

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2004-0079

WASTE DISCHARGE REQUIREMENTS
FOR
SPENKER RANCH, INC.
JESSIE'S GROVE WINERY
SAN JOAQUIN COUNTY

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

1. Jessie's Grove Winery submitted a Report of Waste Discharge (RWD) dated 24 April 2002 for the treatment and disposal of winery waste. Additional information was submitted on 5 June 2002, 29 January 2004, 9 April 2004, and 22 April 2004.
2. Spenker Ranch Inc. owns the land at the winery and the land application areas. Jessie's Grove Winery operates the facility. Both entities are hereafter jointly referred to as "Discharger."
3. The Discharger's winery and tasting facility is at 1973 W. Turner Road, Lodi (Assessors Parcel No. 013-050-17) in Section 32, T4N, 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

4. The winery is on a 320-acre parcel that includes vineyards, pasture, an oak grove, and a residence. Buildings at the facility consist of an office, several outbuildings (sheds and garages), a tasting room, and outdoor wine storage.
5. The Discharger will process approximately 700 tons of grapes annually to produce approximately 110,000 gallons of wine that will be sold both as bulk wine and bottled wine. Approximately 7,000 cases (17,000 gallons) of Jessie's Grove wine will be bottled, while the remainder will be in bulk.
6. 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:

Wine Additive

Citric Acid
Fumaric Acid
Malic Acid
Tartaric Acid
Phosphate
Sulfur Dioxide
Diammonium Phosphate
Potassium Metabisulfite

Wine Fining Agent

Bentonite
Diatomaceous Earth
Carbon
Copper Sulfate
Nylon Polymer
Potassium Bitartrate

Cleaner/Sanitizer

Caustic Soda
Sodium Hypochlorite
Chlorinated Trisodium Phosphate
Caustic/Wetting Agent
Chem Clean

7. Because process wastewater monitoring data for the Discharger's winery is not yet available, the RWD provides typical winery wastewater data based on a published reference. These values are presented below; however, it is noted that other area wineries typically produce wastewater with higher constituent concentrations.

<u>Compound</u>	<u>Units</u>	<u>Concentration Range¹</u>
Biochemical Oxygen Demand (BOD ₅) ²	mg/L	3,000 – 7,000
Suspended Solids	mg/L	200 – 800
Settleable Solids	mg/L	5 – 20
pH	Std. Units	3 – 5
Dissolved Oxygen	mg/L	0 – 9
Total Nitrogen	mg/L	5 - 50
Total Phosphorus	mg/L	2 - 8
Grease	mg/L	5 - 40
Sulfate	mg/L	20 – 75
Total Dissolved Solids	mg/L	500 – 1,000
Inorganic Dissolved Solids	mg/L	300 – 700
Volatile Dissolved Solids	mg/L	200 – 700

¹ Typical chemical analyses of winery wastewater from Fall Creek Engineering, Report of Waste Discharge, February 2004.

² Five-day, 20° Celsius Biochemical Oxygen Demand

WASTEWATER SYSTEM

8. Wastewater from winery processes such as tank cleaning, grape crushing, barrel washing, and equipment/floor cleaning will be screened to separate wastewater solids, settled, collected in a 1,000 gallon septic tank, automatically pumped into a water truck, and then manually applied to a 70 acre land application area. The Discharger has purchased, but has not yet installed, a wastewater screen. The wastewater treatment schematic is presented on Attachment B, which is attached hereto and made part of this Order by reference.
9. Stormwater that falls on paved areas and roofs within the winery facility is currently collected and discharged into the wastewater system. The Discharger has proposed installation of a diversion valve to allow stormwater to be diverted to the stormwater retention pond. Such an arrangement requires additional monitoring of stormwater and may prevent the Discharger from operating during precipitation events that exceed the wastewater system handling capacity. Wastewater/stormwater mixtures are classified as wastewater.
10. A mobile, contract wine bottling service will perform bottling. The bottles arrive at the site already cleaned, and no rinsing occurs prior to filling. Therefore, bottling activities will not generate a high strength waste stream.
11. Based on a hydraulic analysis, the 70 acre land application area has adequate capacity to accept all wastewater and rainfall (using the 100-year return annual precipitation total). Staff estimates at a wastewater flow rate of 3,500 gallons per day (gpd) the wastewater discharge is less than 1-percent of the 70 acre land application area's available hydraulic capacity based on the lowest published

infiltration value and a safety factor of five-percent. The Discharger is allowed to discharge wastewater to the land application area during rain events provided all requirements of this Order are complied with.

