

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2011-0033

WASTE DISCHARGE REQUIREMENTS  
FOR  
BOGLE VINEYARDS, INC.  
BOGLE DELTA WINERY  
YOLO COUNTY

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

1. Bogle Vineyards, Inc. (hereafter Discharger) submitted a Report of Waste Discharge (RWD) dated 17 March 2010, followed by a RWD addendum dated 20 October 2010 for treatment and land application of wastewater generated at the Bogle Delta Winery. The RWD was deemed complete on 20 October 2010.
2. The facility is located about 4 miles southwest of the unincorporated community of Clarksburg in Yolo County, at the intersection of Jefferson Boulevard and Hamilton Road (Assessor's Parcel Nos. 043-310-011 and 043-310-12), Section 12, Township 6 North, Range 3 East, MDB&M. The location of the facility is shown on Attachment A, which is attached hereto and is made part of this Order by reference.
3. The Discharger owns the property where the 255-acre facility is located. The winery will be a complete winemaking facility, from receiving and crushing grapes to packaging and shipment of wine off-site.
4. Process wastewater will be generated from the following areas: press area, external work areas and tank farm, barrel building, bottling and case goods building, and mechanical area.
5. Sanitary wastewater will be discharged into a septic tank and leach field system regulated by the Yolo County Department of Environmental Health.

**WINERY FACILITY AND WASTEWATER TREATMENT**

6. The winery is a new facility. Wastewater generation rates were estimated from similar sized wineries. The treatment facility will have the capacity to treat process wastewater generated from the on-site winemaking operations; wastewater from the on-site evaporative condenser; and process wastewater from the Discharger's Old River Vineyard (ORV) and Bogle Vineyard main facilities, which are located at 38045 Netherlands Road and 37783 County Road 14, respectively. A summary of the wastewater contributions are provided below.

| <u>Process Wastewater Source</u>          | <u>Volume (Mgal per year)</u> |
|---|-------------------------------|
| Bogle Delta Winery - Winemaking Process   | 22.275                        |
| Bogle Delta Winery -Evaporative Condenser | 6.605                         |
| Bogle ORV Facility                        | 0.192                         |

| <u>Process Wastewater Source</u>    | <u>Volume (Mgal per year)</u> |
|-------------------------------------|-------------------------------|
| <u>Bogle Vineyard Main Facility</u> | <u>0.180</u>                  |
| Total Process Wastewater            | 29.3                          |

- At full build out, the winery will crush approximately 30,000 tons of grapes; produce approximately 4.95 Mgal of wine; and include 5.5 Mgal of stainless steel tank storage, 5.9 Mgal of barrel storage, and 200,000 cases of wine storage. A high-capacity, fully automated bottling line is planned at the winery.
- A summary of the wine tanks is presented below:

| <u>Size (gallons)</u> | <u>Number</u> | <u>Total Storage Capacity (gallons)</u> |
|-----------------------|---------------|---|
| 64,000                | 16            | 1,024,000                               |
| 46,000                | 16            | 736,000                                 |
| 31,000                | 16            | 496,000                                 |
| 23,000                | 80            | 1,840,000                               |
| 15,500                | 48            | 744,000                                 |
| 11,500                | 18            | 207,000                                 |
| 7,750                 | 36            | 279,000                                 |
| 5,200                 | 20            | 104,000                                 |
| 3,875                 | 10            | 38,750                                  |
| 1,900                 | 15            | 28,500                                  |
| 950                   | 5             | 4,750                                   |

Report of Waste Discharge, Bogle Delta Winery Process Wastewater Management Systems, Summit Engineering, Inc., 17 March 2010.

- Distribution of the estimated monthly process wastewater flow rates to the treatment ponds is presented below. The crush season is typically from August through October, which reflects the highest flow rates.

| <u>Month</u> | <u>Units</u> | <u>Process Wastewater Monthly Flow (Mgal)</u> |                     |                               | <u>Total</u> |
|--------------|--------------|---|---------------------|-------------------------------|--------------|
|              |              | <u>Delta Winery</u>                           | <u>ORV Facility</u> | <u>Vineyard Main Facility</u> |              |
| August       | Mgal         | 2.955   | 0.024               | 0.024                         | 3.003        |
| September    | Mgal         | 4.799   | 0.030               | 0.024                         | 4.853        |
| October      | Mgal         | 4.036   | 0.030               | 0.024                         | 4.090        |
| November     | Mgal         | 1.791   | 0.012               | 0.012                         | 1.815        |
| December     | Mgal         | 1.574   | 0.012               | 0.012                         | 1.597        |
| January      | Mgal         | 1.618   | 0.012               | 0.012                         | 1.642        |
| February     | Mgal         | 1.738   | 0.012               | 0.012                         | 1.761        |
| March        | Mgal         | 2.309   | 0.012               | 0.012                         | 2.333        |
| April        | Mgal         | 2.066   | 0.012               | 0.012                         | 2.090        |
| May          | Mgal         | 2.064   | 0.012               | 0.012                         | 2.088        |
| June         | Mgal         | 1.933   | 0.012               | 0.012                         | 1.957        |
| July         | Mgal         | 1.997   | 0.012               | 0.012                         | 2.021        |
| Total        | Mgal         | 28.88   | 0.192               | 0.180                         | 29.252       |

10. Process wastewater will undergo solids removal and biological treatment prior to land application. The process wastewater treatment system is described below. A process flow diagram of the treatment facility is shown on Attachment B, which is attached hereto and is made part of this Order by reference.
  - a. Process wastewater from the Discharger's other facilities will be received at the dump station as shown on Attachment C, which is attached hereto and is made part of this Order by reference.
  - b. Process wastewater will be collected at floor drains and trenches from within the winery, receiving, crush, tank and wash down areas. Screened baskets and strainers will be installed within the floor drains and trench drains to provide initial screening.
  - c. Process wastewater will gravity flow into designated pump stations.
  - d. A rotary screen will be used to filter and separate solids from the wastewater. Grape pomace (skin, pulp, seeds, and stems) and diatomaceous earth containing filterable solids from wine fermentation such as lees and minor amount of wine, are the solid wastes that are generated from the wine making process. The solids will be collected for distribution to the land application area (LAA) as a soil amendment or transported offsite to a permitted facility.
  - e. Facultative aerated ponds will biologically stabilize and treat the wastewater.

- i. A summary of the pond system is provided below:

| <u>Pond Name</u> | <u>Function</u>          | <u>No. of Aerators</u> | <u>Water Depth</u> | <u>Capacity</u> <sup>1</sup> | <u>Construction Date</u> |
|------------------|--------------------------|------------------------|--------------------|------------------------------|--------------------------|
| Pond 1           | Secondary Treatment      | 6                      | 12 ft              | 8.0 Mgal                     | January 2011             |
| Pond 2           | Polishing                | 4                      | 12 ft              | 5.6 Mgal                     | Summer 2011              |
| Pond 3           | Polishing and Irrigation | 4                      | 12 ft              | 5.6 Mgal                     | Summer 2011              |

<sup>1</sup> At two feet of freeboard.

- ii. The ponds will be lined with a single layer of 60-mil high density polyethylene liner. For added protection, two layers of liner will be placed under all pond equipment. A 10 foot square concrete pad will be installed directly under each aerator, in addition to the double liner.
- iii. The pond system will have a capacity to provide a hydraulic residence time (HRT) of 74.5 days during peak flow conditions (during harvest).
- iv. The Discharger provided a liner installation certification for Pond 1 on 4 February 2011. The liner was installed in conformance with industry standards.
- v. The separation distance between the pond bottom and the highest anticipated groundwater is approximately 4.4 feet, based on a Geotechnical Investigation Report included in the RWD.

- f. To prevent clogging of the irrigation nozzles, a filter will be provided to screen treated wastewater prior to irrigation.
- g. Final reuse of treated wastewater will be accomplished by spray irrigating approximately 122 acres of LAA.
- h. The Discharger estimates the following treated wastewater quality prior to land application.

| <u>Constituent</u>              | <u>Units</u> | <u>Concentration</u> |
|---------------------------------|--------------|----------------------|
| Total Dissolved Solids (TDS)    | mg/L         | 300-900              |
| Biochemical Oxygen Demand (BOD) | mg/L         | 50-100               |
| pH                              | Std Units    | 6-9                  |
| Nitrogen                        | mg/L         | 0-50                 |

- 11. Most of the winery operations will be conducted under covered areas to avoid storm water wastewater mixtures.
  - a. Storm water that mixes with wastewater from the outdoor tank farm and process areas, including the pretreatment and crush areas, not under a roof will be discharged to the treatment system.
  - b. Uncontaminated storm water will be discharged to the storm water detention basin.
- 12. The Discharger will use a number of chemicals in the wine-making, processing, cleaning, and sanitation processes at the facility. The chemicals and the quantities to be used are identified below.

| <u>Chemical</u>                  | <u>Used For</u>  | <u>Annual Usage</u> | <u>Biodegradable</u> |
|----------------------------------|--|---------------------|----------------------|
| Calcium Hypochlorite (65%)       | Floor Cleaning   | 7,200 pounds        | No                   |
| Caustic Soda (50%)               | Tanks, Piping, and Equipment Cleaning                  | 1,000 pounds        | No                   |
| Citric Acid                      | Tanks, Piping, and Equipment Cleaning                  | 8,000 pounds        | Yes                  |
| Chlorinated Tri Sodium Phosphate | Floor Cleaning   | 2,000 gallons       | No                   |
| Peracetic Acid (5%)              | Tanks, Piping, and Equipment Cleaning and Sanitization | 2,300 pounds        | Yes                  |
| Potassium Hydroxide              | Tanks, Piping, and Equipment Cleaning                  | 38,600 pounds       | No                   |
| Ammonium Chloride                | Tanks, Piping, and Equipment Cleaning                  | 1,000 pounds        | Yes                  |
| Potassium Metabisulfite          | Winemaking   | 8,700 pounds        | No                   |
| Sodium Bisulfate                 | Winemaking   | 8,700 pounds        | No                   |

Winemaking chemicals summary from Appendix B, Report of Waste Discharge, Bogle Delta Winery Process Wastewater Management Systems, Summit Engineering, Inc., 17 March 2010.

### SOURCE CONTROL

13. The RWD describes the following Best Practicable Treatment and Control (BPTC) measures that will be incorporated into the design of the facility:
  - a. The facility will not utilize water softeners or ion exchange units.
  - b. Water heaters rather than traditional steam boilers will be installed.
  - c. A non-chemical evaporative cooled refrigeration system will be installed to control the temperature of the wine and the winery's HVAC system. This system will reduce the amount of iodine and zinc discharged into the process wastewater.
  - d. Wine temperature control will be accomplished by pumping glycol through jacketed stainless steel tanks. This process reduces the need to pump wine from the storage tanks through a remote wine chiller and therefore reduces the amount of line sanitation, water, and chemical usage associated with wine chillers.
  - e. Replacement of chemicals with more environmentally acceptable substitutes:
    - i. Increase the use of peracetic acid to minimize use of cleaning agents such as tri sodium phosphate. Peracetic acid breaks down to acetic acid, water, and oxygen; therefore will contribute to alkalinity, but will not contribute sodium, phosphate, or other salts to the process wastewater.
    - ii. Implement the use of potassium based cleaning agents rather than sodium based cleaning agents. Replacement of sodium hydroxide with potassium hydroxide. Using a potassium-based cleaner rather than a sodium-based cleaner can reduce the amount of fixed dissolved solids (FDS) that reach groundwater because crops in the LAA can take up potassium as a crop nutrient.
  - f. A water efficient high pressure/low volume barrel cleaning system will be used to allow for shorter wash cycles and eliminate the need for chemicals.
  - g. Wastewater is collected in floor drains and trench drains, then gravity flows into designated pump stations. Multiple pump stations allow for the collection of process wastewater from the winery building to be pumped separately from the outdoor work areas. This ensures collection and treatment of wastewater/storm water mixtures, but prevents treatment of uncontaminated storm water. Diversion valves are used to direct the water to the treatment ponds or to the storm water basin.
  - h. Process wastewater will be pumped through a rotary screen before entering the pond system. The rotary screen removes solids, therefore reduces ultimate organic loading to the treatment ponds.
  - i. The crush, pomace loading, dump station, and rotary screen areas will be placed on concrete pads and allow drainage to designated pump stations, therefore preventing leachate generation and infiltration into the ground.
  - j. A conveyor transfers the solids generated from the crushing area directly into facility dump trucks for later use as a soil amendment in the LAA or transportation offsite for disposal and/or composting at a permitted facility. Solids collection and

transfer will be a continuous process; therefore the Discharger does not anticipate storage of solid wastes.

