

**Regional Water Quality Control Board  
Central Valley Region  
Board Meeting – 27/28 March 2014**

**Response to Written Comments for O'Neill Beverages Company, LLC, Reedley Winery,  
Tentative Waste Discharge Requirements and Draft Cease and Desist Order**

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At a public hearing scheduled for 27/28 March 2014, the Regional Water Quality Control Board, Central Valley Region, (Central Valley Water Board) will consider adoption of revised Waste Discharge Requirements (WDRs) and a Cease and Desist Order (CDO) for the O'Neill Beverages Company, LLC, Reedley Winery. This document contains responses to written comments received from interested parties regarding the Tentative WDRs and draft CDO circulated on 17 January 2014. Written comments from interested parties were required by public notice to be received by the Central Valley Water Board by 18 February 2014 to receive full consideration. Comments were received from Kennedy/Jenks Consultants Engineers & Scientists (K&J) on behalf of the O'Neill Beverages Company, LLC (O'Neill), and Ms. Jo Anne Kipps.

Written comments from the above interested parties are summarized in the appropriate sections below, followed by responses from Central Valley Water Board staff. Based on the comments, Central Valley Water Board staff has made some changes to the tentative WDRs and draft CDO. Staff also made a few minor changes to improve clarity and fix typographical errors. Where Staff responses below present specific changes made to the WDRs and/or CDO, additions are in bold text and deletions are in strikeout.

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**O'NEILL COMMENTS**

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**O'NEILL – COMMENT No. 1:** K&J states that while the tentative WDRs and accompanying documents are generally manageable for O'Neill, the biochemical oxygen demand (BOD) loading limit of 100 lbs/acre/day is lower than necessary to protect the environment and would likely be problematic for continuous compliance. K&J indicates studies conducted by the Wine Institute (Wine Institute Study) and the California League of Food Processors (CLFP) support the conclusion that a BOD loading rate of 300 lbs/acre/day would be protective. Therefore, K&J requests the permissible BOD loading rate in the tentative WDRs be increased from 100 lbs/acre/day to 300 lbs/acre/day to allow O'Neill more flexibility in operations while maintaining environmental protection.

Related to the requested modification K&J asks that the following language be added after WDRs Finding 27 to support the higher BOD loading rates:

“Both the Wine Institute and California League of Food Processors (CLFP) have addressed the correlation between BOD cycle loading rates and groundwater protection for California soils, groundwater, and climate conditions.

Field studies of land application of stillage process water and winery process water were conducted by the Wine Institute in 2002 and 2003 (Kennedy/Jenks 2004. Land Application of Winery Stillage and Non-Stillage Process Water: Study Results and Proposed Guidelines). A number of BOD loadings were applied to each field plot each year. Lysimeter water sample measurements at 1-foot and 5-foot depths showed that most of the BOD was removed in the surface foot of soil where aerobic conditions favor microbial oxidation. Between 66 and 79% of applied BOD concentrations were removed in the surface foot of soil. At 5 feet, between 80 and nearly 100 percent of BOD concentration was removed. In terms of load (lb/acre), BOD loading was reduced by 89 and nearly 100% in the percolate at 5 feet. These study results indicate that careful management of land application of stillage and non-stillage process water can result in treatment of BOD for both late summer and late fall application conditions.

The soils and climate in the Stillage test site are comparable to the O'Neill site and representative of the Central Valley and are therefore appropriate for comparison.”

K&J also asks that a new finding be added as shown below.

“The California League of Food Processor’s Manual of Good Practice for Land Application of Food Processing/Rinse Water proposes risk categories associated with particular BOD loading rate ranges as follows:

- a. Risk Category 1: (less than 50 lbs/acre/day; depth to groundwater greater than 5 feet) Indistinguishable from good farming operations with good distribution important.
- b. Risk Category 2: (less than 100 lbs/acre/day; depth to groundwater greater than 5 feet) Minimal risk of unreasonable groundwater degradation with good distribution more important.
- c. Risk Category 3: (greater than 100 lbs/acre/day; depth to groundwater greater than 2 feet) Requires detailed planning and good operation with good distribution very important to prevent unreasonable degradation, as well as use of oxygen transfer design equations that consider site specific application cycles and soil properties and special monitoring.