12. The Discharger has no wastewater storage capacity. Therefore, all wastewater generated must be discharged soon after generation. The Discharger must take this fact into consideration when planning operations that generate wastewater. Climatic conditions or land application area conditions (saturated soil, odors, etc.) may require winery process schedule changes to comply with the discharge specifications contained in this Order.
13. The majority of the processing area, including the crush pad, is not roofed. Stormwater mixes with wastewater; therefore, all the water must be handled as industrial wastewater.
14. The Discharger does not use water-softening equipment such as ion exchange water treatment.

LAND APPLICATION SYSTEM

15. The Discharger proposes to dispose of screened and settled winery effluent by irrigating 70 acres of cropped pasture using a water truck. A sprinkler irrigation system may be installed in the future, and is acceptable as long as wastewater applications are performed consistent with the requirements in this Order. Flood irrigation is acceptable as long as the land application area is prepared to allow even distribution and prevent spills of wastewater/supplemental irrigation water outside the land application area. Because the wastewater application will not be sufficient to meet the crop irrigation needs during summer months, supplemental irrigation water will be applied.
16. Pasture grass will be cut and removed from the land application area or removed by animals grazing on the pasture. Removal of the crop will remove nitrogen and other dissolved solids that are taken up by the crop.
17. There is less nitrogen in the wastewater than the cropped land application area will utilize. This is based on a nitrogen demand of 100 lbs/acre•year for the 70 acre land application area, a conservative nitrogen effluent concentration (25 mg/L as an annual average), and annual wastewater generation rate of 866,500 gallons. The 70 acre land application area will take up approximately 7,000 pounds of nitrogen, while the total annual wastewater nitrogen application will contain approximately 181 pounds of nitrogen.
18. The application of the winery wastewater to 70 acres of land should not cause an increase in the TDS concentration in the underlying groundwater. 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 50-percent of the TDS in winery wastewater may be in the volatile form. These VDS are biologically treated by soil microorganisms in a well managed wastewater treatment and land application system, and should not enter the groundwater. Therefore, of the approximately 14,453 pounds of TDS in the wastewater, about 7,226 pounds are expected to be in the inorganic fraction, equating to an annual load of 103 lbs/acre for the 70 acre land application area. However, plants take up some dissolved solids at variable rates up to of 2,000 lbs/acre•year, so the proposed loading rate, assuming that wastewater is evenly applied over the entire area,

should be protective of groundwater. However, the Discharger is required to install and sample groundwater monitoring wells to show that the system is operating as designed and that groundwater is protected.

19. Although the Discharger only proposed to apply treated process wastewater to 70 acres of land, this Order allows the Discharger to apply the treated wastewater to any cropped land within its 320 acre parcel, as long as it first submits an *Operation and Management Plan* for the additional cropped land.

SOLID WASTE

20. 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 can be applied to the vineyards or land application area.
21. Screened solids will be used as animal feed or composted and reapplied to vineyards or other land application area. Sludge and scum removed from the industrial wastewater system septic tank will be discharged to a municipal wastewater treatment system or land applied.

GROUNDWATER CONDITIONS

22. A soil boring was drilled on 7 November 2002. The boring was hand augured to a depth of 22 feet and a groundwater sample was collected. The analytical results are presented below:

<u>Constituent</u>	<u>Units</u>	<u>Concentration</u>
Sodium	mg/L	19
Chloride	mg/L	6.0
Electrical Conductivity	µmhos/cm	191
Nitrate as N	mg/L	1.09
Total Dissolved Solids	mg/L	160

23. An on-site domestic well supplies domestic and process water for the facility. The RWD does not describe the depth of the well or its screened interval. The well was sampled on 17 April 2002; the analytical results are presented below:

<u>Analyte</u>	<u>Units</u>	<u>Concentration</u>
Sodium	mg/L	8.0
Chloride	mg/L	9.0
Electrical Conductivity	µmhos/cm	230
Nitrate as N	mg/L	0.7
Total Dissolved Solids	mg/L	147

SITE SPECIFIC CONDITIONS

24. The site topography is relatively flat. Surficial soils consist of Tokay fine sandy loam. The soil possesses moderately rapid permeability (2 to 6 inches per hour) based on the Soil Survey of San Joaquin County.
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; the evapotranspiration rate for the Lodi area is 52.09 in/year.
27. The site is located outside the 100-year flood zone.
28. 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

29. 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.
30. Surface water drainage in the area is to Sycamore Slough, tributary to the Mokelumne River downstream of Camanche Reservoir.
31. 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.
32. The beneficial uses of underlying groundwater are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.
33. 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 that will result in the best practicable treatment or control of the discharge.
34. The Discharger has not submitted any information showing that it should be allowed to degrade the groundwater as described in State Board Resolution No. 68-16, and therefore no degradation is allowed. This discharge of waste should not degrade surface water or groundwater quality. Prior

to discharge to land, the waste will be screened and settled in a septic tank. 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.

