

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2003-0097

FOR
JERRY G. BRASSFIELD
BRASSFIELD ESTATE WINERY
LAKE COUNTY

This monitoring and reporting program (MRP) incorporates requirements for monitoring of the process wastewater effluent 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 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 Rotating Biological Contactor (RBC) treatment unit. 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
pH	pH Units	Continuous	Daily ¹	Monthly
BOD ₅ ²	mg/L	Grab	Monthly	Monthly

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

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

PROCESS WASTEWATER EFFLUENT

Process wastewater samples shall be collected after the RBC treatment and prior to land application, 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
Dissolved Oxygen	mg/L	Grab	Weekly	Monthly
Specific Conductivity	µmhos/cm	Grab	Monthly	Monthly
BOD ₅ ¹	mg/L	Grab	Monthly	Monthly
Nitrates 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
Sulfate	mg/L	Grab	Monthly	Monthly
Effluent Storage Tank(s)	NA	Observation	Weekly	Monthly

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

² Storage tanks shall be observed for signs of abnormal color, solids buildup, odors, nuisance conditions, or leakage.

LAND APPLICATION AREA MONITORING

The Discharger shall conduct monitoring of 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>
Flow to the Land Application Area(s)	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
Total Nitrogen Loading Rate ³	lbs/acre/month ⁴	Calculated	Monthly	Monthly
Total Dissolved Solids Loading Rate	lbs/acre/month ⁴	Calculated	Monthly	Monthly

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

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.

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 noted in the monthly report.

GROUNDWATER MONITORING

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 MRP and shall be sampled and analyzed according to the schedule below. All samples shall be collected using approved EPA methods and water table elevations shall be calculated and used 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 Frequency</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
pH	pH units	Grab	Quarterly	Quarterly
Specific Conductivity	µmhos/cm	Grab	Quarterly	Quarterly
Nitrates as Nitrogen	mg/L	Grab	Quarterly	Quarterly
Total Kjeldahl Nitrogen	mg/L	Grab	Quarterly	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly	Quarterly
Sulfate	mg/L	Grab	Quarterly	Quarterly
Standard Minerals ²	mg/L	Grab	Quarterly	Quarterly

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

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

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., 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 **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 winery influent, process wastewater effluent, stormwater pond, and land application 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(s), 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 **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 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 2003, 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), soil profile monitoring data 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 monthly 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

6 June 2003
(Date)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2003-0097

WASTE DISCHARGE REQUIREMENTS
FOR
JERRY G. BRASSFIELD
BRASSFIELD ESTATE WINERY
LAKE COUNTY

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

1. Jerry G. Brassfield (hereafter Discharger) dba Brassfield Estate Winery submitted a Report of Waste Discharge (RWD) dated 14 December 2001 for the treatment and disposal of winery waste. An amended RWD was submitted on 17 May 2002 and additional information was submitted in May 2003.
2. The Discharger submitted an interim Operation and Maintenance Plan on 4 September 2002 to allow for temporary wastewater storage and the disposal of solid wastes to land. On 27 September 2002, the Executive Officer issued a waiver of waste discharge requirements (WDRs) and Monitoring and Reporting Program (MRP) Order No. R5-2002-0836 for this discharge. The waiver expired on 31 December 2002. Since that time, the Discharger has either stored his wastewater or hauled it off-site for disposal at an authorized facility. These WDRs address the permanent disposal of winery wastewater and solids.
3. The Discharger's winery and tasting facility is in High Valley, Lake County (Assessors Parcel No. 6-004-11) in Section 23, T14N, R8W, MDB&M. The location of the winery and associated facilities are shown on Attachments A and B, which are attached hereto and made part of this Order by reference.

BACKGROUND

4. The Discharger has developed a 4.11 acre wine tasting and passive recreational area within 1,600 acres used for grape growing and homesteading operations. The winery facility consists of a 6,000 square foot roofed warehouse and a 6,000 square foot slab for the processing operations.
5. The Discharger will process approximately 250 tons of red and white grapes annually during a 45 day crush period to produce approximately 15,000 cases of wine annually. The Discharger anticipates that production will increase to 80,000 cases of wine in the future (10 to 15 years); however, the Discharger's current Lake County Use Permit only allows an annual production of 15,000 cases of wine and therefore this Order contains the same limitation.
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:

<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		

7. 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 Range¹</u>
pH	pH units	2.5 – 9.5
Dissolved Oxygen	mg/L	0.5 – 8.5
Biochemical Oxygen Demand (BOD ₅) ²	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 ₃)	mg/L	40 – 730
Chloride	mg/L	3 – 250
Sulfate	mg/L	10 - 75

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

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

WASTEWATER SYSTEM

8. Wastewater from winery processes such as tank cleaning, grape crushing, barrel washing, and equipment/floor cleaning is treated using a Rotating Biological Contactor (RBC). This treatment package consists of primary settlement tanks for solids separation, a two-stage biozone with RBC rotor where the biological film is generated and the pollutants in the wastewater are oxidized by microorganisms within the biomass, and a final settlement tank which receives the treated effluent from the second stage biozone. The settled humus/scum in the final settlement tank is returned to the primary settlement tanks.

9. The process wastewater is collected in floor drains, piped to wastewater sumps, treated using the RBC technology, and then pumped into 5,000 gallon storage tank(s). The effluent from the RBC will be used to irrigate a landscaped area covered with turf grasses and shrubs.
10. The RWD states that a two-unit RBC treatment system is designed to treat an influent with an average daily flow of 1,458 gallons of wastewater and a BOD of 5,000 mg/L. The average effluent quality from the RBC is projected to be <30 mg/L BOD and <30 mg/L total suspended solids (TSS).
11. Currently, one RBC unit is used to treat an off-season average daily process wastewater flow of 700 gpd.
12. On 14 February 2003, the Discharger submitted a water balance for the wastewater treatment, storage, and disposal system. The water balance estimates the maximum daily process wastewater flow rate at 1,450 gallons per day (gpd) during the peak grape processing period, with estimated peak daily process flow rates during the off-season of approximately 700 gpd. The water balance utilizes 100-year annual return rainfall amounts and a disposal field loss rate of 0.25 gallons/square foot/day.
13. The water balance demonstrates adequate hydraulic capacity for wastewater storage, with the exception of the month of January. Due to this current lack of storage, the Discharger must provide a demonstration of adequate year-round capacity under permitted flows before the onset of the 2003 wet-season to justify the requested wastewater flow rate.
14. The majority of the processing is conducted under covered roofs to protect against commingling of stormwater runoff with process wastewater. However, the grape crush area is on an uncovered concrete pad equipped with a drain containing a three-way control valve connected to the wastewater influent and the stormwater discharge piping. Therefore, accidental discharge of wastewater to the stormwater collection system is possible. The stormwater collection system consists of an oil/water separator for treatment prior to discharge to an intermittent stream. The Discharger must develop operation and maintenance procedures that minimize the potential for discharge of wastewater to the stormwater discharge system.

LAND APPLICATION SYSTEM

15. The Discharger proposes to dispose of winery effluent by irrigating 6.3 acres of landscape using a spray and drip irrigation system. The effluent line from the storage tank(s) will be connected to the landscape irrigation system. Supplemental irrigation water will be used to irrigate the landscape as necessary, in between wastewater applications.
16. The land application area will be covered with turf grasses (i.e. rye and tall fescue) and shrubs. The grasses will be mowed to remove excess nitrogen.
17. The RWD, and staff's calculations, show that there is less nitrogen in the wastewater than the grass crop will take up. This is based on a nitrogen demand of 200 lbs/acre/year for the 6.3 acres of

grass, a conservative nitrogen effluent concentration of 40 mg/L, and annual flows of 1,450 gpd during the crush period (approximately two months) and 700 gpd for the remainder of the year. The grass on 6.3 acres will consume approximately 1,280 lbs of nitrogen, while the wastewater will contain approximately 100 lbs of nitrogen.

18. Staff's calculations show that the application of the winery wastewater to 6.3 acres of land should not cause an increase in the salt concentration in the underlying groundwater. Based on the water balance, a total of approximately 300,000 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 7,510 pounds of TDS produced each year in the wastewater. Total dissolved solids 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 usually 50% of the TDS in winery wastewater is in the volatile form. These volatile dissolved solids are broken down by soil microorganisms in a well managed land application system, and do not enter the groundwater. Therefore, of the 7,510 pounds of TDS in the wastewater, about 3,000 pounds are expected to be in the inorganic fraction, equating to a load of 470 pounds/acre for the 6.3 acre landscaped area. Plants typically take up 2,000 pounds of salt/acre/year, so the proposed loading rate should not degrade the underlying groundwater. Nevertheless, groundwater monitoring is appropriate to ensure that degradation does not take place, as some salt loading will also occur from the supplemental irrigation water.