The Manual of Good Practice recommends allowing a 50 percent increase in the BOD loading rates in cases where sprinkler irrigation is used, but recommends that additional safety factors be used for sites with heavy and/or compacted soils. These Risk Categories are based on the assumption that best management practices would be employed to prevent odors and reducing conditions. Typical best management practices include ensuring even distribution of wastewater and waste constituents on each land application area, applying water at rates consistent with the needs of the crop, and allowing adequate resting time between wastewater applications to ensure consistently aerobic conditions within the soil column.”

**RESPONSE:** The application methods described in the Wine Institute Study (e.g. basin disposal) are different than the sprinkler irrigation described for the O'Neill facility and, therefore, are not directly applicable to the O'Neill site. Additionally, while averaged study results show substantial removal of wastewater BOD in percolate collected at soil depths of five feet, results from sample location to sample location are highly variable. Some percolate samples show almost complete BOD removal while others contain BOD exceeding 3,000 mg/L, or ten times that of untreated domestic wastewater. The Study does not conclusively demonstrate that application rates of 300 lbs/acre/day will be protective of groundwater underlying the O'Neill's site.

The California League of Food Processors (CLFP) Manual of Good Practice for Land Application of Food Processing/Rinse Water was developed by the food processing industry and suggests organic loading rates based on risk categories. This information can be used as general guidance.

In addition to limits on organic loading rates, the tentative WDRs include other restrictions, including Land Application Area Specification D.2 and D.3, which limit hydraulic loading and

nutrient loading, respectively, to agronomic rates. Land Application Area Specification No. D.2 has been modified to set the BOD loading rate to 150 lbs/acre/day for those land application areas outside of the long-used 36.8 acre fields identified in Order 95-014. This loading rate is consistent with the CLFP Manual for a Risk Category 2 (minimal risk of groundwater degradation) with sprinkler irrigation on well drained soils, and in staff's opinion, should be an improvement over past practices when combined with other restrictions in the WDRs and should not result in unreasonable degradation of groundwater if properly managed. Given that the groundwater beneath the long-used 36.8 acre land application area and the areas around it (Specifically fields A-West Block, A-East Block, and B Block) is polluted with total dissolved solids, iron, manganese, and contains high concentrations constituents associated with reducing conditions and the overapplication of winery wastes, Land Application Area Specification No. D.2 has also been modified to limit the BOD loading rate to 100 lbs/acre/day for this area. In addition, the tentative WDRs have been modified to require soil and vadose zone monitoring in all discharge areas to ensure these loading rates are be protective of groundwater, with a performance evaluation to be submitted as part of Task 2 in the accompanying Cease and Desist Order (CDO). Following this evaluation, the WDRs and CDO may be reopened to adjust BOD loading rates as appropriate

The following specific modifications have been made to the tentative WDRs.

*Land Application Area Specification D.2*

The ~~cycle weekly~~ average BOD loading rate to the land application areas to fields **A-West Block, A-East Block, and B Block, as shown on Attachment C**, shall not exceed 100 lbs/acre/day., with a minimum 3-day resting period between applications **The weekly average BOD loading rate on the remaining land application areas shall not exceed 150 lbs/acre/day.**

*New Finding 29*

**Field studies of land application of stillage process water and winery process water were conducted by the Wine Institute in 2002 and 2003 (Kennedy/Jenks 2004. *Land Application of Winery Stillage and Non-Stillage Process Water: Study Results and Proposed Guidelines*). A number of BOD loadings were applied to each field plot each year. Lysimeter water sample measurements at 1-foot and 5-foot depths showed that much of the BOD was removed in the surface foot of soil where aerobic conditions favor microbial oxidation. Between 66 and 79% of averaged applied BOD concentrations were removed in the surface foot of soil. At 5 feet, between 80 and nearly 100 percent of averaged BOD concentration was removed. Similarly, the study indicates average BOD loading was reduced by 89 to almost 100% in the percolate at 5 feet. Results for individual lysimeter readings were highly variable. The study results do indicate that careful management of land application of stillage and non-stillage process water can result in significant BOD removal.**

*New Finding 30*

**“The California League of Food Processor’s (CLFP) *Manual of Good Practice for Land Application of Food Processing/Rinse Water* proposes risk categories associated with particular BOD loading rate ranges as follows:**