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

The technical reports required by this Order and the attached “Monitoring and Reporting Program No. R5-2004-0079” are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that generates the waste subject to this Order.

36. 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 §13801, apply to all monitoring wells.
37. 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 may be appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.
38. 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 and is required to do so.
39. On 16 May 2002, in accordance with the California Environmental Quality Act (Title 14, CCR, §15261 et seq.), the San Joaquin County Planning Commission approved a Negative Declaration for Jessie’s Grove Winery. No mitigation measures related to water quality were included in the approval of the Negative Declaration; however, compliance with this Order should result in water quality protection.

40. The discharge of wastewater is exempt from the requirements of *Consolidated Regulation for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, §2005, et seq., (hereafter Title 27). The exemption, pursuant to §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.
41. Pursuant to California Water Code §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

42. 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.
43. 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.
44. In a public meeting, all comments pertaining to the discharge were heard and considered.

IT IS HEREBY ORDERED that pursuant to §13263 and 13267 of the California Water Code, Spenker Ranch Inc. and Jessie's Grove Winery, 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 §20164 of Title 27, CCR, or 'designated,' as defined in §13173 of the California Water Code, is prohibited.
5. The discharge of winery wastewater to 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 treatment system and land application area as described in the Findings and shown on Attachments A and B is prohibited.

B. Discharge Specifications:

1. The volume of wastewater discharged to the land application area shall not exceed 2,000 gpd as a monthly average, except during crush season (September through November) when the limit shall be 3,500 gpd as a monthly average. The annual volume of the wastewater discharged to the land application area shall not exceed 900,000 gallons.
2. As of 2 September 2004, wastewater shall not be applied to any land area until the land application area improvements are completed and technical reports (as described in Provisions G.1.b and G.1.c) has been submitted and approved by the Executive Officer. Prior to applying wastewater to any land area other than the 70 acres described in this Order, the Discharger shall submit a report consistent with Provision G.1.d. Upon approval of the technical report, the Discharger may begin discharging wastewater to the new land application area.
3. Neither the treatment nor the discharge shall cause a condition of nuisance or pollution as defined by the CWC, §13050.
4. The discharge shall not cause the degradation of any water supply.
5. 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.
6. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the property owned by the Discharger.
7. As a means of discerning compliance with Discharge Specification No. B.6, the dissolved oxygen content of the stormwater pond shall not be less than 1.0 mg/l at any time.
8. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge.
9. The land application area shall be managed to prevent the breeding of mosquitoes.
10. 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.
11. 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.

12. The wastewater treatment and land application system shall have sufficient capacity to accommodate wastewater flow and seasonal precipitation. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

C. Effluent Limitations:

1. As of **2 September 2004**, wastewater discharged to land shall not exceed the following monthly average effluent limits, or lower concentrations as the Discharger determines necessary to ensure compliance with the Groundwater Limitations:

<u>Constituent</u>	<u>Units</u>	<u>Concentration</u>
Total Dissolved Solids	mg/L	2,000

2. As of **2 September 2004**, wastewater applied to land shall not exceed the following loading rates, or lower loading rates as the Discharger determines necessary to ensure compliance with the Groundwater Limitations:

<u>Constituent</u>	<u>Units</u>	<u>Loading Rate</u>	
		<u>Maximum</u>	<u>7-day Average</u>
BOD	mg/L	350 lbs/ac•day	100 lbs/ac•day
Total Dissolved Solids	mg/L	500 lbs/ac•year	Not Applicable
Total Nitrogen	mg/L	150 lbs/ac•year	Not Applicable

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, and crops shall be harvested and removed from the land on at least an annual basis.
3. Discharge of process wastewater, including runoff, spray or droplets from the irrigation system, shall not occur outside the boundaries of the approved land application area(s). Wastewater application from the back of a truck, or using sprinklers, flood, or drip irrigation is acceptable if the discharge complies with all requirements of this Order.
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. Process wastewater controllers, valves, etc. shall be affixed with reclaimed water warning signs; quick couplers

and sprinkler heads shall be of a type, or secured in such a manner, that permits operation by authorized personnel only.