- k. Crops will be planted in the LAA to assimilate nutrients in the treated wastewater, and will be harvested and removed from the site.
- l. The following operation and maintenance procedures will be established to minimize process wastewater from potentially discharging into the storm water detention basin:
  - i. Track weather forecast and plan winemaking activities accordingly. Winemaking activities will cease prior to diversion into the storm water detention basin. Pipes will be adequately flushed before discharging to the storm water basin.
  - ii. During the dry season, diversion valves will be positioned to divert all drainage to the treatment ponds.
  - iii. During the wet season, normal operation procedure is to discharge to the treatment ponds at all times except when there is a storm event and no production or cleaning is scheduled.
  - iv. Diversion valves will be fitted with a limit switch to indicate when a valve is open or closed.
- m. Each pump station will be fitted with duplex pumps to allow for continued operation in the event of equipment failure. Float switches will be used to activate and deactivate the pumps and to activate high water alarms. Adequate capacity is maintained within each sump to provide time for winery staff to reduce process wastewater generation in the event of an alarm.
- n. All three wastewater ponds are fitted with aerators. Should an aerator fail, the remaining aerators can continue to supply sufficient oxygen to treat the wastewater. The dissolved oxygen (DO) control system will automatically run the aerators as necessary to maintain adequate DO concentrations.
- o. In the event of a facility wide power failure, all winery operations and process wastewater generated will stop and any storm water from outside work areas will be diverted to the gravity storm drainage system. All wastewater will be contained in the wastewater conveyance system until power is restored. For periods of prolonged power failure, generators will be used to facilitate continued winery operations.
- p. Implementation of Best Management Practices (BMPs), Standard Operating Procedures (SOPs) and employee orientation and training will increase employee awareness of source control activities.

### **WATER BALANCE**

- 14. A revised water balance was submitted as an addendum to the RWD dated 20 October 2010 for the wastewater treatment, storage, and land application system.

- a. The water balance was based on an annual wastewater discharge of 29.3 Mgal, 100-year annual return rainfall amount of 36.4 inches, and a total of 122 acres of LAA.
  - b. The wastewater and treatment storage ponds were designed to allow storage of wastewater during the months of November through March during a 100-year storm. The wastewater storage and treatment ponds will allow storage of wastewater through the winter, and application during the growing and harvest season.
15. The storm water basin, located west of the tank farm and barrel building, will be detailed as part of the Storm Water Pollution Prevention Plan (SWPPP) as required by the General Permit for Discharges of Storm Water Associated with Industrial Activities, WQO No. 97-03-DWQ. The following summarizes the storm water procedures:
- a. Designated pump stations receive process wastewater and/or storm water from exterior tank and process areas not under a roof and are separate from those that receive process wastewater from the buildings. Wastewater/storm water mixtures will be considered as wastewater, treated and stored in the treatment ponds until it can be applied to the LAA. Uncontaminated storm water will be diverted to the storm water detention basin.
  - b. Storm water collected in the basin will be discharged into the existing irrigation canal located west of the pond.
  - c. In the event that process wastewater is accidentally discharged into the storm drainage system, the contaminated water can be pumped from the detention basin into the process wastewater treatment system.

#### **LAND APPLICATION SYSTEM**

16. The LAA will consist of 122 acres with cultivated alfalfa (approximately 68 acres) and winter wheat (approximately 54 acres). After the conclusion of the alfalfa life cycle, the crops will be rotated. The LAA is located approximately 400 ft west of the facility, as presented on Attachment C.
17. Treated wastewater will be applied by flood, sprinkler system, or drip irrigation. The irrigation systems are acceptable as long as treated wastewater applications are performed consistent with the requirements in this Order, allow even distribution, and prevent spills outside the LAA. Reapplying tailwater to the LAA or returning it to the wastewater ponds is acceptable.
18. Total annual irrigation demand for the crops is estimated to be approximately 168 Mgal.
  - a. Irrigation is anticipated to occur between the months of April and October of each year to correspond with the growth cycle and to limit irrigation during the rainy season.
  - b. Approximately 140 Mgal of supplemental irrigation water will be necessary to meet crop demands each year, and will be supplied by Reclamation District 999 irrigation canals that typically have an average summer TDS concentration of 110 mg/L.

- c. Crops will require supplemental nutrients provided by standard agricultural fertilizers.
  - d. Pesticide will be used on an as-needed basis and in accordance with standard agricultural practices.
19. Alfalfa and wheat crops will be harvested from the LAA as part of the treatment/reclamation process. Factors to be considered in determining appropriate wastewater application rates to the LAA include: crop type, number of crops per year, dosing interval, and the characteristics of the wastewater including, but not necessarily limited to, nitrogen concentration, fixed dissolved solids (FDS) concentration, biochemical oxygen demand, and pH.
- a. Based on information obtained from *The Western Fertilizer Handbook*, alfalfa and wheat will take up at least 480 pounds per acre per year (lbs/ac/yr) and 175 lbs/ac/yr of nitrogen, respectively, or a combined total of 655 lbs/ac/yr during years when winter wheat is planted prior to starting the next alfalfa crop. The Discharger estimated that the maximum total nitrogen concentration in the treated wastewater is 50 mg/L, which equates to a loading rate of 87 lb/ac/yr. Additional fertilizer will be needed to supplement nitrogen from the applied wastewater, process solids and pond sludge. This Order limits the application of nitrogen from all sources to crop demand.
  - b. TDS is composed of both volatile dissolved solids (VDS) and dissolved salts or fixed dissolved solids (FDS). The proportion of VDS to FDS in wastewater varies with the source, but 50 percent of the TDS in winery wastewater may be in the volatile form. The VDS can be biologically treated by soil microorganisms in a well-managed wastewater treatment and land application system, when wastewater is not over-applied. FDS are reduced by plant uptake of nutrients, primarily nitrates, phosphorus, and potassium (and to a lesser degree calcium, magnesium, and sulfur). The Discharger estimated an FDS loading rate of 1,190 lbs/ac/yr.
  - c. Excessive application of food processing wastewater to land application areas can create objectionable odors (a possible nuisance condition), soil conditions that are harmful to crops, and degrade the underlying groundwater by overloading the shallow soil profile and causing waste constituents (organic carbon, nitrate, other salts, and metals) to percolate below the root zone. The maximum BOD loading rate that can be applied to land without creating nuisance conditions can vary significantly depending on the operation of the land application system. *Pollution Abatement in the Fruit and Vegetable Industry*, published by the United States Environmental Protection Agency (US EPA Publication No. 625/3-77-0007) (hereafter *Pollution Abatement*), cites BOD loading rates for irrigation purposes in the range of 36 pounds per acre per day (lbs/ac/day) to 100 lbs/ac/day. The Discharger estimated the BOD loading rate to be 1.59 lbs/ac/day.
  - d. Acid and/or reducing soil conditions can be detrimental to land treatment system function, and may cause groundwater degradation if the buffering capacity of the soil is exceeded. If soil pH decreases below 5 and the soil remains in a reducing state for prolonged periods, naturally occurring metals (including iron and



manganese) could dissolve and degrade the underlying groundwater. In practice, prolonged reducing conditions may not occur because: 1) the cycle of increased pH during loading with either wastewater or fertilizer is followed by pH recovery during cropping and organic matter cycling and; 2) the dose and rest cycling of applied wastewater creates alternate anoxic and aerobic conditions. *Pollution Abatement* recommends that water applied to crops have a pH within 6.4 to 8.4 to protect crops. However, the annual application of 25.5 Mgal of wastewater over a 122-acre LAA, equates to a very low annual application depth (approximately 8 inches). As a result, low frequency dosing allows ample time for soil recovery between doses. Therefore, soils and underlying groundwater are expected to adequately buffer a wider range of pH. This order limits the discharge of treated wastewater to the LAA to a pH range of 6.4 to 10.0.

### SOLID WASTE

20. Solid wastes from the winery, including pomace (skins, pulp, seeds, and stems) and diatomaceous earth, will be generated at the crush pad, pomace loading, and dump station areas. Drainage from these areas will be conveyed to the wastewater treatment system.
21. A conveyor will transfer solids generated from the grape presses directly into facility dump trucks. The solids will be spread over the LAA and disced in as a soil amendment providing supplemental soil nutrients. Typical moisture and nutrient content of fresh grape wastes, such as stems and pomace are listed below.

|            | Average Content (% Weight) |                 |                  |                   |
|------------|----------------------------|-----------------|------------------|-------------------|
|            | <u>Moisture</u>            | <u>Nitrogen</u> | <u>Potassium</u> | <u>Phosphorus</u> |
| Stems      | 65                         | 0.9             | 1.2              | 0.1               |
| Wet Pomace | 50                         | 0.9             | 1.0              | 0.25              |

22. Sludge that accumulates in the treatment ponds will be removed as needed to ensure optimal operation and adequate hydraulic capacity. The Discharger estimates that sludge removal will be needed approximately every ten years and applied to the LAA at agronomic rates. This Order requires that the Discharger submit and implement a *Pond Sludge Management Plan* prior to sludge removal activities to characterize the sludge and provide detailed operational practices to prevent nuisance and protect water quality.

### GROUNDWATER CONDITIONS

23. Groundwater conditions have been investigated by sampling the supply well and installing and sampling three groundwater monitoring wells. The locations of these wells are presented in Attachment C.
24. The winery is served by an on-site well. The well depth is 360 ft with a screened interval between 320 ft and 340 ft. Analytical results of a water sample collected on 31 January 2010 are presented below.

| <u>Constituent</u>                  | <u>Analytical Result (mg/L)</u> |
|-------------------------------------|---------------------------------|
| Total Alkalinity                    | 190                             |
| Bicarbonate as CaCO <sub>3</sub>    | 190                             |
| Carbonate as CaCO <sub>3</sub>      | < 5 <sup>1</sup>                |
| Nitrate/Nitrite as N                | < 0.4 <sup>1</sup>              |
| Nitrate as NO <sub>3</sub>          | < 0.50 <sup>1</sup>             |
| Nitrite as N                        | < 0.10 <sup>1</sup>             |
| pH                                  | 8.3 <sup>2</sup>                |
| TDS                                 | 290                             |
| Total Hardness as CaCO <sub>3</sub> | 34                              |
| Calcium                             | 8.7                             |
| Iron                                | 0.110                           |
| Manganese                           | 0.037                           |
| Sodium                              | 98                              |

Source water quality from Appendix B, Report of Waste Discharge, Bogle Delta Winery Process Wastewater Management System, Summit Engineering, Inc., 17 March 2010.

<sup>1</sup> Non detect, typical detection limits shown.

