor is expected to reduce concentrations of volatile dissolved solids resulting in a lower concentration of TDS discharged to the land application area.
13. On 16 January 2003, the Discharger submitted a water balance for the wastewater treatment and disposal system. The water balance estimates the maximum daily process wastewater flow rate at 3,600 gallons per day (gpd) during the peak grape processing period, with estimated peak daily process flow rates during the off-season of approximately 1,500 gpd. The water balance utilizes 100-year annual return rainfall amounts.
14. The January 2003 water balance showed adequate land areas with capacity to accept wastewater and rainfall (using the 100-year return annual precipitation total). Staff estimates the wastewater discharge is less than one-percent of the land application area's available hydraulic capacity. Because adequate land application areas are available, a wastewater storage pond is not required. The Discharger is allowed to discharge wastewater to the land application areas during rain events provided all requirements of the WDRs are complied with.
15. The majority of the processing, including the crush area, is conducted under covered roofs to prevent commingling of stormwater runoff with process wastewater. However, some wine fermentation/storage tanks are exposed to stormwater. A manually controlled valve prevents discharge of wastewater to the stormwater pond. If wastewater and stormwater are mixed, all the water is discharged to the treatment system. When no wastewater is present in the piping, the stormwater is discharged to the stormwater pond.
16. The Discharger does not use water-softening equipment such as ion exchange water treatment.

### **LAND APPLICATION SYSTEM**

17. The Discharger proposes to dispose of treated winery effluent by irrigating 200 acres of grape vineyard using a flood irrigation system. Wastewater/supplemental irrigation water is discharged to furrows. The Discharger plans to add sand filters and an automatic mixing valve to allow wastewater application through a drip system. Because the wastewater application will not be sufficient to meet the crop irrigation needs, supplemental irrigation water will be applied.
18. The grapes from the land application area will be harvested for winemaking. In addition, viticulture practices such as annual pruning of the vines will remove nitrogen and other dissolved solids taken up by the crop.
19. The RWD, and staff's calculations, show that there is less nitrogen in the wastewater than the grapes in the vineyard will utilize. This is based on a nitrogen demand of 126 lbs/acre•year for the 200 acre vineyard, a conservative nitrogen effluent concentration (40 mg/L during crush and 5 mg/L during noncrush), and annual flows of 3,600 gpd during the crush period (approximately two months) and 1,600 gpd for the remainder of the year. The 200-acre vineyard will take up approximately 25,200 pounds of nitrogen, and the total annual wastewater nitrogen application will contain approximately 95 lbs of nitrogen. The biological treatment process is likely to reduce the wastewater nitrogen concentration even further than assumed in the calculations.

20. The application of the winery wastewater to 200 acres of land should not cause an increase in the dissolved solids concentration in the underlying groundwater. Based on the water balance, a total of approximately 720,000 gallons of wastewater will be produced each year. A conservative estimate of a concentration of 3,000 mg/L TDS in the wastewater converts to a total of 18,014 pounds of TDS produced each year in the wastewater. TDS is composed of both Volatile Dissolved Solids (VDS) and Inorganic Dissolved Solids (IDS). The proportion of VDS to IDS in wastewater varies with the source, but generally 50-percent of the TDS in winery wastewater is in the volatile form. These VDS are biologically treated by soil microorganisms in a well managed land application system, and do not enter the groundwater. Therefore, of the 18,014 pounds of TDS in the wastewater, about 9,000 pounds are expected to be in the inorganic fraction, equating to a load of 45 lbs/acre for the 200 acre vineyard. Plants can take up some dissolved solids species at a rate of 2,000 lbs/acre•year, so the proposed loading rate may not degrade the underlying groundwater. The Discharger has replaced some products (i.e. potassium hydroxide for sodium hydroxide) to maximize the uptake of the dissolved solids. Nevertheless, groundwater monitoring is appropriate to ensure that degradation does not take place, as dissolved solids also exist in the supplemental irrigation water and any fertilizer applied to the vineyard.