6. Irrigation systems shall be labeled as containing reclaimed wastewater. If wastewater and irrigation water utilize the same pipeline, then backflow prevention devices shall be installed to protect the potable/irrigation water supply.
7. Application of wastewater to the land application area using sprinkler irrigation is prohibited when wind velocities exceed 30 miles per hour.
8. Public contact with wastewater shall be precluded through such means as fences, signs, and/or irrigation management practices. Signs with proper wording of sufficient size shall be placed at areas of access and around the perimeter of the land application area(s) to alert the public of the use of wastewater.
9. 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.
10. A 50-foot buffer zone shall be maintained between any watercourse and the wetted area produced during irrigation used for process wastewater effluent disposal.
11. A 50-foot buffer zone shall be maintained between any domestic or irrigation well and the wetted area produced during process wastewater application.
12. Discharges to land application area shall be managed to minimize both erosion and runoff from the irrigated area.
13. The resulting effect of the wastewater discharge on the soil pH shall not exceed the buffering capacity of the soil profile and shall not cause significant mobilization of soil constituents such as iron and manganese.
14. Application of wastewater to the land application area 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.
15. Wastewater application areas shall be allowed to dry for at least 72 hours from the end of wastewater application.
16. There shall be no standing water in the land application area 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 sumps, screen, septic tank, 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 domestic wastewater septic tank(s) 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 of the following reports shall be submitted pursuant to §13267 of the CWC, and prepared by a California registered professional as described in Provision G.2.
 - a. By **2 September 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: "*Requirements for Monitoring Well Installation Workplans.*" The workplan shall propose the installation of wells both upgradient, downgradient, and within 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.
 - b. By **2 September 2004**, the Discharger shall submit a *Wastewater Treatment System Construction Report and Land Application Area Improvement Report* that describes the installation of the wastewater screen, improvements made to the 70 acre land application area, and installation of a stormwater diversion valve to comply with the requirements of this Order.

- c. By **2 September 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 area, (g) the locations of the solid waste disposal areas, methods of disposal, and the daily practices associated with the disposal of the solid waste, (h) exactly how the wastewater will be applied by truck such that it will be applied evenly to the entire 70 acre disposal area, and (i) how the 70 acres has been made ready to accept the wastewater (i.e., installation of fencing or notification signs, installation of berms to prevent runoff, reconfiguration of checks to improve application rates). 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. **At least 30 days** before the Discharger wishes to apply wastewater to any new land application area(s), the Discharger shall submit a report describing completion of improvements to the proposed land application areas to ensure compliance with this order. The improvements shall include, but not be limited to, installation of fencing or notification signs, installation of berms to prevent surface water runoff in land application areas, reconfiguration of checks to improve application rate, and installation of groundwater monitoring wells.
- e. By **1 December 2004**, the Discharger shall submit a *Groundwater Well Installation Report of Results* consistent with the guidelines presented in Attachment C.
- f. By **31 January 2005**, 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.
- g. By **30 March 2006**, the Discharger shall submit a *Background Groundwater Quality Study Report*. For each groundwater monitoring parameter/constituent identified in the MRP, the report shall present a summary of monitoring data, calculation of the concentration in background monitoring wells, and a comparison of background groundwater quality to that in wells used to monitor the land application area. Determination of background quality shall be made using the methods described in Title 27, §20415(e)(10), or equivalent, and shall be based on data from at least four consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare measured concentrations for compliance monitoring wells with the calculated background concentration. The report shall be prepared by or under the direction of an engineer or geologist registered to practice in California pursuant to California Business and Professions Code §6735,

7835, and 7835.1.

If the *Background Groundwater Quality Study Report* shows that the wastewater discharge has impacted, or is likely to impact groundwater quality, then upon request by the Executive Officer the Discharger shall submit *Groundwater Mitigation Plan* which shall evaluate contaminant control alternatives, describe a preferred alternative, and proposed a timeline to meet the Groundwater Limitations of this Order. The selected contaminant control alternative must comply with State Water Resources Control Board Resolution No. 68-16 and be consistent with the most recent Basin Plan

2. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall contain a statement of qualifications of the responsible licensed professional(s) as well as the professional's signature and/or stamp of the seal.
3. The Discharger shall comply with the Monitoring and Reporting Program No. R5-2004-0079, 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 4 June 2004.

THOMAS R. PINKOS, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2004-0079

FOR
SPENKER RANCH, INC.
JESSIE'S GROVE WINERY
SAN JOAQUIN COUNTY

This monitoring and reporting program (MRP) incorporates requirements for monitoring of the process wastewater, land application area, solid waste, stormwater, 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. Process wastewater flow monitoring shall be conducted continuously using a flow meter and shall be reported in cumulative gallons per day.

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

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

INFLUENT MONITORING

Process wastewater samples shall be collected prior to entering the 1,000 gallon septic tank. 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 ¹	Monthly
BOD ₅ ²	mg/L	Grab	Monthly	Monthly

¹ Continuous monitoring requires daily meter reading or automated data collection.

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

EFFLUENT MONITORING

Process wastewater samples shall be collected downstream of the septic tank prior to land application and prior to mixing with any supplemental irrigation water. Monitoring 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 ₅ ¹	mg/L	Grab	Monthly	Monthly
Nitrate as Nitrogen	mg/L	Grab	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly	Monthly

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Volatile Dissolved Solids	mg/L	Grab	Monthly	Monthly

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

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 ¹	Gallons	Continuous ¹	Daily	Monthly
Supplemental Irrigation Flow	Gallons	Continuous ¹	Daily	Monthly
Local Rainfall	Inches	Measurement	Daily	Monthly
Acreage Applied ²	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 ³	lbs/acre•month ⁴	Calculated	Monthly	Monthly
TDS Loading Rate	lbs/acre•month ⁴	Calculated	Monthly	Monthly

¹ Continuous monitoring requires daily meter reading or automated data collection and shall define the volume of wastewater discharged to the land application area from the septic tank.