- a. **Risk Category 1: (less than 50 lbs/acre/day; depth to groundwater greater than 5 feet) Indistinguishable from good farming operations with good distribution important.**
- b. **Risk Category 2: (less than 100 lbs/acre/day; depth to groundwater greater than 5 feet) Minimal risk of unreasonable groundwater degradation with good distribution more important.**
- c. **Risk Category 3: (greater than 100 lbs/acre/day; depth to groundwater greater than 2 feet) Requires detailed planning and good operation with good distribution very important to prevent unreasonable degradation, as well as use of oxygen transfer design equations that consider site specific application cycles and soil properties and special monitoring.**

**The Manual of Good Practice recommends allowing a 50 percent increase in the BOD loading rates in cases where sprinkler irrigation is used, but recommends that additional safety factors be used for sites with heavy and/or compacted soils.**

*New Finding 31*

**Although it has not been subject to a scientific peer review process, the Manual of Good Practice provides science-based guidance for BOD loading rates that, if fully implemented, may be considered best management practices to help prevent groundwater degradation due to reducing conditions.**

*New Finding 32:*

**Due to existing groundwater pollution observed beneath the long-used 36.8 acre land application area and the area around it (Specifically fields A-West Block, A-East Block, and B Block), the BOD loading rate has been set at 100 lbs/acre/day. For the remaining fields, the BOD loading rate has been set at 150 lbs/acre/day consistent with the CLFP Manual of Good Practices for a Risk Category 2 with sprinkler irrigation on well drained soils. In addition, the Discharger is required to conduct soil and vadose zone monitoring to ensure these loading rates are protective of groundwater. A performance evaluation is required to be submitted as part of Task 2 of the accompanying Cease and Desist Order (CDO) R5-2014-XXXX. Following this evaluation, the Order may be reopened to adjust BOD loading rates as necessary.**

*New Provision G.16*

**By (60 days following adoption of this Order) the Discharger shall submit a work plan and time schedule, subject to Executive Officer approval, for the installation and sampling of a Vadose Zone Monitoring System. The System shall be designed to measure the quality of**

**percolate beneath land application areas and determine whether the discharge will degrade, or contribute to continued degradation/pollution, of underlying groundwater.**

**O'NEILL – COMMENT No. 2:** K&J asks for references to BOD loading rates of 100 lbs/acre/day in Findings 62.a, 62.c, and 62.d be changed to reflect BOD loading rates of 300 lbs/acre/day. Also, based on the use of sprinkler application methods, K&J asks for the reference to a minimum 3-day resting period be removed.

**RESPONSE:** The findings have been adjusted to reflect changes described in Response to O'Neill – Comment No. 1 above.

**O'NEILL – COMMENT No. 3:** K&J asks that Land Application Area Specification D.2 be modified to read as follows:

The ~~cycle~~ average BOD loading rate to the land application areas shall not exceed ~~400~~ **300** lbs/acre/day, ~~with a minimum 3-day resting period between applications,~~ **or alternatively, an appropriate loading rate and resting period combination justified as part of the studies required by CDO R5-2014-XXXX.**

**RESPONSE:** See Response to O'Neill – Comment No. 1 above.

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**JO ANNE KIPPS COMMENTS**

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**JO ANNE KIPPS – COMMENT No. 1:** Ms. Kipps states that groundwater is already polluted under and beyond the Winery's long-term 36.8 acre discharge area and, given no evidence to the contrary, it must be assumed that affected soils do not have sufficient assimilative capacity to attenuate future applied waste constituents and decomposition byproducts to levels that, when released to groundwater, will not continue to result in violations of numerical water quality objectives for salinity (EC, and TDS), nitrate, iron, and manganese, as well as narrative objectives concerning taste, odor (i.e., ammonia) or agricultural use (hardness and bicarbonate alkalinity). In particular, the excessive concentrations in groundwater of potassium, a salinity constituent that appears at very high concentrations in the crush season's discharge, should be sufficient justification to prohibit Winery waste discharges to the long-used 36.8 acre discharge area. Ms. Kipps suggests that the Central Valley Water Board prohibit discharge to the Winery's long-used 36.8 acre discharge area (i.e., Fields A East Block, A West Block, and B Block).

**RESPONSE:** Given that soil treatment systems are predominantly biological systems, the presumption that groundwater degradation/pollution itself demonstrates a complete lack of assimilative capacity is erroneous. The tentative WDRs set specific limits for BOD, nutrient, and hydraulic loading and include specifications to manage and control the discharge in order to maximize nutrient uptake by plants and soil pore water treatment by microorganisms in the upper soil zone. These requirements are expected to reduce the concentrations of waste constituents percolating to groundwater, thereby ensuring the reasonable protection of beneficial uses.