<sup>2</sup> pH standard units

25. On 1 March 2010, the Discharger installed three groundwater monitoring wells at the facility to determine baseline groundwater quality prior to wastewater land application operations.
- Well MW-1 is located southeast of the treatment ponds.
  - Well MW-2 is located northwest of the treatment ponds.
  - Well MW-3 is located southwest of the LAA.
  - The well construction details are provided below.

|  | <u>MW-1</u> | <u>MW-2</u> | <u>MW-3</u> |
|--|-------------|-------------|-------------|
| Total Depth (ft)                             | 26          | 26          | 26          |
| Screen Interval ((ft)                        | 11 - 26     | 11 - 26     | 11 - 26     |
| Filter Pack (ft)                             | 10 - 26     | 10 - 26     | 10 - 26     |
| Bentonite Seal (ft)                          | 9 - 10      | 9 - 10      | 9 - 10      |
| Grout Seal (ft)                              | 0 - 9       | 0 - 9       | 0 - 9       |
| Depth of Ground Water <sup>1</sup> (ft, bgs) | 4.41        | 5.94        | 4.75        |
| Groundwater Elevation <sup>1</sup> (ft, msl) | 1.21        | 2.22        | 2.60        |
| TOC Elevation <sup>2</sup> (ft, msl)         | 5.65        | 8.16        | 7.35        |

Report Groundwater Monitoring Well Installation, Bogle Vineyards, Kleinfelder, 08 April 2010.

<sup>1</sup> Data recorded on 19 March 2010.

<sup>2</sup> Data surveyed 1 April 2010.

26. The monitoring wells were sampled each month from March 2010 through June 2010 and again in September 2010.

a. The analytical results are summarized below:

| <u>Constituents</u>              | <u>Units</u> | <u>MW-1</u>       | <u>MW-2</u> | <u>MW-3</u> | <u>WQO<sup>2</sup></u> |
|----------------------------------|--------------|-------------------|-------------|-------------|------------------------|
| Total Alkalinity                 | mg/L         | 494               | 418         | 436         | N/A <sup>3</sup>       |
| Nitrate as N                     | mg/L         | <0.5 <sup>1</sup> | 17.46       | 1.70        | 10                     |
| pH                               | S.U.         | 7.68              | 7.55        | 7.55        | 6.5 - 8.5              |
| Sulfate as SO <sub>4</sub>       | mg/L         | 246               | 264         | 386         | 250                    |
| Total Dissolved Solids           | mg/L         | 1,140             | 1,220       | 1,600       | 450                    |
| Total Hardness CaCO <sub>3</sub> | mg/L         | 260               | 796         | 784         | N/A <sup>3</sup>       |
| Calcium                          | mg/L         | 12                | 32          | 38          | N/A <sup>3</sup>       |
| Magnesium                        | mg/L         | 56                | 174         | 168         | N/A <sup>3</sup>       |
| Manganese                        | mg/L         | 0.4               | 0.3         | 0.7         | 0.05                   |
| Sodium                           | mg/L         | 348               | 162         | 312         | 69                     |

<sup>1</sup> Non detect, typical detection limit shown

<sup>2</sup> WQO denotes Water Quality Objectives

<sup>3</sup> N/A denotes not applicable, no water quality objective available

b. Groundwater gradient and flow direction are listed below:

| <u>Date</u> | <u>Gradient</u> | <u>Direction</u> |
|-------------|-----------------|------------------|
| 3/23/2010   | 0.0005 ft/ft    | East/northeast   |
| 4/14/2010   | 0.0006 ft/ft    | East             |
| 5/12/2010   | 0.0004 ft/ft    | East             |
| 6/18/2010   | 0.0004 ft/ft    | East/southeast   |
| 9/23/2010   | 0.0018 ft/ft    | West             |

27. Supplemental irrigation water will be supplied by the Reclamation District 999 canals.

a. Water quality results for typical summer months were provided by Reclamation District 999. Additional sampling and analysis was conducted by the Discharger. Water quality data is presented below.

| <u>Constituents</u> | <u>Units</u> | <u>Summer Result<sup>1</sup></u> | <u>May 2010/June 2010 Result<sup>2</sup></u> |
|---------------------|--------------|----------------------------------|--|
| pH                  | pH units     | 6.7                              | 7.63/6.96                                    |
| TDS                 | mg/L         | 110                              | 790/190                                      |
| EC                  | umhos/cm     | 139                              | 1,300/290                                    |
| Calcium             | mg/L         | 11                               | 45/13  |
| Magnesium           | mg/L         | 6                                | 78/16  |
| Potassium           | mg/L         | 1                                | 2.7/1.5                                      |
| Sodium              | mg/L         | 9                                | 140/27                                       |
| Alkalinity          | mg/L         | 60                               | 280/110                                      |
| Total Hardness      | mg/L         | 52                               | <5/<5  |
| Carbonate           | mg/L         | <10                              | <5/<5  |
| Bicarbonate         | mg/L         | 70                               | 280/110                                      |
| Sulfate             | mg/L         | 6                                | 150/20                                       |
| Chloride            | mg/L         | 5                                | 170/18                                       |
| Nitrate             | mg/L         | 0.6                              | <0.5/<1.5                                    |

<sup>1</sup> Irrigation canal water quality from Appendix B, Report of Waste Discharge, Bogle

Delta Winery Process Wastewater Management Systems, Summit Engineering, Inc., 17 March 2010.

- <sup>2</sup> Irrigation canal water quality from Report Baseline Groundwater Quality, Bogle Vineyards, Kleinfelder, 31 August 2010

- b. Samples collected in June 2010 by the Discharger are representative of the canal water quality after water from the Sacramento River was pumped into the canal system.
28. The estimated average monthly TDS concentration of the treated wastewater is 700 mg/L. This concentration accounts for the TDS concentration in the source water, expected concentration from the chemicals used in the winemaking process, and the net effect of water lost from evaporation from the evaporative condenser and the ponds.
29. Topographic elevations at the facility range from 2 to 3 ft above sea level. Flooding is mitigated by the levees in the area. Several irrigation channels cross the winery property.

#### **SITE SPECIFIC CONDITIONS**

30. Prior to the Federal Emergency Management Agency (FEMA) re-designating the flood level zones, the winery was located within a Flood Zone B, areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one foot or whether the contributing drainage area is less than one square mile; or areas protected by levees from the base flood.. Changes to the FEMA flood maps took effect on June 2010, therefore designating the winery location as a Flood Zone A, areas with no base flood elevations determined. The Discharger has taken the necessary measures to ensure the protection of the ponds from inundation and/or washout due to flood with a 100-year return frequency.
31. Land use in the vicinity of the site consists of agricultural uses to the north, west, and south; agriculture and some rural residences to the south. The topography of the surrounding area is relatively level with average slopes less than one percent.
32. Shallow soils consist of variable layers of sandy clays and silt along with clayey and silty sands as reported in the *Report Geotechnical Investigation* included in the RWD.
33. Based on the California Irrigation Management Information System rainfall data, the mean annual rainfall is approximately 18.5 inches; the 100-year return annual precipitation is 36.4 inches; and the mean annual evapotranspiration is estimated to be 57.6 inches per year.
34. The facility proposes to employ approximately eighty employees in full time and seasonal positions.
35. Domestic wastewater will be discharged to a septic system regulated by the Yolo County Environmental Health Department. No commercial kitchen or tasting room is planned for the facility. The septic system will primarily serve winery employees and consist of typical wastewater generated from restrooms, sinks, and employee break room facilities. The wastewater disposal area is an above-grade mound system that provides approximately six feet of separation from groundwater.

### ANTIDegradation ANALYSIS

36. 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 Section 13263(a) of the California Water Code (CWC), waste discharge requirements (WDRs) must implement the Basin Plan.
37. The facility is within the Yolo Bypass Hydraulic Area (No. 510.00), as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.
38. The beneficial uses of the Yolo Bypass are agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat.
39. The beneficial uses of underlying groundwater are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.
40. State Water Resources Control Board (State Board) Resolution No. 68-16 (the Antidegradation Policy) allows the degradation of groundwater quality if the Central Valley Water Board determines that:
  - a. The degradation is consistent with maximum benefit to the people of the State.
  - b. The degradation will not unreasonably affect present and anticipated future beneficial uses.
  - c. The degradation does not cause exceedance of one or more water quality objectives.
  - d. The Discharger employs best practicable treatment and control to minimize degradation.
41. Limited degradation of high-quality groundwater by some of the typical constituents released with discharge from a winery (after source control, treatment, and control) is consistent with maximum benefit to the people of the State. When allowed, the degree of degradation permitted depends upon many factors (e.g., background water quality, the waste constituent, the beneficial uses and water quality objectives, management practices, source control measures, and waste constituent treatability).
42. The Discharger has provided an Antidegradation Analysis. The Discharger will utilize a treatment process consisting of physical and biological processes to reduce the residual solids and BOD found in the winery wastewater. The treatment ponds are lined and will minimize infiltration into the groundwater. The use of winery wastewater to irrigate crops in place of higher quality surface or groundwater is a benefit to the people of the State.
43. The treatment and control practices described herein provide commonly implemented treatment and control for the subject wastewater, and will likely prevent the discharge from creating a condition of pollution or nuisance, and maintain water quality. The following treatment and control practices will be implemented at the site:

- a. Source control measures as described in Finding 13.
  - b. The wastewater will be treated using physical processes to reduce the residual solids.
  - c. The wastewater will be treated using biological processes in the form of aerated lined ponds to reduce the BOD.
  - d. Approximately 122 acres of LAA is available for the application of treated wastewater. Crops planted in the LAA will take up some of the waste constituents found in the wastewater. This Order limits land application of nitrogen to agronomic rates.
  - e. The treated wastewater generated at the winery will not provide adequate water to meet crop demands. The Discharger anticipates blending treated wastewater with supplemental irrigation water from the Reclamation District 999 canals, which produces good quality water.
  - f. Tailwater will be collected for reapplication or sent back to the treatment system.
  - g. Grape pomace from the press area is conveyed directly into dump trucks to be disced daily into the LAA, therefore reducing the likelihood of leachate generation and infiltration into the groundwater.
  - h. This Order requires groundwater monitoring.
44. The Discharger expects the facility to be an important component of the economic development for the region. The facility will provide approximately 80 jobs for year-round and seasonal employment. Prohibiting the discharge could eliminate some or all those jobs. Economic prosperity of the region and associated industry is a benefit to the people of the State.
45. This Order establishes requirements to ensure the discharge will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives or background groundwater quality, whichever is greater. This Order allows the Discharger to blend treated wastewater with supplemental irrigation water. This Order requires additional groundwater evaluation, and requires the sampling of groundwater monitoring wells to quantify any impacts to the underlying groundwater quality. 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. Accordingly, the discharge is consistent with the antidegradation provisions of Resolution 68-16.
46. Based on the threat and complexity of the discharge, the facility is determined to be classified 2-B as defined below:
- a. Category 2 threat to water quality, defined as, "Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short term violation of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."
  - b. Category B complexity, defined as, "Any discharger not included above that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal) or any Class 2 or Class 3 waste management units."

47. California Water Code Section 13267(b) provides that: *“In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of 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 (MRP) No. R5-2011-2033 are necessary to assure compliance with these WDRs. The Discharger owns and operates the facility that generates the waste subject to the Order.

48. The Basin Plan encourages reclamation as described in the Wastewater Reuse Policy.

#### **CCR TITLE 27 EXEMPTION**

49. This discharge is exempt from the requirements of *Consolidated Regulation for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, California Code of Regulations, Division 2, Subdivision 1, Section 20005 et seq. (hereafter Title 27). The exemption, pursuant to Section 20090(b), 20090(f), and 20090(h) is based on the following:
- a. The operation of the lined wastewater treatment and storage ponds, and the application of treated wastewater to the LAA is exempt based on Section 20090(b):
    - i. The Central Valley Water Board has issued waste discharge requirements.
    - ii. This discharge is in compliance with the Basin Plan.
    - iii. The wastewater does not need to be managed according to Title 22 CCR, Division 4.5, Chapter 11, as a hazardous waste.
  - b. Application of decomposable solids as a soil amendment to the LAA is exempt based on Section 20090(f). The solids (pomace, diatomaceous earth (DE), and pond sludge) are exempt because:
    - i. The solids are nonhazardous.
    - ii. The waste constituents in the solids are decomposable.
    - iii. Application to land is considered a best management practice. The practice allows the nutrients to slowly decompose, prevents odors or vector issues associated with composting and improves soil tilth.
    - iv. The Central Valley Water Board has issued waste discharge requirements.
  - c. Discharge of treated wastewater to the LAA is exempt based on Section 20090(h). Application of treated wastewater to LAA will result in additional waste treatment, water reuse, and nutrient recycling. Natural processes in the LAA provide the

additional treatment; percolate wastewater/supplemental irrigation/storm water moving below the crop root zones will recharge groundwater; and nutrients will be taken up by crops, harvested (such as alfalfa or wheat), or cut and removed from the LAA (such as during crop cover mowing or plant pruning activities).