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 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 so state.

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.

STORMWATER POND MONITORING

On a daily basis, the Discharger shall record the following information and submit it with the monthly monitoring report:

1. Is the diversion valve (allowing flow into the stormwater pond) open?
2. Did any outdoor wine processing activities take place during the day?

Stormwater pond samples shall be collected during the months of November through April each year. If the stormwater pond is dry, then the monitoring report shall so state.

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Freeboard	Feet (0.1)	Measurement	Monthly	Monthly
PH	pH units	Grab	Monthly	Monthly
BOD ₅ ¹	mg/L	Grab	Monthly	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Volatile Dissolved Solids	mg/L	Grab	Monthly	Monthly

GROUNDWATER MONITORING

Groundwater monitoring shall commence with the fourth 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 Frequency¹</u>	<u>Reporting Frequency⁴</u>
Depth to Groundwater	±0.01 feet	Measurement	Quarterly	Quarterly
Groundwater Elevation ¹	±0.01 feet	Calculated	Quarterly	Quarterly
Gradient	feet/feet	Calculated	Quarterly	Quarterly
Gradient Direction	Degrees	Calculated	Quarterly	Quarterly
PH	pH units	Grab	Quarterly	Quarterly
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 ^{2,3}	mg/L	Grab	Annually	Annually

- ¹ Groundwater elevation shall be determined based on depth-to-water measurements from a surveyed measuring point elevation on the well.
- ² Standard Minerals shall include at least the following compounds: boron, calcium, iron, magnesium, potassium, sodium, chloride, sulfate, total alkalinity (including alkalinity series), and hardness.
- ³ Standard Minerals shall be analyzed in the fourth quarter of the year.
- ⁴ Beginning with the fourth quarter, 2004.

REPORTING

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

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

A. Monthly Monitoring Reports

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

1. Results of influent, effluent, land application area, stormwater pond, 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 cumulative volume of wastewater generated during the year to date;
6. 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
7. The total pounds of nitrogen (year to date, from all sources including fertilizer) applied to the land application area as calculated from the sum of monthly loadings.

B. Quarterly Report

Beginning with the fourth quarter 2004, the Discharger shall establish a quarterly sampling schedule for groundwater monitoring such that samples are obtained approximately every three

months. Quarterly monitoring reports shall be submitted to the Regional Board by the **1st day of the second month after the quarter** (i.e. the January-March quarter is due by May 1st) 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 scale 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

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 wastewater generation, process water used for irrigation (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.

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

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

4 June 2004

(Date)

TRO: 06/04/04

INFORMATION SHEET

ORDER NO. R5-2004-0079
SPENKER RANCH, INC.
JESSIE'S GROVE WINERY
SAN JOAQUIN COUNTY

Jessie's Grove Winery is located at 1973 W. Turner Road, Lodi. Spenker Ranch, Inc. owns the land at the winery and the land application areas, while Jessie's Grove Winery operates the facility. Jessie's Grove Winery and Spenker Ranch Inc. are jointly referred to as Discharger. The winery will process approximately 700 tons of grapes annually to produce approximately 110,000 gallons of wine that will be sold both as bulk wine and bottled wine. Approximately 7,000 cases (17,000 gallons) of wine will be bottled on-site.

Wastewater is generated in tank cleaning, grape crushing, and equipment/floor cleaning. A mobile contract wine bottling service is used to bottle the wine; therefore, bottling activities will not generate a high strength waste stream. The winery is located outdoors. Stormwater that falls on roofs, paved areas, and the winery is currently collected and discharged to the wastewater system; however, the Discharger may install a diversion valve to allow clean stormwater to enter a designated stormwater pond. Domestic wastewater is discharged to a septic tank and leachfield system. The domestic system is regulated by the San Joaquin County Environmental Health Department.

The Discharger has proposed treating wastewater in a system that has been partially constructed; this Order requires construction and use of the system by 2 September 2004 (prior to crush activities). Process wastewater treatment will consist of collection of wastewater in floor drains with screens, additional screening with a hyperbolic screen, settling in a 1,000 gallon septic tank, and application to a 70 acre cropped land application area. The Discharger proposes to dispose of screened and settled winery effluent by irrigating 70 acres of cropped pasture using a water truck. A sprinkler irrigation system is under consideration and is acceptable as long as the application is performed consistent with the requirements in this order.