The tentative Order has also been modified to require soil and vadose zone monitoring to verify that the WDRs are sufficiently protective of groundwater. The accompanying Cease and Desist Order (CDO) requires the Discharger to evaluate the discharge and implement measures necessary to ensure that the ongoing discharge does not contribute to legacy pollution.

**JO ANNE KIPPS – COMMENT No. 2:** Given that historic discharges at the site have polluted groundwater, Ms. Kipps requests that the discharge be identified as a Category 1 threat to water quality for annual billing purposes.

**RESPONSE:** The discharge, as authorized by the tentative WDRs, does not threaten to cause exceedences of water quality objectives or result in the long-term loss of designated beneficial uses. Legacy groundwater degradation/pollution issues will be addressed by the proposed CDO. Therefore, no change has been made to the Facility's threat to water quality designation.

**JO ANNE KIPPS – COMMENT No. 3:** Ms. Kipps states that the WDRs should only authorize the increase in discharge flow and expansion to the discharge area after the Discharger submits technical documentation demonstrating it has implemented corrective measures to preclude exacerbating an existing condition of pollution and after it has implemented Best Practicable Treatment and Control (BPTC) to minimize degradation of high quality groundwater beneath areas previously not used for waste disposal.

**RESPONSE:** The flow limits in Order 95-014 currently allow maximum daily discharges to the 36.8 acre land application area of:

0.526 million gallons per day (mgd) from 1 May to 30 September,  
0.299 mgd from 1 October to 30 November, and  
0.179 mgd from 1 December to 30 April

Following submittal of a RWD in 2000 by Golden State Vintners (GSV), GSV expanded the land application area to 106 acres. This addition of acreage was not discouraged by Board staff in its 16 November 2006 letter to GSV. The flow limit in the tentative WDRs of 0.61 mgd as a monthly average does allow higher flows on a daily basis than what is allowed under Order 95-014. However, given the overall increase in land, actual loadings will be less than that allowed by Order 95-014. In addition, the annual effluent limit cap of 80 million gallons in the tentative WDRs is significantly less than O'Neill could apply to the land application areas if it consistently discharged at the maximum daily flow limits and conditions prescribed in Order 95-014 to the existing 106-acre application area.

Further, O'Neill currently implements several BPTC measures, including segregation of its high salinity low organic waste streams to a Class II surface impoundment, screening to remove solids, use of sprinklers to more evenly distribute the wastewater, and cropping. In addition, the tentative WDRs include additional requirements including limitations on BOD loading (Land Application Area Specifications D.2), the application of wastewater at agronomic rates for both hydraulic and nutrient loading (Land Application Area Specifications D.4 and D.5), and the maximization of available land to minimize waste constituent loading rates (Land Application Area Specification D.6).

**JO ANNE KIPPS – COMMENT No. 4:** Ms. Kipps requests that the tentative WDRs require the Discharger to monitor soils and soil-pore liquid in areas receiving waste discharges as well as in background areas (i.e., areas representative of area soil conditions that the Discharger can reliably demonstrate have not received concentrated discharges of waste constituents). Ms. Kipps states that inclusion of background soils monitoring is essential for interpreting the results of monitoring data collected from areas receiving waste discharges.

**RESPONSE:** The tentative WDRs have been modified to require soil and vadose zone monitoring as part of the Monitoring and Reporting Program (see response to O'Neill - Comment No. 1).

**JO ANNE KIPPS – COMMENT No. 5:** Ms. Kipps states that the tentative WDRs should clearly identify which parcels are proposed for waste disposal (identify parcel APNs in a finding and on a map attachment).

**RESPONSE:** Finding 19 has been modified as follows:

To address increased wastewater generation associated with the Winery expansion, the Discharger purchased approximately 50 acres of land just east of its existing land application areas. With the additional 50 acres, the land currently available for the application of wastewater will total about 156 acres. **The Discharger has an additional 50 acres of land west of Lac Jac Avenue, and has purchased or is in the process of purchasing an additional 139 acres of farmland to the north and south of its existing land application areas** 127 acres of agricultural land that could potentially be used for land application of wastewater in the future, if needed to comply with these WDRs. The following Table identifies the individual field designations and approximate acreages that make up the available land application areas:

TABLE 5. Field Designations		
APNs	Field Designation	Acres
Existing Land Application Areas		
363-061-15	A East Block	15
363-061-15	A West Block	15
363-061-15	B Block	14
363-061-16	C Block	5
363-061-16	D Block	11
363-061-16, and 363-061-18	E Block	21
363-061-16, and 363-061-18	F Block	15
363-061-18	G Block	5
363-061-15	H Block	5
363-061-14	I Block	50
<b>Total</b>		<b>156</b>
Potential Future Additions		
363-051-20, and 363-061-21	unknown	50
363-061-06	unknown	30
363-031-11	unknown	47

363-061-53, 363-061-19, and 363-061-22	unknown	62
<b>Total</b>		<b>189</b>

In addition, Attachment C has been modified to include the Field Designations within the existing land application areas, and Attachment A has been modified to more clearly identify the potential future application areas.

**JO ANNE KIPPS – COMMENTS No. 6:** Ms. Kipps states the tentative WDRs should include flow rate information in Attachment B, Process Flow Schematic.

**RESPONSE:** Adding information on projected flows for the individual waste streams to the Process Flow Schematic will contribute little to the overall characterization of the combined discharge or the limits prescribed in the proposed WDRs. Therefore, no change was made.

**JO ANNE KIPPS – COMMENTS No. 7:** Ms. Kipps states that the tentative WDRs should include waste characterization data for wine production wastewater and for stillage.

**RESPONSE:** Finding 8 in the WDRs has been modified as follows to include characterization of the stillage waste:

The Winery currently crushes approximately 150,000 tons of grapes annually. Wastewater from Winery operations consists of stillage waste, tank wash, cooling water, boiler blow down, and general wash water. The stills generally operate for approximately 110 days each year from mid-August through October. Wastewater from the stills is combined with tank wash and general wash water prior to discharge to the land application areas. **Winery stillage was characterized in 1999. Average concentrations were reported as 4,287 mg/L for BOD, 190 mg/L for total nitrogen, and 2,712 umhos/cm for EC. Additional sampling of the stillage was done in 2000 for individual constituents that contribute to the EC of the stillage. Average concentrations were reported as 1,200 mg/L for potassium, 23 mg/L for sodium, 1,200 mg/L for sulfate, 64 mg/L for chloride, 80 mg/L for calcium, 61 mg/L for magnesium, and 73 mg/L for nitrate.**

**JO ANNE KIPPS – COMMENTS No. 8:** Ms. Kipps asks staff to justify how the O'Neill's existing wastewater screening treatment reflects implementation of BPTC when Google Earth Images of the screening area shows what appears to be excessive spillage of waste constituents.

**RESPONSE:** Ms. Kipps did not provide the images to which she refers in her letter and staff could not discern significant issues from the Google Earth images it viewed. The record does detail past issues with O'Neill's screening area. As a result, staff issued in a January 2007 Notice of Violation (NOV) that directed O'Neill to correct the overflow problems with its screening unit. As a result, O'Neill modified and extended the layout of the capture tub on the screening unit and lowered the screen to prevent overflow of unscreened waste to the ground around the tub, and installed additional pump capacity to minimize backup of wastewater in the screening unit. Staff is not aware of any more recent issues with the screening unit.

The tentative WDRs prohibit the bypass or overflow of untreated or partially treated wastes, except as allowed by Standard Provisions E.2 in *Standard Provisions and Reporting Requirements for*

*Waste Discharge Requirements*, dated 1 March 1991. (Prohibition A.2), and requires the Discharger to operate all systems and equipment to optimize the quality of the discharge (Discharge Specification C.4). These conditions should be sufficient to ensure that the screening unit is operated in accordance with BPTC.

**JO ANNE KIPPS – COMMENTS No. 9:** Ms. Kipps requests that Regional Board staff issue the O'Neill a cleanup and abatement order to address groundwater pollution caused by the Winery's long-term discharge, or at a minimum, revise the CDO to also cite California Water Code section 13304 so that the Discharger is solely responsible for reimbursing the Regional Board for the cost of staff time reviewing and commenting on technical documents that address cleanup and abatement of pollution caused by the Winery's discharge.

**RESPONSE:** The CDO requires the evaluation and monitoring of the extent of groundwater degradation/pollution beneath the site. If groundwater monitoring shows unsatisfactory progress toward meeting water quality objectives, the Board can, in its discretion, issue a Cleanup and Abatement (CAO), and has the options of enrolling the Discharger under cost recovery program. No change was made.