### **SOLID WASTE**

21. Solid/semi-solid wastes such as pomace (skins, seeds, pulp, stems, etc. resulting from the grape crush), and wine settlement and filter cake media (bentonite and diatomaceous earth) are generated by the processing operations. Such solid/semi-solid wastes are segregated from the process wastewater stream for separate handling and disposal. The pomace is spread in the vineyards as compost and/or tilled into the vineyards as a soil amendment. The amount of diatomaceous earth generated is small and is generally discharged to the treatment system and eventually discharged to the land application area with the wastewater or applied with wasted sludge.
22. Seeds, stems, skins solids, and pomace collected from crushing equipment and from floor drain screens is composted on an asphalt covered pad and applied to the land application area at agronomic rates. Applied compost is disced into the soil.

### **SITE SPECIFIC CONDITIONS**

23. The site topography relatively is flat. Surficial soils consist of Tokay fine sandy loam or Acampo sandy loam. Both soil types possess moderately rapid permeability (2 to 6 inches per hour) based on the Soil Survey of San Joaquin County.
24. A soil boring was drilled on 2 November 1999. Subsurface soils were identified as sand/clay/silt mixtures. A six foot thick low permeability zone was identified from 22 to 28 feet.
25. The facility is within the Lower Mokelumne Hydrologic Area (No. 531.20), as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.
26. Average annual rainfall for the Lodi area is 17.43 in/year; the 100-year return annual total rainfall is 31.16 in/year; evapotranspiration rates for the Lodi area is 52.09 in/year.

27. The site is located outside the 100-year flood zone.
28. An on-site domestic well supplies water for the facility. The well is 155 feet deep and is screened from 118 to 155 feet. Gravel pack exists from 58 to 155 feet. Depth to water in the well is approximately 40 feet. The well was sampled on 29 January 2003 and 10 March 2003; the analytical results are presented below:

<u>Analyte</u>	<u>Sample Date</u>	<u>Units</u>	<u>Concentration</u>
Nitrate as Nitrate	1/29/03	mg/L	12.4
Total Kjeldahl Nitrogen	3/10/03	mg/L	1.4
Total Dissolved Solids	3/10/03	mg/L	270
pH	3/10/03	Std. Units	7.2

29. Domestic wastewater is collected separately from the process winery wastewater in an on-site sewage disposal system. This system is regulated by San Joaquin County Environmental Health Department.

#### **BASIN PLAN, BENEFICIAL USES, AND REGULATORY CONSIDERATIONS**

30. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Resources Control Board. Pursuant to §13263(a) of the California Water Code (CWC), waste discharge requirements must implement the Basin Plan.
31. Surface water drainage in the area is to the South Main Canal, tributary to the Mokelumne River.
32. The beneficial uses of the Mokelumne River from Camanche Reservoir to the Delta are agricultural supply; water contact recreation; noncontact water recreation; warm freshwater habitat, cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat.
33. The beneficial uses of underlying groundwater are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.
34. State Water Resources Control Board (State Board) Resolution No. 68-16 (the Antidegradation Policy) requires that the Board, in regulating the discharge of waste, must maintain the high quality of waters of the state until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board's policies (e.g., quality that exceeds water quality objectives). Resolution No. 68-16 also requires that waste discharged to high quality waters be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge.
35. Anti-degradation has been considered pursuant to State Board Resolution No. 68-16 and it has been determined that this discharge of waste should not degrade surface water or groundwater quality. The waste will be treated to remove BOD and total suspended solids, and will be applied

to land at agronomic rates. This Order establishes effluent limitations that are protective of the beneficial uses of the underlying groundwater, requires a salinity source reduction study, and requires the sampling of groundwater monitoring wells to assure that the discharge of waste is not impacting the underlying groundwater. Based on the result of the scheduled tasks, this Order may be reopened to reconsider effluent limitations and other requirements to comply with Resolution 68-16.

36. Section 13267(b) of 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. R5-2003-0179” are necessary to assure compliance with these waste discharge requirements.

37. California Department of Water Resources standards for the construction and destruction of groundwater wells is described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to CWC section 13801, apply to all monitoring wells.
38. State regulations that prescribe procedures for detecting and characterizing the impact of waste constituents from waste management units on groundwater are found in Title 27. While the wastewater treatment facility is exempt from Title 27, the data analysis methods of Title 27 are appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.
39. Federal regulations for storm water discharges were promulgated by the U.S. Environmental Protection Agency on 16 November 1990 (40 CFR Parts 122, 123, and 124). The State Board adopted Order No. 97-03-DWQ (General Permit No. CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. The Discharger has not yet obtained coverage under General Permit No. CAS000001.
40. On 20 May 1999, in accordance with the California Environmental Quality Act (Title 14, CCR, section 15261 et seq.), the San Joaquin County Planning Commission approved a Negative Declaration for the Van Ruiten – Taylor Winery. No mitigation measures related to water quality were included in the approval of the Negative Declaration.