The monthly average process wastewater flow rate is anticipated to be 2,000 gallons per day (gpd) except during the crush (September through November) when wastewater flow rate is anticipated to be 3,500 gpd. The wastewater flow rate described above does not include rainfall that will combine with the industrial wastewater. The annual volume of wastewater shall not exceed 900,000 gallons.

The amount of wastewater that will be generated does not meet the crop demand for irrigation; therefore supplemental irrigation water will also be applied to the land area.

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 are a concern despite relatively low loading rates. Plants take up some dissolved solids at variable rates up to of 2,000 lbs/acre•year, so the proposed loading rate, depending on the analytes present in the wastewater, may degrade groundwater. The Discharger is therefore required to install groundwater monitoring wells.

This Order requires preparation of a *Groundwater Monitoring Workplan, Wastewater Treatment System Construction Report and Land Application Area Improvement Report, Operation and Maintenance Plan, Groundwater Well Installation Report, Salinity Reduction Study, and a Background Groundwater Quality Study Report*. The WDRs allow the Discharger to increase the land application area and add

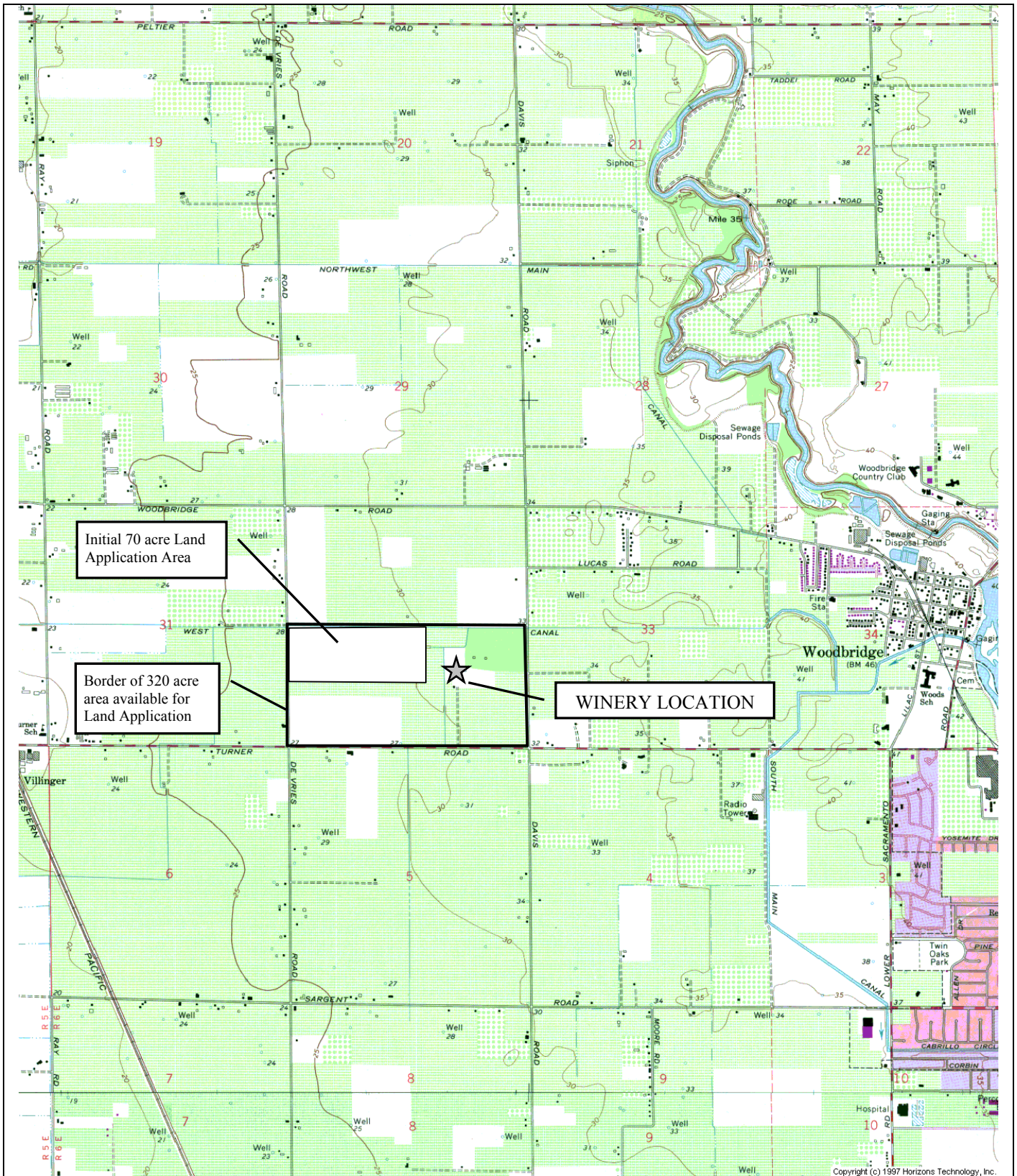
ORDER NO. R5-2004-0079
SPENKER RANCH, INC.
JESSIE'S GROVE WINERY
SAN JOAQUIN COUNTY

-2-

new land application areas upon the Executive Officer's approval of a technical report approving improvements that must be constructed prior to any wastewater application.

