

INFORMATION SHEET

ORDER NO. ___
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 winey 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.