41. 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, California Code of Regulations (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 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.
42. 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**

43. 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.
44. 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.
45. In a public meeting, all comments pertaining to the discharge were heard and considered.

**IT IS HEREBY ORDERED** that pursuant to Sections 13263 and 13267 of the California Water Code, Van Ruiten – Taylor Ranch Ltd., its 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. Operation of a distillery at the facility is prohibited.
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 winery wastewater to the stormwater collection area or the domestic wastewater system is prohibited.

6. The discharge of domestic waste to the process wastewater treatment system is prohibited.
7. Discharge of wastewater to other than the Land Application area described in Finding No. 17 and shown on Attachment B is prohibited.
8. Excessive irrigation with wastewater that results in tailwater runoff is prohibited.

**B. Discharge Specifications:**

1. The monthly average discharge from the treatment system shall not exceed 3,600 gpd.
2. Neither the treatment nor the discharge shall cause a condition of nuisance or pollution as defined by the CWC, §13050.
3. The discharge shall not cause the degradation of any water supply.
4. 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 Limitations.
5. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the property owned by the Discharger.
6. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge.
7. The wastewater treatment system and land application area(s) shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
8. No physical connection shall exist between wastewater piping and any domestic water supply or other domestic/industrial supply well without an air gap or approved reduced pressure device.
9. The wastewater treatment, storage, and land application system shall have sufficient capacity to accommodate wastewater flow and seasonal precipitation. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

**C. Effluent Limitations:**

1. The maximum total nitrogen loading to the land application 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 percent 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.9.



2. The maximum BOD<sub>5</sub> loading to the land application areas shall not exceed any of the following, unless the Discharger demonstrates that another value is technically justified, as described in Provsion G.8.
  - a. 300 lbs/acre on any single day;
  - b. 100 lbs/acre•day as a 7-day average;
  - c. The maximum loading rate that ensures that the discharge will not create a nuisance.
3. Wastewater discharged to the land application area shall not have a pH of less than 6.5 or greater than 8.4.

**D. Land Application Area Requirements:**

1. The discharge shall be distributed uniformly on adequate acreage in compliance with the Discharge Specifications and Effluent Limitations.
2. Crops shall be grown on the land 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.
3. Discharge of process wastewater, including tailwater runoff, and spray or droplets from the irrigation system, shall not occur outside the boundaries of the land application area.
4. Hydraulic loading of process 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).
5. Wastewater conveyance lines shall be clearly marked as such. Reclaimed process wastewater 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.
6. Irrigation systems shall be labeled as containing reclaimed wastewater. If wastewater and irrigation water utilize the same pipeline, then backflow prevention devices shall be installed to protect the potable water supply.
7. Public contact with wastewater shall be precluded through such means as fences, signs, and irrigation management practices. Signs with proper wording of sufficient size shall be placed at areas of access and around the perimeter of the land application area(s) to alert the public of the use of wastewater.
8. The land application area shall be managed to prevent breeding of mosquitoes. More specifically:
  - a. All applied irrigation water must infiltrate completely within 24 hours.

- b. Ditches not serving as wildlife habitat should be maintained free of emergent, marginal, and floating vegetation.
  - c. Low pressure pipelines, unpressurized pipelines, and ditches that are accessible to mosquitoes shall not be used to store wastewater.
9. A 50-foot buffer zone shall be maintained between any watercourse and the wetted area produced during irrigation used for process wastewater effluent disposal.
10. Discharges to land application area shall be managed to minimize both erosion and runoff from the irrigated area. .
11. The resulting effect of the wastewater discharge on the soil pH shall not exceed the buffering capacity of the soil profile and shall not cause significant mobilization of soil constituents such as iron and manganese.
12. Application of wastewater to the land application areas via flood irrigation shall only occur on furrows graded so as to achieve uniform distribution, minimize ponding and provide for tailwater control. Furrow runs shall be no longer and slopes shall be no greater than what permits reasonably uniform infiltration and maximum practical irrigation efficiency. The minimum furrow slope shall not be less than 0.2 percent.
13. Wastewater application areas shall be allowed to dry for at least 72 hours from the end of wastewater application.
14. There shall be no standing water in the land application areas or landscaped areas 24 hours after wastewater is applied, except during periods of heavy rains sustained over two or more consecutive days.