Surface water drainage in the area is to Sycamore Slough, tributary to the Mokelumne River downstream of Camanche Reservoir.

TRO: 06/04/04

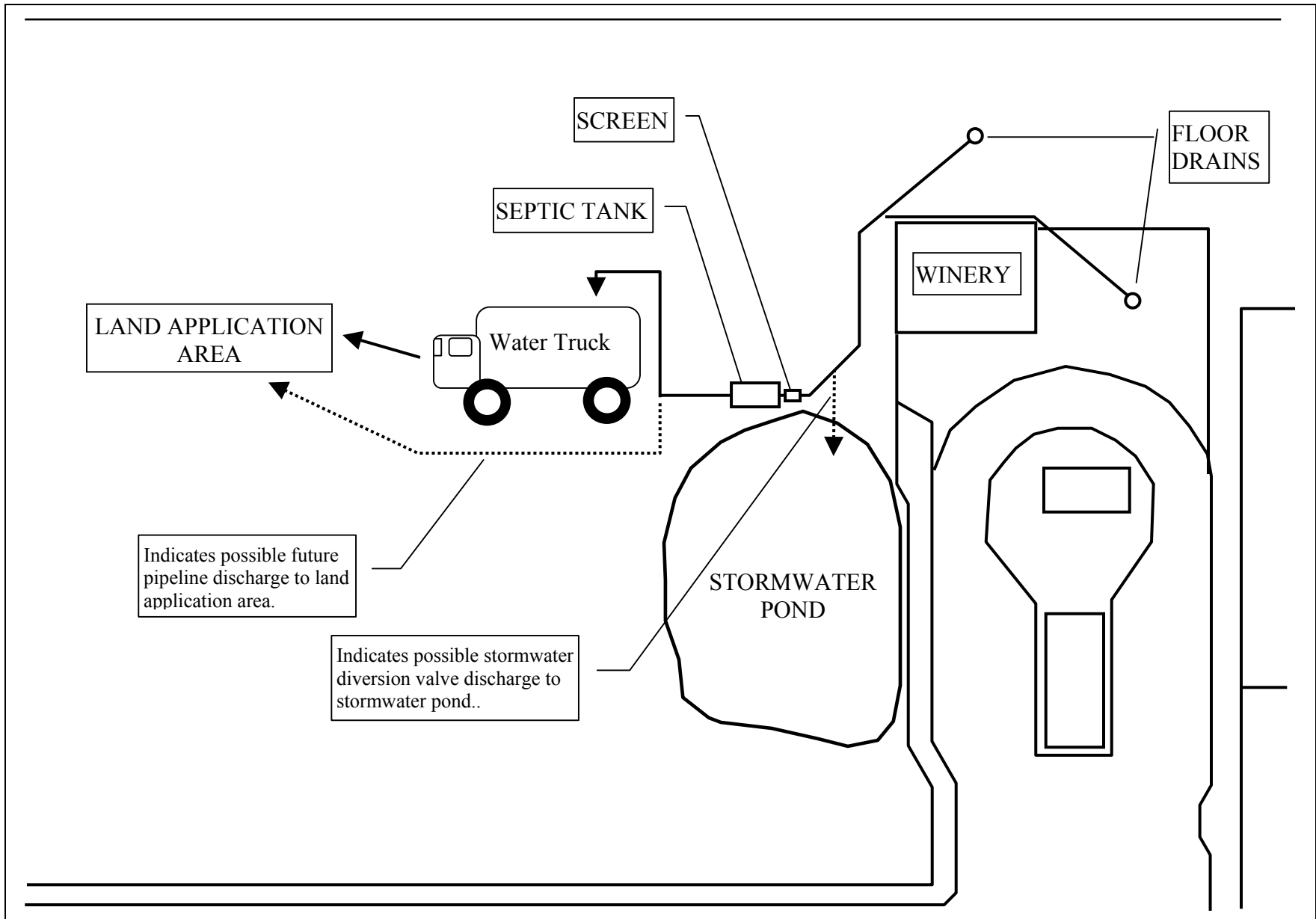


Copyright (c) 1997 Horizons Technology, Inc.