50. 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. The data analysis methods of Title 27, Section 20415, are appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.

### **OTHER REGULATORY CONSIDERATIONS**

51. California Department of Water Resources standards for the construction and destruction of groundwater wells is described in California Well Standards Bulletin 74-90 (June 1991) and Water Well Standards: State of California Bulletin 94-81 (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to CWC Section 13801, apply to all monitoring wells.
52. 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 is required to submit a Notice of Intent for coverage under the *NPDES General Permit for Discharges of Storm Water Associated with Industrial Activities* upon completion of the winery facility construction.

### **CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)**

53. This project is subject to the provisions of the California Environmental Quality Act (CEQA, Public Resources Code Section 21000 et seq.) in accordance with Public Resources Code Section 21065. Yolo County is the CEQA Lead Agency for this project under the CEQA Guidelines. The Final Environmental Impact Report (FEIR) for the 2030 Yolo Countywide General Plan was adopted by Yolo County on 10 November 2009, following public review and comment.
54. An Environmental Initial Study dated November 2009 was prepared in accordance with CEQA for the rezoning of land in Clarksburg from Agricultural Preserve to Agricultural Industry. Mitigation measures as identified in the FEIR adequately discussed all potentially significant impacts of this project, including off-site or cumulative impacts.
  - a. There is no substantial new information that shows previously identified significant effects will be more significant than described in the FEIR.
  - b. In approving the 2030 Yolo Countywide General Plan, the county adopted all feasible mitigation measures relevant to a potentially significant effect that this project could have on the environment.
  - c. The mitigation measures and policies identified in the 2030 Yolo Countywide General Plan, plus other uniformly applied development policies or standards, will



substantially mitigate the environmental effects of this winery project, and will be incorporated into the project or otherwise undertaken in connection therewith. The following mitigation measures were identified:

- i. Prior to the winery construction activities and operation of the wastewater treatment system, the Discharger shall require approval from the Central Valley Water Board.
  - ii. A Storm Water Pollution Prevention Plan is required for the project.
55. The Central Valley Water Board, acting as a CEQA Responsible Agency in compliance with CCR, Title 14, Section 15096, Subdivision (g)(2), evaluated the potentially significant impacts to water quality identified from the discharge identified in the FEIR. The Central Valley Water Board has determined that additional mitigation measures are necessary to prevent potentially significant water quality impacts as a result of discharges to the treatment ponds and land application area. The mitigation measure includes compliance with this Order which implement best practicable treatment and controls for the treatment and application of wastewater.
56. The Central Valley Water Board finds these mitigation measures, as specified in this Order, are adequate to reduce water quality impacts to less than significant.
57. Pursuant to CWC Section 13263(g), discharge of waste into waters of the state is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

### **PUBLIC NOTICE**

58. The Findings referenced above, the supplemental information and details in the attached Information Sheet, incorporated by reference herein, were considered in establishing the following conditions of discharge.
59. 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.
60. In a public meeting, all comments pertaining to the discharge were heard and considered.

**IT IS HEREBY ORDERED** that pursuant to Section 13263 and 13267 of the California Water Code, Bogle Vineyard Inc., its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted there under, shall comply with the following:

*Note: Other prohibitions, conditions, definitions, and the method 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, including irrigation runoff and storm water runoff from the LAA, to surface waters or surface water drainage courses is prohibited.

2. Bypass or overflow of untreated or partially treated wastewater is prohibited.
3. Discharge of waste classified as "hazardous," defined in Section 20164 of Title 27, CCR, or "designated," as defined in Section 13173 of the CWC, is prohibited.
4. The discharge of wastewater in a manner other than as described in the Findings is prohibited.
5. The discharge of toxic substances into the Discharger's wastewater ponds such that biological treatment mechanisms are disturbed is prohibited.
6. The discharge of treated wastewater outside of the LAA identified in this Order is prohibited.
7. The discharge of domestic wastewater to the winery wastewater treatment system is prohibited.
8. The discharge of winery wastewater to a domestic wastewater treatment system (septic system) is prohibited.
9. The discharge of domestic wastewater to the storm water detention basin is prohibited.
10. Discharge of storm water not consistent with the procedures described in this Order, the Storm Water Pollution Prevention Plan that will be developed at a later date, or more stringent measures if developed and approved by the State Water Board or Central Valley Water Board, is prohibited.
11. The discharge of any water softening ion exchange regeneration brine in the wastewater system is prohibited.

**B. Discharge Specifications:**

1. The discharge to the wastewater treatment ponds shall not exceed 4.9 Mgal per month. In addition, the discharge to the wastewater treatment ponds shall not exceed an annual total of 30.3 Mgal of wastewater and/or storm water mixtures for the calendar year (1 January through 31 December).
2. Neither the treatment nor the discharge of wastewater shall cause a nuisance or condition of pollution as defined by the CWC, Section 13050.
3. The use of any chemicals to adjust pH in the process wastewater may only be used with written notice and approval by Central Valley Water Board staff.
4. The Discharger may blend treated wastewater with supplemental irrigation water to meet crop irrigation demand.
5. No wastewater 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 as noted in Groundwater Limitations F.
6. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the property owned by the Discharger.
7. Sufficient dissolved oxygen must be maintained in the upper zone (one foot) of any pond in order to prevent objectionable odors.

8. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge.
9. All ponds shall be lined and managed to prevent the breeding of mosquitoes. In particular:
  - a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
  - b. Weeds shall be minimized through control of water depth, harvesting, and/or use of herbicides.
  - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
  - d. Coordination with the local Mosquito Abatement District to minimize the potential for mosquito breeding can supplement the measures described above in cases where other methods are infeasible.
10. The wastewater treatment ponds 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, domestic/industrial supply well, irrigation water pipeline, or irrigation canal without an air gap or approved reduced pressure device.
12. The freeboard in each pond shall not be less than two feet, as measured vertically from the water surface to the lowest point of overflow.
13. 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.
14. On **1 November** each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specifications No. B.12 and No. B.13.

**C. Effluent Limitations:**

1. Treated wastewater shall not exceed the following effluent limits at the point of discharge to the land application areas.

| <u>Constituent</u>        | <u>Units</u> | <u>Daily Maximum</u> | <u>Monthly Maximum</u> | <u>Annual Maximum</u> |
|---------------------------|--------------|----------------------|------------------------|-----------------------|
| Biochemical Oxygen Demand | lb/ac/day    | 60                   | N/A                    | NA                    |
| Fixed Dissolved Solids    | mg/L         | N/A                  | 900                    | NA                    |
| Total Nitrogen            | lbs/ac/yr    | NA                   | NA                     | 480                   |

NA denotes Not Applicable.

- a. The mass of BOD discharged from the wastewater ponds to each discrete field within the LAA shall not exceed a daily maximum 60 pounds per acre per day. Compliance with this requirement shall be determined using the following formula:

$$M = \frac{C \times V \times (8.345)}{A}$$

Where M = daily BOD mass for a given field in pounds per acre per day (lb/ac/day);

C = BOD monitoring results for the last calendar month in milligrams per liter (mg/L);

V = total volume of effluent discharged to the field on that day in millions of gallons (MG);

A = Area of the field irrigated in acres; and

8.345 = units conversion factor for mg/L and MG to pounds.

- b. The mass of total nitrogen applied to each discrete field within the LAA from all sources shall not exceed an annual maximum of 480 pounds per acre per year. Compliance with this requirement shall be determined using the following formula:

$$M = \sum_{i=1}^n \frac{C_i \times V_i \times (8.345)}{A} + \frac{(M_{\text{fertilizer}} + M_{\text{solids}} + M_{\text{sludge}})}{A}$$

Where M = total annual nitrogen mass in pounds per acre per year (lb/ac/yr);

C<sub>i</sub> = total nitrogen monitoring results for calendar month i in mg/L;

V<sub>i</sub> = total effluent discharged to the field during calendar month in MG;

A = Area of the field irrigated in acres,

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

n = 12; and

M<sub>xxxxx</sub> = total annual mass from any other source (fertilizer, pomace/DE, and pond sludge, as applicable) in pounds.

2. Wastewater applied to the LAA shall not have a pH of less than 6.5 or greater than 10.0.

#### **D. Land Application Area Requirements:**

1. The discharge of process wastewater and solids/sludge shall be distributed uniformly on adequate acreage in compliance with the Discharge Specifications and Effluent Limitations.
2. Crops shall be grown on the LAA. Crops shall be selected based on nutrient uptake capacity, tolerance to high soil moisture conditions, consumptive use of water, and irrigation requirements. Cropping activities shall be sufficient to take up the nitrogen applied, and crops shall be harvested and removed from the land at least on an annual basis.
3. Discharge of treated wastewater, including runoff, spray or droplets from the irrigation system, shall not occur outside the boundaries of the approved LAA. Treated

wastewater application using sprinklers, flood, or drip irrigation is acceptable if the discharge complies with all requirements of the Order.

4. Hydraulic loading of treated wastewater and irrigation water shall be at reasonable agronomic rates designed to minimize the potential impact to groundwater quality by percolation of wastewater and irrigation water below the root zone (i.e., deep percolation).
5. Irrigation pipelines shall be flushed with fresh water after wastewater application as often as needed to ensure continuous compliance with Discharge Specification B.6.
6. Wastewater conveyance lines shall be clearly marked as such. 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.
7. Irrigation systems shall be labeled as containing reclaimed wastewater. If treated wastewater and irrigation water utilize the same pipeline, then backflow prevention devices shall be installed to protect the potable/irrigation water supply.
8. Application of treated wastewater to the LAA using sprinkler irrigation is prohibited when wind velocities exceed 30 miles per hour.
9. 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 LAA to alert the public of the presence of wastewater.
10. The LAA 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.
11. The application of wastewater to the LAA shall comply with the following setback requirements:

| <u>Setback Definitions</u> <sup>1</sup>   | <u>Minimum Irrigation<br/>Setback (feet)</u> |
|---|--|
| Edge of land application area <sup>2</sup> to any watercourse                           | 50 <sup>3</sup>                              |
| Edge of land application area <sup>2</sup> to any properties with an occupied residence | 50 <sup>3</sup>                              |
| Edge of land application area <sup>2</sup> to industrial, domestic, or irrigation well  | 50 <sup>3</sup>                              |

<sup>1</sup> Additional setbacks may be needed to comply with other requirements of the Order.

<sup>2</sup> As defined by the wetted area produced during irrigation.

<sup>3</sup> Unless otherwise approved by the Executive Officer.

12. Discharges to LAA shall be managed to minimize both erosion and runoff from the irrigated area.
13. The Discharger shall maintain the perimeter of the LAA to prevent the runoff of treated wastewater.
14. 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.
15. The Discharger may not discharge treated wastewater to the LAA within 24 hours of a predicted storm event, during periods of precipitation, and for at least 24 hours after cessation of precipitation, or when soils are saturated.
16. All applied wastewater must infiltrate before the next irrigation event using wastewater. No pooling or ponding of irrigated wastewater shall occur beyond 24 hours after application.