**E. Solids/Sludge Disposal Requirements:**

1. Collected screenings, sludge, and other solids removed from winery wastewater shall be disposed of in a manner that is consistent with Title 27, Division 2, Subdivision 1 of the CCR and approved by the Executive Officer.
2. Winery sludge and other solids shall be removed from the process equipment, sumps, etc. as needed to ensure optimal operation and adequate hydraulic capacity. Winery solids drying operations, if any, shall be designed and operated to prevent leachate generation.
3. Storage and disposal of domestic wastewater sludge (septage) shall comply with existing Federal, State, and local laws and regulations, including permitting requirements and technical standards.
4. Sludge and other solids shall be removed from septic tanks as needed to ensure optimal operation and adequate hydraulic capacity. A duly authorized carrier shall haul sludge, septage, and domestic wastewater.

5. Any proposed change in solids use or disposal practice from a previously approved practice shall be reported to the Executive Officer at least 90 days in advance of the change.

**F. Groundwater Limitations:**

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 technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code §6735, 7835, and 7835.1. To demonstrate compliance with §415 and 3065 of Title 16, CCR, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
2. All of the following reports shall be submitted pursuant to §13267 of the CWC, and shall be prepared by a California registered professional as described in Provision G.1.
  - a. By **5 January 2004**, the Discharger shall either apply for coverage or submit a Notice of Non Applicability for Order No. 97-03-DWQ, Discharges of Storm Water Associated With Industrial Activities
  - b. By **4 March 2004**, the Discharger shall submit a *Groundwater Well Installation Workplan* and a *Groundwater Sampling and Analysis Plan* prepared in accordance with, and including the items listed in Attachment C: "*Monitoring Well Installation Workplan and Monitoring Well Installation Report of Results.*" The workplan shall propose the installation of wells both upgradient and downgradient of the land application area. The wells shall be designed to yield samples representative of the uppermost portion of the first aquifer underlying the site. The workplan shall also contain a sampling and analysis plan to ensure that samples are collected and analyzed per standard EPA procedures.
  - c. By **5 April 2004**, 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 and maintenance of the treatment system, (b) the practices used to treat the wastewater within limits specified in this Order, (c) the locations of the land application area, and procedures to prevent excessive BOD, nitrogen, or dissolved solids loading of the land application area, (d) the locations of flow and effluent sampling points, (e) quality control sampling procedures necessary to obtain representative samples, (f) practices used to maintain the land application areas, and (g) the locations of the solid waste disposal areas, methods of disposal, and the daily practices associated with the disposal of the solid waste. A copy of the *O&M Plan*

shall be kept at the facility for reference by operating personnel and they shall be familiar with its contents.

- d. By **5 April 2004**, the Discharger shall submit and implement a workplan for a *Salinity Reduction Study*. The study shall look at all aspects of winery waste and shall investigate methods to reduce the concentration of dissolved solids in the wastewater. At a minimum, the salinity reduction report shall include a discussion of the winemaking chemicals, cleaning and sterilization procedures, vineyard practices, and salinity monitoring.
  - e. By **4 July 2004**, the Discharger shall submit a *Groundwater Well Installation Report of Results* consistent with the guidelines presented in Attachment C.
3. The Discharger shall comply with the Monitoring and Reporting Program No. R5-2003-0179, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
  4. 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)."
  5. 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.
  6. The Discharger shall submit to the Regional Board on or before each compliance report due date the specified document, or if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is reported, then the Discharger shall state the reasons for noncompliance and shall provide a schedule to come into compliance.
  7. The Discharger shall report to the Regional 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 §313 of the "Emergency Planning and Community Right to Know Act of 1986."
  8. If the Discharger can demonstrate to the satisfaction of the Executive Officer that higher BOD loadings than those specified in this Order 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 BOD 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 on similar soil types as those in the land application area(s) and using similar wastewater as that described in the Findings.