Drawing Reference:
 U.S.G.S. LODI
 NORTH
 TOPOGRAPHIC
 MAP

SITE LOCATION MAP
 JESSIE'S GROVE WINERY
 1973 W. TURNER ROAD
 LODI, SAN JOAQUIN COUNTY

approx. scale
 1 in. = 3,100 ft.



Not To Scale

Drawing Reference:
Modified from Figure 4.4
Revised Report of Waste Discharge
February 2004

SITE PLAN
JESSIE'S GROVE WINERY
1973 W. TURNER RD
LODI, SAN JOAQUIN COUNTY



California Regional Water Quality Control Board Central Valley Region



Terry Tamminen
Secretary for
Environmental
Protection

Robert Schneider, Chair

Arnold Schwarzenegger
Governor

Sacramento Main Office
Internet Address: <http://www.swrcb.ca.gov/rwqcb5>
11020 Sun Center Drive #200 Rancho Cordova, CA 95670-6114
Phone (916) 464-3291

ORDER NO. R5-2004-0079 ATTACHMENT C REQUIREMENTS FOR MONITORING WELL INSTALLATION WORKPLANS AND MONITORING WELL INSTALLATION REPORTS

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing, at a minimum, the information listed in Section 1, below. Wells may be installed after staff approve the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report which includes the information contained in Section 2, below. All workplans and reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

SECTION 1 - Monitoring Well Installation Workplan and Groundwater Sampling and Analysis Plan

The monitoring well installation workplan shall contain the following minimum information:

A. General Information:

- Purpose of the well installation project
- Brief description of local geologic and hydrogeologic conditions
- Proposed monitoring well locations and rationale for well locations
- Topographic map showing facility location, roads, and surface water bodies
- Large scaled site map showing all existing on-site wells, proposed wells, surface drainage courses, surface water bodies, buildings, waste handling facilities, utilities, and major physical and man-made features

B. Drilling Details:

- On-site supervision of drilling and well installation activities
- Description of drilling equipment and techniques
- Equipment decontamination procedures
- Soil sampling intervals (if appropriate) and logging methods

C. Monitoring Well Design (in narrative and/or graphic form):

- Diagram of proposed well construction details
 - Borehole diameter
 - Casing and screen material, diameter, and centralizer spacing (if needed)
 - Type of well caps (bottom cap either screw on or secured with stainless steel screws)
 - Anticipated depth of well, length of well casing, and length and position of perforated interval

California Environmental Protection Agency

- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Anticipated screen slot size and filter pack

D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):

- Method of development to be used (i.e., surge, bail, pump, etc.)
- Parameters to be monitored during development and record keeping technique
- Method of determining when development is complete
- Disposal of development water

E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):

- Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
- Datum for survey measurements
- List well features to be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.)

F. Schedule for Completion of Work

G. **Appendix: Groundwater Sampling and Analysis Plan (SAP)**

The Groundwater SAP shall be included as an appendix to the workplan, and shall be utilized as a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities.

Provide a detailed written description of standard operating procedures for the following:

- Equipment to be used during sampling
- Equipment decontamination procedures
- Water level measurement procedures
- Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged)
- Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used)
- Purge water disposal
- Analytical methods and required reporting limits
- Sample containers and preservatives
- Sampling
 - General sampling techniques
 - Record keeping during sampling (include copies of record keeping logs to be used)
 - QA/QC samples
- Chain of Custody
- Sample handling and transport

SECTION 2 - Monitoring Well Installation Report

The monitoring well installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

A. General Information:

- Purpose of the well installation project

Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells

Number of monitoring wells installed and copies of County Well Construction Permits

Topographic map showing facility location, roads, surface water bodies

Scaled site map showing all previously existing wells, newly installed wells, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details (in narrative and/or graphic form):

On-site supervision of drilling and well installation activities

Drilling contractor and driller's name

Description of drilling equipment and techniques

Equipment decontamination procedures

Soil sampling intervals and logging methods

Well boring log

- Well boring number and date drilled
- Borehole diameter and total depth
- Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
- Depth to first encountered groundwater and stabilized groundwater depth
- Detailed description of soils encountered, using the Unified Soil Classification System

C. Well Construction Details (in narrative and/or graphic form):

Well construction diagram, including:

- Monitoring well number and date constructed
- Casing and screen material, diameter, and centralizer spacing (if needed)
- Length of well casing, and length and position of perforated interval
- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Type of well caps (bottom cap either screw on or secured with stainless steel screws)

E. Well Development:

Date(s) and method of development

How well development completion was determined

Volume of water purged from well and method of development water disposal

Field notes from well development should be included in report

F. Well Survey (survey the top rim of the well casing with the cap removed):

Identify the coordinate system and datum for survey measurements

Describe the measuring points (i.e. ground surface, top of casing, etc.)

Present the well survey report data in a table

Include the Registered Engineer or Licensed Surveyor's report and field notes in appendix