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

1. Collected screenings 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, screens, wastewater ponds, etc. as needed to ensure optimal operation and adequate hydraulic capacity. Winery solids drying operations, if any, shall be designed and operated to minimize leachate generation and prevent the infiltration of leachate into the subsurface.
3. 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.
4. Storage of pomace, diatomaceous earth (DE), and/or pond sludge shall be on areas equipped with the means to contain any generated leachate and prevent infiltration into the ground. Pomace, DE, or sludge shall not be stored on unpaved ground. Acceptable alternatives include storage on paved areas or water tight containers that are equipped with liquid collection systems.
5. Solids/sludge applied to the LAAs shall be evenly spread at a thickness that will not cause nuisance conditions.

**F. Groundwater Limitations:**

1. The discharge, in combination with other sources, shall not cause underlying groundwater to contain any constituent in a concentration statistically greater than background water quality or the water quality objective, whichever is greater. Background groundwater quality shall be calculated using the methods provided in Title 27, Section 20415(e)(8) and Section 20415(e)(10), and the statistical methods of the study are subject to the approval of the Executive Officer. Background values must be updated annually as described in the MRP. The water quality objectives are listed below.

| <u>Constituent</u>     | <u>Water Quality Objective, mg/L</u> |
|------------------------|--------------------------------------|
| Boron                  | 0.7                                  |
| Chloride               | 106                                  |
| Iron                   | 0.3                                  |
| Manganese              | 0.05                                 |
| Sodium                 | 69                                   |
| Total Dissolved Solids | 450                                  |
| Nitrate (as N)         | 10                                   |

**G. Provisions:**

1. All of the following reports shall be submitted pursuant to CWC Section 13267, and prepared by a California registered professional as described in Provision G.2.
  - a. By **1 July 2011**, the Discharger shall submit a Notice of Intent for coverage under WQO No. 97-03-DWQ, *Discharges of Storm Water Associated with Industrial Activities*.
  - b. By **8 August 2011**, the Discharger shall submit a *Wastewater Treatment System Completion and Construction Quality Assurance Report*. This report shall certify the complete installation of the treatment system and that it was constructed as described in the Findings of this Order. In addition, the report shall include a pond liner installation certification for Ponds 2 and 3, including but not limited to, testing results that ensure that the pond liners were installed as per industry standard and that geomembrane seams were tested and found to be leak-free prior to use of the ponds.
  - c. By **8 August 2011**, the Discharger shall submit and implement an *Operation and Management Plan (O&M Plan)* that addresses operation of the wastewater treatment and disposal facility, and documents that the facility will be operated as described in the Findings of this Order. 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. At a minimum, the *O&M Plan* will describe the following:
    - i. The daily operation and maintenance of the treatment system.
    - ii. The practices used to treat the wastewater within limits specified in this Order.
    - iii. Detailed wastewater pond inspection and maintenance, including procedures for replacement or repair of the liner when a leak is detected.
    - iv. The locations of the LAA; irrigation protocols for the LAA; management practices to maintain and secure the LAA; operation and maintenance of the private irrigation canal used to collect wastewater runoff; and management procedures and practices to prevent excessive BOD, nitrogen, or dissolved solids loading of LAA.
    - v. The locations of flow, influent and effluent sampling points.

- vi. Quality control sampling procedures necessary to obtain representative samples.
  - vii. The locations of solid waste disposal areas, methods of disposal, and the daily practices associated with the disposal of solid waste.
  - viii. Planning for potential response to natural disasters.
  - ix. Planning for potential response to a facility wide power failure.
  - x. Institutional controls such as Best Management Practices (BMPs).
  - xi. Standard Operating Procedures (SOP).
  - xii. Specific procedures to ensure that contaminated stormwater is discharged to the winery wastewater treatment system and uncontaminated stormwater is managed as part of the facility's Stormwater Prevention Pollution Plan.
  - xiii. Employee orientation and training.
- d. By **30 September 2011**, the Discharger shall submit a *Groundwater Monitoring Network Assessment Report*. The report shall evaluate the adequacy of the existing monitoring well network, determine whether it is feasible to establish background groundwater quality, propose additional monitoring wells as appropriate, propose a method of setting final groundwater limitations, and propose a method of determining compliance with those limitations.
- e. By **30 October 2012**, the Discharger shall submit and implement a *Salinity Evaluation and Salt Minimization Plan*. The Plan shall look at all aspects of winery waste and investigate methods to further reduce saline wastes discharged into the process wastewater and eventually applied to the LAA. An analysis, to the extent feasible, of the cost and benefits for further reduction or additional pollution prevention methods for the immediate future. At a minimum, the Discharger shall include a discussion of the winemaking chemicals, cleaning and sterilization procedures, vineyard practices, salinity monitoring, and current salinity reduction practices.
- f. By **8 November 2013**, the Discharger shall submit a *Background Groundwater Quality Report* that further characterizes and determines background groundwater quality and identifies a background monitoring well if an interwell analysis is selected, or determines background groundwater quality at each well if an intrawell approach is selected. The analysis must be consistent with the methods provided in Title 27, Section (e)(8) and Section 20415 (e)(10). The determination of background groundwater quality shall be made based on data from at least 12 groundwater quarterly monitoring events.
- g. **At least 90 days prior** to any sludge removal from the wastewater treatment ponds, the Discharger shall submit a *Pond Sludge Management Plan*. The plan shall include a detailed plan for sludge removal, drying, and disposal. The plan shall specifically describe measures to be used to control runoff and percolate from the sludge as it is drying, and a schedule that shows how all dried sludge will be removed from the site or land applied prior to the onset of the rainy season (1 October). If sludge will be applied to the LAA as a soil amendment, the plan shall



- include analytical results characterizing the sludge for major plant nutrients (nitrogen, phosphorus, potassium, etc.), and a specific operations plan for land application at agronomic rates considering all other forms of plant nutrients applied to the LAA. The plan shall specify the thickness and/or dry mass loading rate that will be used and provide a plan to prevent nuisance due to odors and vectors.
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, 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. R5-2011-0033, 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 the facility or wastewater disposal areas, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.
  6. The Discharger shall submit to the Central Valley Water Board on or before each compliance report due date the specified document, or if appropriate, a written report detailing compliance or noncompliance with the specified 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 Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to Section 313 of the "Emergency Planning and Community Right to Know Act of 1986."

8. The Discharger shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.
9. 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 Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
10. 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.
11. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

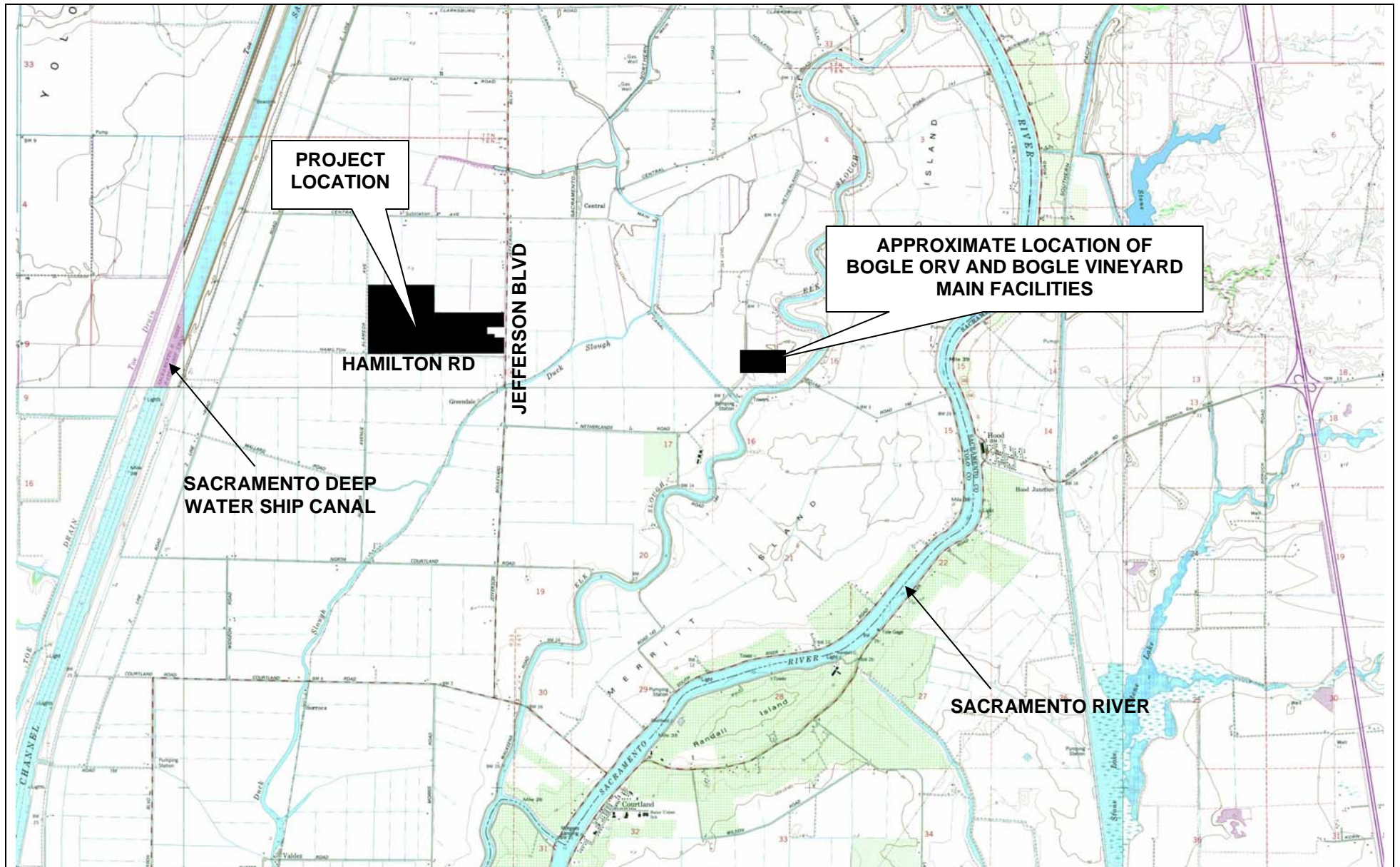
I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 9 June 2011.