9. If the Discharger can demonstrate to the satisfaction of the Executive Officer that higher nitrogen loadings than those specified in this Order 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 on similar soil types as those in the land application area(s) and using similar wastewater as that described in the Findings.
10. The Discharger shall report promptly to the Board any material change or proposed change in the character, location, or volume of the discharge.
11. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or recession of this Order.
12. 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.
13. The Regional Board will review this Order periodically and will revise requirements when necessary.

I, THOMAS R. PINKOS, 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 5 December 2003.

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THOMAS R. PINKOS, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2003-0179

FOR

VAN RUITEN - TAYLOR RANCH LTD.  
VAN RUITEN - TAYLOR WINERY LLC  
SAN JOAQUIN COUNTY

This monitoring and reporting program (MRP) incorporates requirements for monitoring of the process wastewater, the land application area, solid waste, and groundwater. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

All wastewater samples should be representative of the volume and nature of the discharge. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form.

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

1. The operator is trained in the proper use of the instrument;
2. The instruments are field calibrated prior to each use;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

### INFLUENT MONITORING

Process wastewater samples shall be collected prior to entering the bioreactor treatment system. Influent monitoring for the process wastewater system shall include at least the following:

<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Flow	gallons	Continuous	Daily <sup>1</sup>	Monthly
PH	pH Units	Grab	Weekly	Monthly
BOD <sub>5</sub> <sup>2</sup>	mg/L	Grab	Monthly	Monthly

<sup>1</sup> Continuous monitoring requires daily meter reading or automated data collection.

<sup>2</sup> Five-day, 20° Celsius Biochemical Oxygen Demand.

### PROCESS WASTEWATER EFFLUENT

Process wastewater samples shall be collected after the bioreactor treatment system, prior to land application or mixing with supplemental irrigation water, and shall include at a minimum the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
pH	pH units	Grab	Weekly	Monthly
BOD <sub>5</sub> <sup>1</sup>	mg/L	Grab	Monthly	Monthly
Nitrate as Nitrogen	mg/L	Grab	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Volatile Dissolved Solids	mg/L	Grab	Monthly	Monthly

<sup>1</sup> Five-day, 20° Celsius Biochemical Oxygen Demand.

### STORMWATER POND MONITORING

The stormwater pond shall be monitored whenever there is water in it. If the pond is dry, the monitoring reports shall so state. Samples shall be collected from an established sampling station located in an area that will provide representative samples. Monitoring of the pond shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
pH	pH units	Grab	Weekly	Monthly
Electrical Conductivity	µmhos/cm	Grab	Weekly	Monthly
Total Dissolved Solids	mg/l	Grab	Monthly	Monthly
Nitrate as Nitrogen	mg/l	Grab	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/l	Grab	Monthly	Monthly
BOD <sub>5</sub>	mg/l	Grab	Monthly	Monthly

### LAND APPLICATION AREA MONITORING

The Discharger shall monitor process wastewater discharged for irrigation to the land application area. Monitoring shall be conducted daily during operation and the results shall be included in the monthly monitoring report. Evidence of erosion, field saturation, runoff, or the presence of nuisance conditions shall be noted in the report. Loading rates for the land application areas shall be calculated. Monitoring of the land application areas shall include the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Wastewater Flow	Gallons	Continuous <sup>1</sup>	Daily	Monthly
Supplemental Irrigation Flow	Gallons	Continuous <sup>1</sup>	Daily	Monthly
Acreage Applied <sup>2</sup>	Acres	Calculated	Daily	Monthly
Application Rate	gal/acre•day	Calculated	Daily	Monthly
BOD Loading Rate	lbs/acre•month	Calculated	Daily	Monthly
Total Nitrogen Loading Rate <sup>3</sup>	lbs/acre•month <sup>4</sup>	Calculated	Monthly	Monthly

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
TDS Loading Rate	lbs/acre•month <sup>4</sup>	Calculated	Monthly	Monthly

- <sup>1</sup> Continuous monitoring requires daily meter reading or automated data collection.
- <sup>2</sup> 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.
- <sup>3</sup> Total nitrogen applied from all sources, including fertilizers and supplemental irrigation water if used.
- <sup>4</sup> Report monthly total and cumulative annual to date.