SOLID WASTE

19. 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 also 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 bentonite and diatomaceous earth are removed from the facility by a licensed waste hauler. According to the RWD, storage of solid/semi-solid wastes will only occur on relatively impervious surfaces with leachate collection capabilities. Collected leachate will be sent to the process wastewater treatment system for further handling and treatment prior to disposal.
20. As described in the RWD, seeds, stems, skins solids, and pomace collected from crushing equipment and from floor drain screens will be placed into plastic tubs and then spread out within the adjacent vineyard area (80 acres) prior to October 15th (the start of the rainy season). Any composted waste material would be disced into the soil during spring soil preparation.

SITE SPECIFIC CONDITIONS

21. The site is relatively flat and is near the western end of High Valley which trends east to west. High Valley is a few miles north of Clear Lake.
22. Surficial soils (upper 12-inches) consist of the Wolfcreek loam which is characterized as a stratified brown clay loam and very sandy clay loam. These soils typically have moderately slow

permeability. Based on a Soil Conservation Survey report, permeability values for the Wolfcreek soils range from 0.2 to 0.6 inches/hour at 20 to 25 inches depth.

23. The upper 20 feet of subsurface geology consists primarily of highly plastic, very stiff to hard clay of lacustrine origin.
24. The facility is within the Lucerne Hydrologic Area (No. 513.53), as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.
25. Evapotranspiration rates for the High Valley area are estimated at 8.51" for September/October.
26. The Discharger installed three two-inch diameter groundwater monitoring wells in 2002. Hydrologic data collected from these wells show that the depth to water is from 3.3 to 5.1 feet below ground surface (bgs) and groundwater flow is toward the southeast at a magnitude of 0.0136 ft/ft. The location of each well is shown Attachment B.
27. In April 2002 and in May 2003, groundwater samples were collected from the monitoring wells and analyzed for a number of constituents. Selected results are presented in the table below.

<u>Constituents</u>	<u>Units</u>	<u>MW-1</u> <u>(upgradient)</u>	<u>MW-2</u> <u>(downgradient)</u>	<u>MW-3</u> <u>(downgradient)</u>
pH	pH units	7.0	7.1	7.0
Specific Conductivity	µmhos/cm	380	740	700
Total Dissolved Solids	mg/L	240 - 280	430 - 720	430
Chloride	mg/L	10 - 21	68 - 120	48 - 51
Sodium	mg/L	43 - 48	39 - 48	23 - 44
Sulfate	mg/L	24 - 33	39 - 54	34 - 37
Nitrate as NO ₃	mg/L	<1	<1	14 - 67
Iron	mg/L	0.31	<0.10	0.12
Manganese	mg/L	0.29	<0.020	0.029
Total Coliform	MPN/100 mL	200	200	10
Fecal Coliform	MPN/100 mL	<1	<1	<1

28. Iron and manganese were reported above maximum contaminant levels (MCLs) in MW-1. In addition, nitrate as NO₃ at 67 mg/L was reported above the MCL of 45 mg/L in MW-3. The site has been used for cattle grazing for many years, and these pre-project constituent concentrations are not a result of winery wastewater applications to land.
29. As shown on Attachment B, the three groundwater monitoring wells are located within the land application area. This order requires the Discharger to submit a Groundwater Monitoring Well Workplan for the installation of a new upgradient well.
30. Primary water for processing and domestic purposes is derived from a spring southwest of the facility and at an elevation approximately 150 feet higher than the facility. The water from the spring gravity flows to the winery. In addition to this water supply, two 5,000 gallon storage tanks located on the hillside south of the winery site are connected to various hydrants and to the sprinkler system inside the winery building used for fire protection.

31. Sanitary/domestic wastewater is collected separately from the process winery wastewater in an on-site sewage disposal system. This system is regulated by Lake County Environmental Health Department.

BASIN PLAN, BENEFICIAL USES, AND REGULATORY CONSIDERATIONS

32. 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.
33. Surface water drainage in the area is to Schindler Creek, which is tributary to Clear Lake.
34. The beneficial uses of Clear Lake are municipal and domestic supply; agricultural supply; water contact recreation; noncontact water recreation; warm freshwater habitat, cold freshwater habitat; warm freshwater spawning, reproduction, and/or early development; and wildlife habitat.
35. The beneficial uses of underlying groundwater are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.
36. State Water Resources Control Board (State Board) Resolution No. 68-16 requires that the Board, in regulating the discharge of waste, must maintain high quality waters of the state until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board's policies (e.g., quality that exceeds water quality objectives).
37. 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.
38. 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. R5-2003-0097” are necessary to assure compliance with these waste discharge requirements.