Original signed by

---

PAMELA C. CREEDON, Executive Officer

LLA:AMENDED6/09/2011

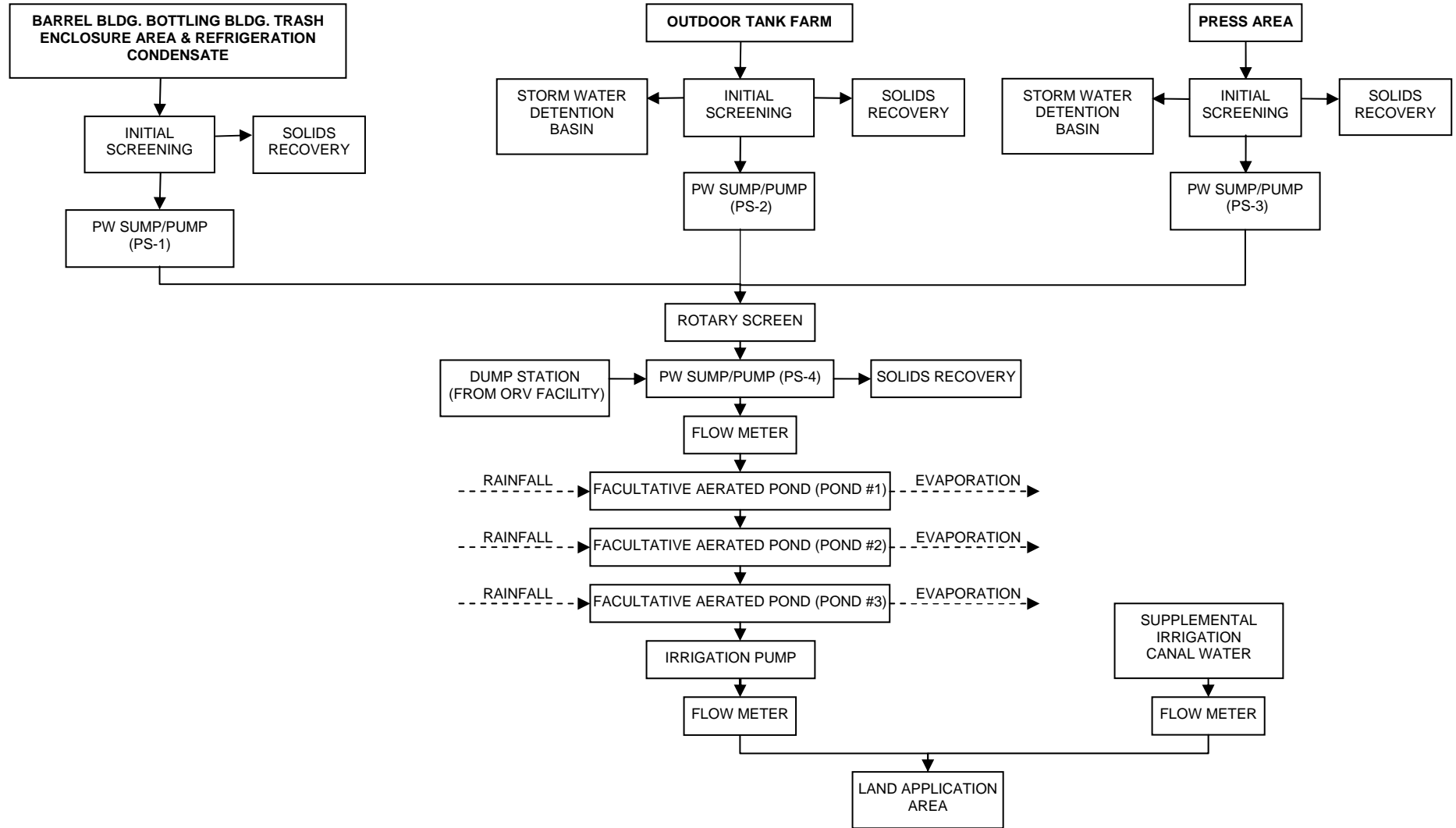


Approximate Scale  
1 inch = 5000 feet



Drawing Reference:  
U.S.G.S.  
Clarksburg Quadrangle  
TOPOGRAPHIC MAP  
7.5 MINUTE QUAD

**SITE LOCATION MAP**  
BOGLE DELTA WINERY  
JEFFERSON BLVD AT HAMILTON RD  
CLARKSBURG, CA 95612



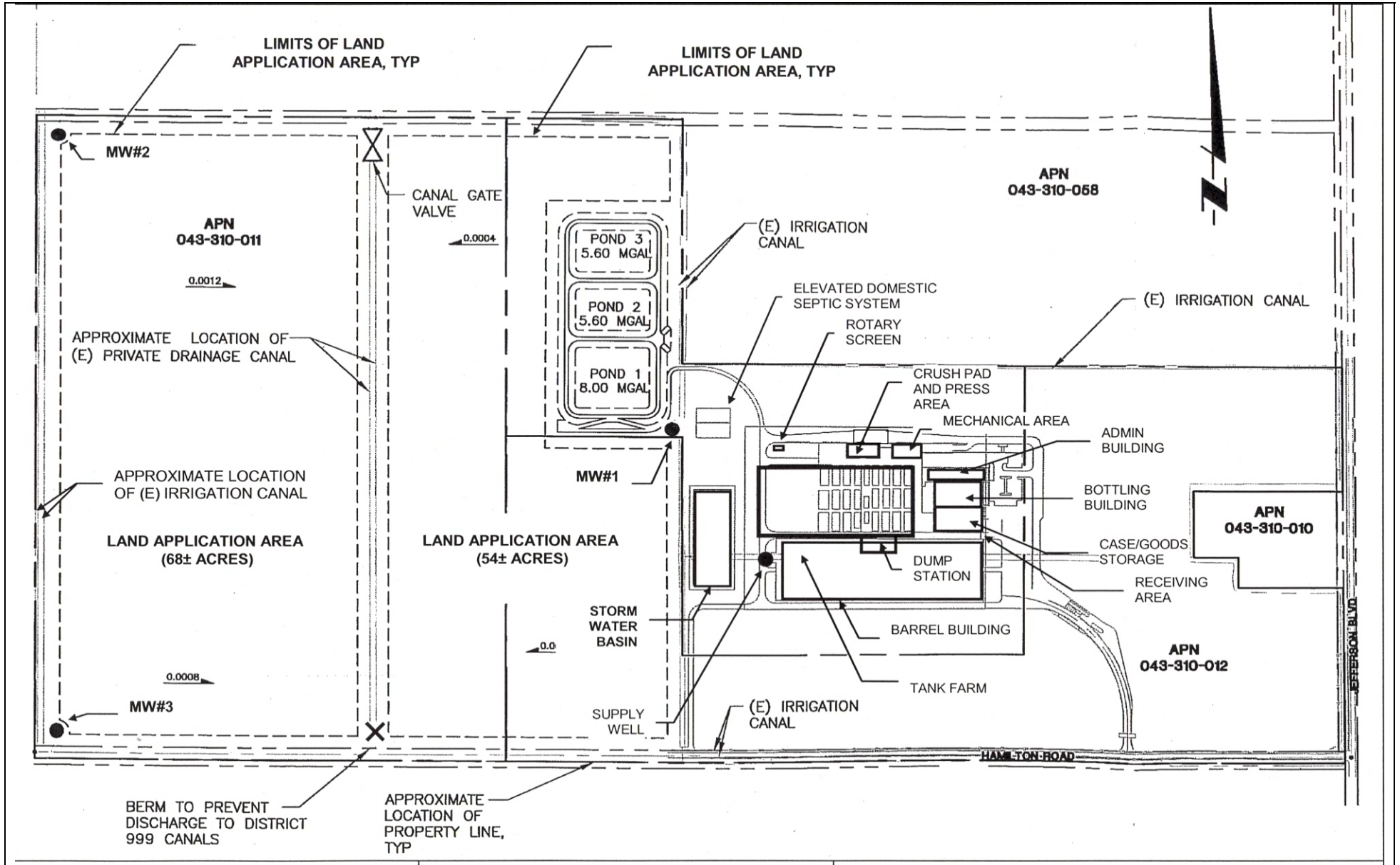
Approximate Scale



Drawing Reference:  
Summit Engineering

**SITE PLAN**

BOGLE DELTA WINERY  
JEFFERSON BLVD AT HAMILTON RD  
CLARKSBURG, CA 95612



Approximate Scale  
Not to Scale



Drawing Reference:  
Summit Engineering

**SITE PLAN**

BOGLE DELTA WINERY  
JEFFERSON BLVD AT HAMILTON RD  
CLARKSBURG, CA 95612

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2011-0033

FOR  
BOGLE VINEYARDS, INC.  
BOGLE DELTA WINERY  
YOLO COUNTY

This Monitoring and Reporting Program (MRP) incorporates requirements for monitoring of the winery wastewater, wastewater treatment ponds and effluent, land application areas, solids, groundwater and pond liner leak testing. 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 shall be representative of the volume and nature of the discharge. The time, date, and location of each sample shall be recorded on the sample chain of custody form. Winery wastewater flow monitoring shall be conducted continuously using a flow meter and shall be reported in cumulative gallons per day (gpd).

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.

**WINERY WASTEWATER MONITORING**

Winery wastewater samples shall be collected from pump station PS-4 prior to discharge into the wastewater treatment ponds. Monitoring shall include at least the following:

| Constituents            | Units   | Type of Sample | Sampling Frequency     | Reporting Frequency |
|-------------------------|---------|----------------|------------------------|---------------------|
| Flow                    | gpd     | Continuous     | Daily <sup>1</sup>     | Monthly             |
| Total Flow <sup>1</sup> | gallons | Continuous     | Totalizer <sup>1</sup> | Monthly             |

<sup>1</sup> Continuous monitoring requires daily meter reading or automated data collection using a meter equipped with a totalizer. Total flow means the cumulative total for the calendar year (1 January through 31 December).

**WASTEWATER TREATMENT POND AND EFFLUENT MONITORING**

Treated wastewater samples shall be collected from an established sampling station located in an area that will provide representative samples of the treated wastewater in the treatment pond prior to land application. Note that some parameters (e.g. dissolved oxygen, freeboard, pH, electrical conductivity, and odors) are monitored in all ponds (Ponds 1, 2, and 3). Freeboard shall be measured vertically from the surface of the pond water to the lowest elevation of the

surrounding berm and shall be measured to the nearest 0.1 feet. Flow monitoring of the outflow from Pond 3 shall be reported in the Land Application Area Monitoring section of this MRP. Monitoring of the ponds shall include, at a minimum, the following:

| Constituent                   | Units       | Type of Sample | Sampling Frequency | Reporting Frequency    |
|-------------------------------|-------------|----------------|--------------------|------------------------|
| <u>All Ponds</u>              |             |                |                    |                        |
| Dissolved Oxygen <sup>1</sup> | mg/L        | Grab           | Weekly             | Monthly                |
| Freeboard                     | feet (±0.1) | Measurement    | Weekly             | Monthly                |
| pH <sup>1</sup>               | pH Units    | Grab           | Weekly             | Monthly                |
| Electrical Conductivity       | umhos/cm    | Grab           | Weekly             | Monthly                |
| Odors                         | --          | Observation    | Weekly             | Monthly                |
| Berm Seepage <sup>2</sup>     | --          | Observation    | Weekly             | Monthly                |
| Sludge Depth                  | inches      | Measurement    | Annually           | Annually <sup>4</sup>  |
| <u>Pond 3</u>                 |             |                |                    |                        |
| Biochemical Oxygen Demand     | mg/L        | Grab           | Monthly            | Monthly                |
| Nitrate as Nitrogen           | mg/L        | Grab           | Monthly            | Monthly                |
| Total Kjeldahl Nitrogen       | mg/L        | Grab           | Monthly            | Monthly                |
| Total Dissolved Solids        | mg/L        | Grab           | Monthly            | Monthly                |
| Fixed Dissolved Solids        | mg/L        | Grab           | Monthly            | Monthly                |
| General Minerals <sup>3</sup> | mg/L        | Grab           | Quarterly          | Quarterly <sup>4</sup> |

<sup>1</sup> Samples shall be collected at a depth of one foot, opposite the inlet. Samples shall be collected between 0700 and 0900 hours.

<sup>2</sup> Containment levees shall be observed for signs of seepage or surfacing water along the exterior toe of the levees. If surfacing water is found, then a sample shall be collected and tested for total dissolved solids.

<sup>3</sup> General minerals include the following: boron, calcium, chloride, iron, magnesium, manganese, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness. Samples shall be filtered with a 0.45 micron filter prior to digestion, preservation, and analysis.

<sup>4</sup> Results of quarterly and annual wastewater monitoring shall be reported in the monthly report for the month during which monitoring occurred.