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

### SOLIDS MONITORING

The Discharger shall record and report monthly the quantity, disposal location, and method of disposal of solids disposed of during the processing season, as well as during the off-season, if applicable. If solid waste is shipped offsite, then an estimated amount and location of disposal shall be reported in the monthly report and the hauler identified.

### GROUNDWATER MONITORING

Groundwater monitoring shall commence with the third quarter 2004. Prior to construction and/or sampling of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Board for approval. Once installed, all new wells shall be added to the monitoring network and shall be sampled and analyzed according to the schedule below. All samples shall be collected using approved EPA methods. Water table elevations shall be calculated to determine groundwater gradient and direction of flow.

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

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u> <sup>1</sup>	<u>Reporting Frequency</u> <sup>4</sup>
Depth to Groundwater	±0.01 feet	Measurement	Quarterly	Quarterly
Groundwater Elevation <sup>1</sup>	±0.01 feet	Calculated	Quarterly	Quarterly
Gradient	feet/feet	Calculated	Quarterly	Quarterly



<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u> <sup>1</sup>	<u>Reporting Frequency</u> <sup>4</sup>
Gradient Direction	Degrees	Calculated	Quarterly	Quarterly
pH	pH units	Grab	Quarterly	Quarterly
Specific Conductivity	µmhos/cm	Grab	Quarterly	Quarterly
Nitrate as Nitrogen	mg/L	Grab	Quarterly	Quarterly
Total Kjeldahl Nitrogen	mg/L	Grab	Quarterly	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly	Quarterly
Standard Minerals <sup>2,3</sup>	mg/L	Grab	Annual	Annual

<sup>1</sup> Groundwater elevation shall be determined based on depth-to-water measurements from a surveyed measuring point elevation on the well.

<sup>2</sup> Standard Minerals shall include at least the following compounds: calcium, magnesium, potassium, sodium, chloride, sulfate, total alkalinity (including alkalinity series), and hardness

<sup>3</sup> Standard Minerals shall be analyzed in the fourth quarter of the year.

<sup>4</sup> Beginning with the third quarter, 2004.

## REPORTING

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

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

### A. Monthly Monitoring Reports

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

1. Results of influent, process wastewater effluent, stormwater pond, land application area, and solids monitoring;
2. 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;
3. If requested by staff, copies of laboratory analytical report(s);

4. A calibration log verifying calibration of all hand held monitoring instruments and devices used to comply with the prescribed monitoring program;
5. The total pounds of total dissolved solids (year to date) that have been applied to the land application area, as calculated from the sum of monthly loadings; and
6. The total pounds of nitrogen (year to date, from all sources including fertilizer) applied to the land application area as calculated from the sum of monthly loadings.

## **B. Quarterly Report**

The Discharger shall establish a quarterly sampling schedule for groundwater monitoring such that samples are obtained approximately every three months. Quarterly monitoring reports shall be submitted to the Regional Board by the **1<sup>st</sup> day of the second month after the quarter** (i.e. the January-March quarter is due by May 1<sup>st</sup>) each year. The Quarterly Report shall include the following:

1. Results of groundwater monitoring;
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDR, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;
3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any;
4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable);
5. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements;
6. Summary data tables of historical and current water table elevations and analytical results;
7. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and
8. Copies of laboratory analytical report(s) for groundwater monitoring.

### **C. Annual Report**

Beginning with the year 2004, an Annual Report shall be prepared as the December monthly monitoring report. The Annual Report shall be submitted to the Regional Board by **1 February** each year. In addition to the data normally presented, the Annual Report shall include the following:

1. The contents of a regular December monthly monitoring report;
2. The contents of the regular quarterly monitoring report for the last quarter of the year;
3. If requested by staff, tabular and graphical summaries of all data collected during the year;
4. Tabular and graphical summaries of historical monthly total loading rates for water (hydraulic loading in gallons and inches), total nitrogen, and total dissolved solids.
5. 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 (i.e.: waste constituent and hydraulic loadings, application cycles, drying times, and cropping practices), and groundwater monitoring data;
6. A summary of the quantity of solid waste (lees, stems, pomace, etc) generated and disposed of both on and off the site;
7. An evaluation of the groundwater quality beneath the land application area;
8. Estimated flows for the next calendar year;
9. A discussion of compliance and corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements; 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.