39. California Department of Water Resources standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), 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.
40. 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 obtained coverage under General Permit No. CAS000001.
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. On 14 January 2002, in accordance with the California Environmental Quality Act (Title 14, CCR, section 15261 et seq.), the Lake County Community Development Department, Planning Division approved a Negative Declaration for the Brassfield Estate Winery. This Negative Declaration is for the production of 15,000 cases of wine annually.
43. Regional Board staff have reviewed and considered the Negative Declaration and determined that implementation of the specific mitigation measures and compliance with the waste discharge requirements will mitigate or avoid impacts to water quality.
44. 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

45. 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.

46. 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.
47. 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, Jerry G. Brassfield, his 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. 15 and shown on Attachment B is prohibited.

B. Discharge Specifications:

1. The monthly average discharge from the treatment system shall not exceed 700 gpd. The average flow may increase to 1,450 gpd upon submittal of a technical report, and approval of the report by the Executive Officer, showing that the second RBC unit has been installed and is operational.
2. Neither the treatment nor the discharge shall cause a nuisance or condition of 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 wastewater discharged to the land application area shall not have a pH of less than 6.5 or greater than 8.5.
2. Wastewater discharged from the tanks to the 6.3 acre land application area shall not exceed the following monthly average effluent limits, or any lower limits necessary to comply with the Groundwater Limitations:

<u>Constituent</u>	<u>Units</u>	<u>Concentration</u>
BOD	mg/L	40
Total Suspended Solids	mg/L	40
Total Dissolved Solids	mg/L	3,000
Total Nitrogen	mg/L	40

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 (or grasses) 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. Grasses shall be harvested and removed from the application area.
3. Discharge of process wastewater, including runoff, 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.
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. A 100-foot buffer zone shall be maintained between any spring, domestic well or irrigation well and the wetted area produced during irrigation used for process wastewater effluent disposal.
11. Discharges to land application area shall be managed to minimize both erosion and runoff from the irrigated area.
12. The resulting effect of the wastewater discharge on the soil pH shall not exceed the buffering capacity of the soil profile.

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. Sludge, septage, and domestic wastewater shall be hauled by a duly authorized carrier.
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 **1 August 2003**, the Discharger shall submit a Groundwater Well Installation Workplan and a Groundwater Sampling and Analysis Workplan prepared in accordance with, and including the items listed in, Sections 1.0 and 2.0 of Attachment C: *“Monitoring Well Installation Workplan and Monitoring Well Installation Report of Results.”* The workplan shall propose the installation of an upgradient well, designed to yield samples representative of the uppermost portion of the first aquifer underlying the site. The workplan shall also specify proposed sampling techniques designed to ensure that representative samples of sufficient volume are obtained and analyzed.
 - b. By **1 September 2003**, the Discharger shall submit a Construction Report that documents construction of the process wastewater treatment system, disposal system, and solids drying/storage areas in a manner as described in this Order. The report shall also describe (a) the location of the flow meter which will be used to determine

compliance with the flow limitations of this Order, (b) installation of backflow prevention devices to protect irrigation wells from reclaimed process wastewater (if wastewater and supplemental irrigation water utilize the same pipelines), and (c) document that control mechanisms and/or valves have been installed such that process wastewater will not enter the stormwater system.

- c. By **1 September 2003**, 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 RBC treatment system, (b) the practices used to treat the wastewater within limits specified in this Order, (c) the locations of the land application areas, and procedures used for the disposal of wastewater to these areas to prevent excessive BOD, nitrogen, and salt over the loading limits specified in this Order, (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 (i.e. mowing, etc.), 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 **15 November 2003**, the Discharger shall submit a Groundwater Well Installation Report of Results that contains the information in Section 3 of Attachment C.
 - e. By **1 December 2003**, the Discharger shall submit a Wastewater Storage Report that describes how the Discharger has modified its system to provide additional storage for the month (i.e. January) when the water balance shows inadequate storage capability. The report shall also contain a revised water balance demonstrating that the Discharger now has adequate year-round capacity for the flows permitted by this Order.
 - f. By **1 August 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 saline waste discharged to the land application area(s). At a minimum, the salinity reduction report shall include a discussion of the winemaking chemicals, cleaning and sterilization procedures, vineyard practices, and salinity monitoring.
3. The Discharger shall comply with the Monitoring and Reporting Program No. R5-2003-0097, 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. If the Discharger can demonstrate to the satisfaction of the Executive Officer that higher salinity (i.e. TDS, sodium, chloride, sulfate, etc.) 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 salinity 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.
11. The Discharger shall report promptly to the Board any material change or proposed change in the character, location, or volume of the discharge.
12. 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.