### LAND APPLICATION AREA MONITORING

The Discharger shall monitor treated 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 as specified in the Effluent Limitations of the WDRs. Samples only need be collected during the irrigation season. If irrigation does not occur during a reporting period, the monitoring report shall so state. Monitoring of the land application areas shall include the following:

| Constituent                              | Units                       | Type of Sample          | Sampling Frequency | Reporting Frequency |
|--|-----------------------------|-------------------------|--------------------|---------------------|
| Supplemental Irrigation<br>Water Flow    | gpd                         | Continuous <sup>1</sup> | Daily              | Monthly             |
| Wastewater Flow <sup>1</sup>             | gpd                         | Continuous <sup>1</sup> | Daily              | Monthly             |
| Local Rainfall                           | Inches                      | Local Gauge<br>Station  | Daily              | Monthly             |
| Acreage Applied                          | Acres                       | Calculated              | Daily              | Monthly             |
| Application Rate                         | gal/acre·day                | Calculated              | Daily              | Monthly             |
| BOD Loading Rate                         | lbs/acre·day                | Calculated              | Daily              | Monthly             |
| Total Nitrogen Loading Rate <sup>2</sup> | lbs/acre·month <sup>3</sup> | Calculated              | Monthly            | Monthly             |
| TDS Loading Rate                         | lbs/acre·month <sup>3</sup> | Calculated              | Monthly            | Monthly             |
| FDS Loading Rate                         | lbs/acre·month <sup>3</sup> | Calculated              | Monthly            | Monthly             |

<sup>1</sup> Continuous monitoring requires daily meter reading or automated data collection and shall define the volume of wastewater discharged to the land application areas from wastewater treatment pond 3.

<sup>2</sup> Total nitrogen applied from all sources, including fertilizers and supplemental irrigation water if used.

<sup>3</sup> Report monthly total and cumulative annual to date.

At least **once per week** when treated wastewater is being applied to the land application areas, the entire application area shall be inspected and observations from those inspections shall be documented for inclusion in the monthly monitoring reports. If no irrigation with wastewater takes place during a given month, then the monthly monitoring report shall so state and the monitoring below is not necessary. The following items shall be documented for each check or field to be irrigated:

1. Evidence of erosion;
2. Containment berm condition;
3. Soil saturation;
4. Ponding;
5. Private irrigation canals that collect potential runoff from the land application areas and potential runoff to off-site areas;
6. Potential and actual discharge to surface waters; and
7. Odors that have the potential to be objectionable at or beyond the property boundary.

### SOLIDS MONITORING

The Discharger shall report monthly the generation rate, application, and storage of any industrial residual solids (pomace and/or diamoaceous earth). The following items shall be reported:

1. Amount of solids generated;
2. Amount of solids stored (including location of storage and measures implemented to prevent leachate generation or control and disposal of any leachate that is generated;



3. Amount applied on-site as a soil amendment, area used and thickness of the application; and
4. If applicable, amount applied off-site at an appropriate permitted facility (including amount disposed off-site, location of disposal site, and hauler identification).

### GROUNDWATER MONITORING

Prior to construction and/or sampling of any new groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water 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. The current network consists of Monitoring Wells MW-1, MW-2, and MW-3. All samples shall be analyzed using approved EPA methods or the latest edition of *Standard Methods*. Water table elevations shall be calculated to determine groundwater gradient and direction of flow.

Depth to groundwater shall be measured to the nearest 0.01 feet. Groundwater monitoring shall include, at a minimum, the following:

| Constituent                        | Units      | Type of Sample | Sampling Frequency | Reporting Frequency |
|------------------------------------|------------|----------------|--------------------|---------------------|
| Depth to Groundwater               | ±0.01 feet | Measurement    | Quarterly          | Quarterly           |
| Groundwater Elevation <sup>1</sup> | ±0.01 feet | Calculated     | Quarterly          | Quarterly           |
| Gradient                           | feet/feet  | Calculated     | Quarterly          | Quarterly           |
| Gradient Direction                 | Degrees    | Calculated     | Quarterly          | Quarterly           |
| pH                                 | pH units   | Grab           | Quarterly          | Quarterly           |
| Electrical Conductivity            | umhos/cm   | Grab           | Quarterly          | Quarterly           |
| Total Kjeldahl Nitrogen            | mg/L       | Grab           | Quarterly          | Quarterly           |
| Nitrate as Nitrogen                | mg/L       | Grab           | Quarterly          | Quarterly           |
| Total Dissolved Solids             | mg/L       | Grab           | Quarterly          | Quarterly           |
| General Minerals <sup>2</sup>      | mg/L       | Grab           | Quarterly          | Quarterly           |

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

<sup>2</sup> General Minerals shall include at least the following compounds: boron, calcium, chloride, iron, magnesium, manganese, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness. Samples shall be filtered with a 0.45 micron filter, prior to digestion, preservation, and analysis.

### POND LINER LEAK TESTING

The Discharger shall test the wastewater treatment pond lining systems for leaks every five years, and shall submit the results of leak testing in the Annual Monitoring Report for the year during which testing was performed. The first leak test shall be conducted in 2016 and shall be reported in the 2016 Annual Monitoring Report. The report shall identify all leaks, and if appropriate, shall provide a plan and schedule for leak repair.

## REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., wastewater pond 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 Central Valley Water Board by the **1<sup>st</sup> day of the second month** following the end of the reporting period (i.e. the January monthly report is due by 1 March). The monthly reports shall include the following:

1. Results of winery wastewater, wastewater treatment pond, land application area, and solids monitoring.
2. A comparison of monitoring data to the discharge specifications and effluent limitations, disclosure of any violations of the WDRs, 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. The cumulative volume of wastewater generated during the year to date;
5. The total pounds of total dissolved solids and fixed dissolved solids (year to date) that have been applied to the land application areas, as calculated from the sum of monthly loadings;
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.
7. A summary of the quantity of solid waste (pomace, diatomaceous earth, pond sludge, crops removed, etc.) generated, stored, and disposed of on-site as a soil amendment or off-site at an appropriately permitted facility.

### B. Quarterly Monitoring Reports

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

| Quarter | Month              | Quarterly Report Due Date |
|---------|--------------------|---------------------------|
| First   | January – March    | 1 May                     |
| Second  | April – June       | 1 August                  |
| Third   | July – September   | 1 November                |
| Fourth  | October - December | 1 February                |

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

In addition to the monthly and quarterly reports, an annual report shall be prepared. The Annual Report shall be submitted to the Central Valley Water Board by **1 February** each year. The Annual Report shall include the following:

1. Tabular and graphical summaries of all data collected during the year.

2. Tabular and graphical summaries of historical monthly total loading rates for wastewater generation, treated wastewater used for irrigation (hydraulic loading in gallons/acre and inches), total nitrogen (lbs/ac/yr), total dissolved solids (lbs/ac/yr), and fixed dissolved solids (lbs/ac/yr). Tabular and graphical summaries of historical annual wastewater flow (million gallons).
3. A comprehensive evaluation of the effectiveness of the past year's wastewater application operation in terms of odor control and groundwater protection, including consideration of application management practices (e.g., waste constituent and hydraulic loadings, application cycles, drying times, and cropping practices), and groundwater monitoring data.
4. A summary of the vegetative material (crops) removed from the LAAs. The summary shall include harvest dates, crop type, disposal area, and estimated ash content of the harvest.
5. A summary of the quantity of solid waste (pomace, diatomaceous earth, pond sludge, etc.) generated and disposed of on-site as a soil amendment or off-site at an appropriately permitted facility.
6. An evaluation of the groundwater quality beneath the land application area.
7. Beginning with the 2013 Annual Report, the approved background values for each constituent identified in Groundwater Limitations F.1. shall be compared to data from each compliance well if an interwell analysis method is used, or to current quarterly groundwater data if an intrawell analysis method is used. Monitoring data shall also be compared to water quality objectives for each constituent identified in the Groundwater Limitations.
8. A description of source control methods that have been implemented in the calendar year.
9. Estimated flows for the next calendar year.
10. When required (every five years beginning in 2016), the results of pond liner leak detection tests, and if appropriate, a plan and schedule for leak repair.
11. 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.
12. 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.

Original signed by  
Ordered by: \_\_\_\_\_  
PAMELA C. CREEDON, Executive Officer  
\_\_\_\_\_  
9 June 2011  
(Date)

LLA:AMENDED6/09/2011

## INFORMATION SHEET

ORDER NO. R5-2011-0033  
BOGLE VINEYARDS, INC.  
BOGLE DELTA WINERY  
YOLO COUNTY

Bogle Vineyard Inc. (Discharger) submitted a Report of Waste Discharge dated 17 March 2010 for treatment and land application of the wastewater generated at their new wine processing facility, located about 4 miles southwest of the unincorporated community of Clarksburg, at the intersection of Jefferson Boulevard and Hamilton Road, in Yolo County. The facility will be a complete winemaking facility from receiving and crushing grapes to packaging and shipment of wine off-site. The facility will not include a distillery, nor are there plans for a tasting room.

At full buildout, the winery facility will crush approximately 30,000 tons of grapes annually and produce approximately 4.95 million gallons (Mgal) of wine per year. The treatment facility will have the capacity to treat wastewater generated from the Discharger's two other winery facilities located in Clarksburg. All wastewater will be applied to the 122-acre land application area (LAA). Grape pomace (skin, pulp, seeds, and stems) and diatomaceous earth (DE), the solids from the winery process, will be collected and transferred to the LAA to be disced in as a soil amendment.

Sanitary wastewater will be treated with an onsite septic system regulated by the Yolo County Department of Environmental Health.

### Wastewater Generation, Flow Rate, and Quality

Process wastewater will be generated from the following process areas: press area, external work areas and tank farm, barrel building, bottling and case goods building, and mechanical area. Equipment and sanitation activities will also contribute to the annual wastewater generated.

Treatment ponds have the capacity to store wastewater during the winter months and discharge to the LAA during the growing season. Winery wastewater is typically high in Total Dissolved Solids (TDS), Fixed Dissolved Solids (FDS), biochemical oxygen demand (BOD), and nitrogen concentrations.

Wastewater flow rates are anticipated to vary, although the highest wastewater flows are expected during grape crushing activities, August through October. The WDRs will allow a monthly maximum flow limit to the treatment ponds of 4.9 Mgal per month, and an average annual total of 30.3 Mgal of wastewater and/or stormwater mixtures.

The flow limit will allow the Discharger flexibility in managing wastewater application because in most months the wastewater generation will be less than the monthly average limit. The total flow limit is designed to control the total loading rate of the land application area with waste constituents. The WDRs include Discharge Prohibitions, Specifications, Effluent Limitations, and Land Application Area Requirements that will prevent nuisance conditions and/or overloading of the LAA.

The WDRs requires the Discharger to submit and implement a *Salinity Evaluation and Salt Minimization Plan*. The Plan shall look at all aspects of winery process and investigate methods to further reduce the salinity of the wastewater.

Wastewater undergoes a pretreatment process to remove solids before discharging into a facultative aerated pond system, consisting of Ponds No. 1, 2, and 3 for biological treatment and storage. The ponds will be lined with a single 60-mil HPDE liner. Two additional layers of liner will be placed under all pond equipment such as aerators, pipe penetrations, and staff gages. In addition to the double liner, a 10 foot square concrete pad will be placed directly under each aerator. From Pond No. 3, treated wastewater is applied to the LAA.

#### Background Groundwater Quality

The winery is served by an on-site well located northwest of the proposed Barrel Building. Based on the water sample collected on 31 January 2010, groundwater quality of the source water appears to be fairly good. The constituents analyzed were found to be below water quality objectives, except for the concentration of sodium reported at 98 mg/L. TDS and Nitrate as nitrogen values were reported at 290 mg/L and less than 10 mg/L, respectively. Total hardness was reported at 34 mg/L. Electrical Conductivity (EC) was not analyzed.

Three groundwater monitoring wells (MW-1, MW-2, and MW-3) were installed on 1 March 2010 to determine baseline groundwater quality prior to wastewater land application operations. Samples were collected and analyzed each month from March 2010 through June 2010 and in September 2010. Baseline groundwater quality appears to be low quality with respect to salinity and is very hard. Average TDS and total hardness concentrations range from 1,140 mg/L to 1,600 mg/L and 260 mg/L to 796 mg/L, respectively. These wells are currently being monitored.