MONITORING AND REPORTING PROGRAM NO. R5-2003-0179  
VAN RUITEN - TAYLOR RANCH LTD.  
VAN RUITEN - TAYLOR WINERY LLC  
SAN JOAQUIN COUNTY

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

Ordered by: \_\_\_\_\_  
THOMAS R. PINKOS, Executive Officer

\_\_\_\_\_ 5 December 2003  
(Date)

TRO: 5-Dec-03

## INFORMATION SHEET

ORDER NO. R5-2003-0179  
VAN RUITEN - TAYLOR RANCH LTD.  
VAN RUITEN - TAYLOR WINERY LLC  
SAN JOAQUIN COUNTY

Van Ruiten – Taylor Ranch Ltd. operates Van Ruiten – Taylor Winery LLC at 340 West Highway 12, Lodi. The Discharger developed the 200-acre winery and vineyard in 2000. Buildings at the facility consist of a 4,000 square foot winery and a 1,200 square foot tasting room. The winery will process approximately 800 to 900 tons of grapes annually to produce approximately 60,000 cases of wine (approximately 144,000 gallons of wine).

Wastewater is generated in tank cleaning, grape crushing, barrel washing, and equipment/floor cleaning. A mobile contract wine bottling service will perform bottling, therefore, bottling activities will not generate a high strength waste stream. Domestic wastewater is discharged to a septic tank and leachfield system. The domestic system is regulated by San Joaquin County Environmental Health Department.

Process wastewater treatment consists of collection of wastewater in floor drains, discharge to a settling sump, rotary screening, biological treatment in a bioreactor, pH neutralization, clarification, and land application. Applied wastewater will be mixed with supplemental irrigation water. Sludge from the clarifier will be recirculated to the bioreactor or wasted. The treatment system is anticipated to reduce the concentration of Biochemical Oxygen Demand (BOD) from 10,000 mg/L to 600 mg/L. Combined with the size of the land application area, it is anticipated odors will not be generated by the discharge. Biological treatment is also likely to reduce total nitrogen concentrations and volatile dissolved solids resulting in a lower concentration of TDS discharged to the land application area.

The water balance estimates the maximum daily process wastewater flow rate at 3,600 gallons per day (gpd) during the peak grape processing period, with estimated peak daily process flow rates during the off-season of approximately 1,500 gpd.

Because the site does not have a wastewater storage pond, there is no means to store wastewater during rain events. The facility has adequate land area to accept wastewater and rainfall (100-year annual return rainfall amounts). Staff estimates the wastewater discharge is less than one-percent of the land application area's available hydraulic capacity. Because adequate land application areas are available, a wastewater storage pond is not required. The Discharger is allowed to discharge wastewater to the land application areas during rain events provided all requirements of the WDRs are complied with.

It is anticipated that the cropping activities in the land application area will utilize all the nitrogen applied in the wastewater. Dissolved solids in the wastewater should not cause an increase in the dissolved solids concentration in the underlying groundwater based on the size of the land application area, cropping activities, and use of chemicals that are also plant micronutrients when applied to land. The Discharger has replaced some products (i.e. potassium hydroxide for sodium hydroxide) to maximize the uptake of the dissolved solids by crops. Nevertheless, groundwater monitoring is

appropriate to ensure that degradation does not take place, as dissolved solids also exist in the supplemental irrigation water and any fertilizer applied to the vineyard.

Solid/semi-solid wastes such as pomace (skins, seeds, pulp, stems, etc. resulting from the grape crush), and wine settlement and filter cake media (bentonite and diatomaceous earth) are generated by the processing operations. Such solid/semi-solid wastes are segregated from the process wastewater stream for separate handling and disposal. The pomace is spread in the vineyards as compost and/or tilled into the vineyards as a soil amendment. Bentonite and diatomaceous earth are removed from the facility by a licensed waste hauler.

These WDRs establish land application area loading limits, require submittal of an industrial stormwater application, installation of groundwater monitoring wells, preparation of an operation and maintenance plan, preparation of a salinity reduction study, and regular monitoring of wastewater and groundwater quality.

Surface water drainage in the area is to the South Main Canal, tributary to the Mokelumne River.

TRO