13. 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.
14. 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 orders, the imposition of civil liability, revision or rescission of this Order, or referral to the Attorney General.
15. 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.
16. 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 6 June 2003.

THOMAS R. PINKOS, Executive Officer

INFORMATION SHEET

ORDER NO. R5-2003-0097
JERRY G. BRASSFIELD
BRASSFIELD ESTATE WINERY
LAKE COUNTY

Jerry G. Brassfield owns and operates a winery and tasting facility in the western end of High Valley, a few miles north of Clear Lake. The winery processes approximately 250 tons/year of red and white grapes to produce fermented, bottled wines for export and local sale. The winery consists of a 6,000 square foot roofed warehouse and a 6,000 square foot open area for the processing operations.

On 4 September 2002, the Discharger submitted an interim Operation and Maintenance Plan for temporary wastewater storage and the disposal of solid wastes to land. In response, the Executive Officer issued a waiver of waste discharge requirements (WDRs) and Monitoring and Reporting Program (MRP) Order No. R5-2002-0836 on 27 September 2002. The waiver expired on 31 December 2002. Since that time, the Discharger has been storing the waste or has hauled it to an approved wastewater disposal facility. These WDRs apply to the permanent wastewater treatment, storage, and disposal system.

The RWD estimates a maximum daily process wastewater flow rate of 1,450 gallons per day (gpd) during the peak grape processing period. Estimated peak daily process flow rates during the off-season are 700 gallons per day. These flows are for a production of 15,000 cases per year, as allowed by the Lake County Use Permit and this Order. The Discharger expects to grow larger over time, and will need to apply for revised WDRs after it has completed the CEQA documentation with Lake County.

Sanitary/domestic wastewater is collected separately from the process wastewater using an on-site sewage disposal system. This system is regulated by Lake County Environmental Health Department.

Process wastewater from winery processes such as tank cleaning, grape crushing, barrel washing, and equipment/floor cleaning water will be treated biologically using Rotating Biological Contactor (RBC) technology. This treatment package consists of primary settlement tanks for solids separation, a two-stage biozone with RBC rotor where the biological film is generated and the pollutants in the wastewater are oxidized by micro-organisms of the biomass, and a final settlement tank which receives the treated effluent from the second stage biozone. The settled humus solids (floating scum) is returned to the primary settlement tanks. Two RBC units are designed to treat an average daily flow of 1,458 gallons of wastewater containing biochemical oxygen demand (BOD) levels of 5,000 mg/L to an average effluent quality of <30 mg/L BOD, and <30 mg/L total suspended solids (TSS). The Discharger currently uses one RBC unit, therefore, the Order contains a flow limit of 700 gpd. When the second unit has been installed, the Discharger may request that the Executive Officer allow an increase in flow to 1,450 gpd.

Effluent wastewater disposal will consist of discharging treated effluent to a 6.3 acre land application area using spray and drip irrigation. Supplemental irrigation water will be used to irrigate the land application area as necessary. The land application area will be planted with grasses and shrubs. Calculations completed by staff show that the application of wastewater to the entire 6.3 acre landscaped area should not result in excessive loading of nitrogen or salt.

The solid/semi-solid wastes such as pomace (skins, seeds, pulp, stems, etc. resulting from the grape crush) is placed into plastic tubs and then spread over the adjacent 80 acre vineyard. The composted waste material is then disced into the soil during spring soil preparation.

These WDRs establish effluent limits for wastewater discharged to the land application area based on background groundwater quality, the treatment capability of the RBC units, the amount of land which will be irrigated, and the Groundwater Limitation which does not allow degradation of the groundwater. The effluent limits are specific for this particular site and operating conditions. The WDRs also require an extensive monitoring and reporting program.

Surface water flows into two drainage channels, one along the south west side of the property which drains into Schindler Creek, and another channel along the northwest side of the property which drains into the main channel below the property. Both these channels drain into Clear Lake.

GJC