The WDRs requires the Discharger to submit *Groundwater Monitoring Network Assessment* and *Background Groundwater Quality Reports* to further ensure that the monitoring network is adequate, determine an appropriate method to set final groundwater limitations, and an appropriate method to evaluate compliance with those limitations.

#### Land Application Areas

The facility has specified 122 acres of LAA, cultivated with alfalfa (approximately 68 acres) and winter wheat (approximately 54 acres), for irrigation with treated wastewater. The LAA is located west of the winery facility and is owned by the Discharger. Treated wastewater from Pond 3 will be discharged to crops by sprinkler irrigation. Irrigation is anticipated to occur between April and October of each year to correspond with the crop growth and to limit irrigation during the wet season. Crops will be harvested from the LAA, therefore removing the nutrients and dissolved solids taken up by the particular crop.

Total irrigation demand for the crops is estimated to be approximately 168 Mgal. Supplemental irrigation will be necessary to meet crop demands, and will be supplied by Reclamation District 999 canals.

Typical summer water quality results for TDS supplied by the Reclamation District were 110 mg/L. Additional sampling and analysis provided by the Discharger indicated TDS values of 1,300 mg/L and 190 mg/L for the months of May and June 2010, respectively. Samples collected in the June 2010 event are representative of the canal water after water from the Sacramento River was pumped into the canal.

#### Solids Disposal

Solid wastes from the wine processing activities, including pomace and DE, will be collected in facility dump trucks on a daily basis. The solids will be used as a soil amendment in the LAA or transported offsite for disposal and/or composting at a permitted facility. The WDRs prohibit placing any pomace or DE on unpaved ground because of the possibility of wastewater leaching from the piles or of stormwater mobilizing wastewater constituents.

Sludge that accumulates in the treatment ponds will be removed as needed. The Discharger is required to submit a *Pond Sludge Management Plan* prior to land application of any sludge.

#### Stormwater

Most of the winery process operations are located under covered areas to avoid stormwater mixing with the wastewater. Multiple pump stations allow for the collection of wastewater from the winery building to be collected separately from the outdoor work areas. Stormwater that falls onto the winery and mixes with wastewater is treated as wastewater. Uncontaminated stormwater will be diverted to the stormwater basin. Diversion valves are used to direct water to the treatment ponds or to the stormwater basin. Stormwater collected in the stormwater basin will be discharged into the existing irrigation canal.

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 will submit a Notice of Intent for coverage under the *NPDES General Permit for Discharges of Storm Water Associated with Industrial Activities*.

#### Site Specific Conditions

Prior to the Federal Emergency Management Agency re-designating the flood level zones, the location of the winery was changed from a Flood Zone B (areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one foot or whether the contributing drainage area is less than one square mile; or areas protected by levees from the base flood). The winery is located between the Sacramento River Deep Water Channel (approximately three miles to the west) and the Sacramento River. Changes to the FEMA flood maps took effect on June 2010, therefore designating the winery location as a Flood Zone A, areas with no base flood elevation (BFE) determined. The nearest established BFE is 19 feet immediately adjacent to the western side of the Sacramento Deep Water Ship Channel. The tops of the wastewater pond berms were



designed at 17-foot mean sea level with the capability to increase to 21 feet. The Discharger's consultant has determined after review of elevations and drainage patterns within the area, that the 17-foot top of elevation is adequate to provide protection against the 100 year storm event. It was also determined that flooding that may result from a catastrophic failure of levees will disperse over a large area and drain to mean sea level well before reaching the elevation of the top of ponds.

#### Basin Plan, Beneficial Uses, and Regulatory Considerations

The winery facility is within the Yolo Bypass Hydraulic Area (No. 510.00), as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986, which is a tributary to the Yolo Bypass.

The *Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region, Fourth Edition for The Sacramento River Basin and the San Joaquin River Basin* (Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. The receiving water is groundwater. The beneficial uses of groundwater are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.

#### Antidegradation

The antidegradation directives of State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California," or "Antidegradation Policy" require that the policy of the State in granting of permits and licenses for unappropriated water and the disposal of wastes into the water of the State shall be so regulated as to achieve highest water quality consistent with maximum benefit to the people of the State and shall be controlled so as to promote the peace, health, and welfare of the people of the State.

In allowing a discharge, the Regional Board must comply with CWC Section 13263 in setting appropriate conditions. The Regional Board is required, relative to the groundwater that may be affected by the discharge, to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential for that purpose. The Regional Board need not authorize the full utilization of the waste assimilation capacity of the groundwater (CWC 13263(b)) and must consider other waste discharges and factors that affect that capacity.

Degradation is allowed under Resolution No. 68-16 if the Central Valley Water Board determines that:

- The degradation is consistent with maximum benefit to the people of the State.
- The degradation will not unreasonably affect present and anticipated future beneficial uses.
- The degradation does not cause exceedance of one or more water quality objectives.
- The Discharger employs best practicable treatment and control to minimize degradation.

The Discharger has submitted an Antidegradation Analysis. A baseline assessment of the groundwater quality prior to treated wastewater application has been conducted. The Discharger will utilize a treatment process consisting of physical and biological processes to reduce the residual solids and BOD found in the winery wastewater. The treatment ponds are lined, and therefore will minimize infiltration into the groundwater. Biological treatment in lined ponds is consistent with typical industrial food processing best management and treatment control methods. Annual total irrigation demand is approximately 168 Mgal, therefore supplemental irrigation water is needed to meet crop demands. The supplemental irrigation water source is the Reclamation District 999 canals that have fairly good quality water. The Discharger anticipates that the blended irrigation water will have a TDS maximum concentration approximately 420 mg/L, which is below the water quality objective and therefore will unlikely impact groundwater quality. Effluent quality is anticipated to be of higher quality than the background groundwater. The use of winery wastewater to irrigate crops in place of higher quality surface or groundwater supplies is a benefit to the people of the State. The winery is an important component of the economic development for the region. The winery will provide approximately 80 jobs and will provide state and local revenue. The economic prosperity of the region and associated industry is a benefit to the people of the State.

#### Title 27

Title 27, CCR, Section 20005 et seq. (Title 27), contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for containment of classified waste, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent is acceptable under Title 27 regulations.

The discharge of wastewater and the operation of storage facilities associated with a wastewater application is exempt from Title 27 if the discharge is in accordance with the WDRs that implement the Basin Plan, Resolution No. 68-16 (Antidegradation Policy), and other conditions described below.

The exemption, pursuant to Section 20090(b), 20090(f), and 20090(h) is based on the following:

- The operation of the lined wastewater treatment and storage ponds and the application of treated wastewater to the LAA is exempt based on Section 20090(b). The Central Valley Water Board has issued waste discharge requirements; the discharge is in compliance with the Basin Plan; and the wastewater does not need to be managed according to Title 22 CCR, Division 4.5, Chapter 11, as a hazardous waste.
- Application of decomposable solids as a soil amendment to the LAA is exempt based on Section 20090(f). Application of solids to the LAA is exempt because the solids are nonhazardous; the waste constituents in the solids are decomposable; application to land is considered a best management practice; the practice allows the nutrients to slowly

decompose, prevents odors or vector issues associated with composting pomace, and improves soil tilth; and the Central Valley Water Board is issuing waste discharge requirements.

- Application of treated wastewater to the LAA is exempt based on Section 20090(h) because the discharge will result in additional waste treatment, water reuse, and nutrient recycling. Natural processes in the LAA provide the additional treatment; and nutrients will be taken up by crops, harvested (such as winter wheat), or cut and removed from the LAA (such as during crop cover mowing or plant pruning activities).

#### California Environmental Quality Act (CEQA)

An Environmental Initial Study dated November 2009 was prepared in accordance with CEQA for the rezoning of land in Clarksburg from Agricultural Preserve to Agricultural Industry. The Bogle Delta Winery is located in the rezoned land.

- The Final Environmental Impact Report (FEIR) for the 2030 Yolo Countywide General Plan dated 10 November 2009 adequately discussed all potentially significant impacts of this project, including off-site or cumulative impacts.
- There is no substantial new information that shows previously identified significant effects will be more significant than described in the General Plan FEIR.
- In approving the 2030 Yolo Countywide General Plan, the county adopted all feasible mitigation measures relevant to a potentially significant effect that this project could have on the environment.
- The mitigation measures and policies identified in the 2030 Yolo Countywide General Plan, plus other uniformly applied development policies or standards, will substantially mitigate the environmental effects of this winery project, and will be incorporated into the project or otherwise undertaken in connection therewith. The following mitigation measures were identified:
  - i. Prior to the winery construction activities and operation of the wastewater treatment system, the Discharger shall require approval from the Central Valley Water Quality Board.
  - ii. A Stormwater Pollution Prevention Plan is required for the project.

Compliance with the mitigation measures listed above and with the WDRs are adequate to reduce water quality impacts to less than significant.

#### Effluent Limitations

Effluent limitations for BOD, FDS and Total Nitrogen are included in the WDRs. Wastewater loading limits for the LAA include BOD to minimize the possibility of odors generated by the land application and not exceed a daily maximum concentration of 60 lb/ac/day.

The FDS limit in the effluent (sampled from Pond 3) prior to land application is intended to minimize degradation of groundwater with respect to salinity, although supplemental irrigation

water is necessary to meet the crops water demands. In addition, crops planted in the LAA will take up some of the waste constituents in the wastewater. The FDS limit is set at 900 mg/L as a monthly maximum.

The total nitrogen limit is based on the nitrogen uptake value of the proposed crop. The nitrogen limit is set at 480 lb/ac/yr as an annual maximum and applies to all sources of nitrogen.

#### Treatment Technology and Control

Given the character of food processing wastewater, slow rate land treatment and secondary treatment technology is generally sufficient to control degradation of groundwater from decomposable organic constituents.

Food processing wastewater typically contains nitrogen in concentrations greater than water quality objectives. Groundwater degradation by nitrogen can be controlled by an appropriate screening, settling, and slow rate land application with cropping activities when crops are harvested and removed from the land application area. The effectiveness varies, but generally best practicable treatment and control is able to control nitrogen degradation of groundwater at a concentration well below the water quality objectives. The Discharger will have approximately 122 acres of available LAA and will manage a double crop system consisting of alfalfa and wheat. The crops have the capability to take up the nutrients found in the applied effluent.

Dissolved solids can pass through the treatment process and soil profile; effective control of such constituents relies primarily upon source control and pretreatment measures. If not managed carefully, long-term land discharge of food processing wastewater is likely to degrade groundwater with dissolved solids (as measured by FDS). Source control is an effective means to prevent groundwater degradation by FDS. The Discharger will implement a number of best practicable treatment and control measures to ensure minimal to no impacts on the groundwater including:

- No water softeners will be used.
- Use of a non-chemical evaporative cooled refrigeration system.
- Wine temperature control to be accomplished by pumping glycol through jacketed stainless steel tanks, rather than the use of a remote wine chiller.
- Replacement of chemicals with more environmentally acceptable substitutes.
- The use of water efficient high pressure/low volume barrel cleaning system with shorter wash cycles.
- Multiple pump stations to keep the collection of outdoor and indoor winery wastewater separate.

A discharge of wastewater that overloads soils with nutrients and organics can result in anaerobic conditions in the soil profile, which in turn creates organic acids and decreases soil pH. Under conditions of low soil pH (below 5), iron and manganese compounds in the soil can

solubilize and leach into groundwater. Overloading the land application areas is preventable, and the soil is expected to provide adequate buffering of acidic or basic wastewater.

#### Monitoring Requirements

Section 13267 of the CWC authorizes the Regional Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. In recent years there has been increased emphasis on obtaining all necessary information, assuring the information is timely as well as representative and accurate, and thereby improving accountability of any discharger for meeting the conditions of discharge. Section 13268 of the CWC authorizes assessment of civil liability where appropriate. This Order requires monitoring of 1) wastewater in the ponds, 2) discharges to the LAA, and 3) groundwater monitoring.