

## INFORMATION SHEET

R5-2012-XXXX  
CALIFORNIA OLIVE RANCH  
ARTOIS MILL AND RANCH  
GLENN COUNTY

### Background

California Olive Ranch (Discharger) owns and operates an olive oil processing mill (the "Facility") in Artois in Glenn County. In 2009, the Discharger was enrolled under Resolution R5-2003-0106, the *Waiver of Waste Discharge Requirements for Small Food Processors, Including Wineries* (the "Waiver") for the 2009 discharge season. Wastewater flows were projected to exceed 100,000 gallons per year in 2010, which made the Discharger ineligible to apply for regulatory coverage under the Waiver. Therefore, the Discharger submitted a report of waste discharge (RWD) on 1 September 2010 to obtain individual WDRs. The Discharger submitted addenda to the RWD on 23 November 2010 and 8 February 2012. The Discharger did not submit the RWD in time to obtain WDRs for the 2010 discharge season. Instead, the Discharger obtained coverage under the *revised* Small Food Processor Waiver R5-2009-0097 for the discharge of 100,000 gallons of wastewater to land in 2010; wastewater in excess of 100,000 gallons was stored in above ground storage tanks.

The Discharger's olive harvest typically begins in mid-September and ends in December. Raw olives are unloaded onto a hopper where leaves and other debris are removed. From there, the olives are transferred to a wash tank. The washed olives are then transferred to hammer mills, where the pits, meat, stems, and skin of the olives are ground together to form a paste. The paste is conveyed to malaxers, where the paste is agitated at a controlled temperature and the oil is separated from the fruit. Boilers are used to heat the malaxers; all boilers are designed for zero wash down and zero blowdown. The paste is then transferred to two-stage decanters where the oil, water, and solids (pomace) are further separated through centrifugation. The pomace and wastewater are sent to holding tanks for disposal and the oil is sent to separators to further extract water and solid particles from the oil. The wastewater and solids from the separators are sent to vertical centrifuges to capture any residual oil. All wastewater is then sent through a grease trap and pre-filter. All wastewater generated from olive oil processing is stored in above ground storage tanks at the Facility prior to discharge to the adjacent 350-acre land application area.

The wastewater is used to supplement irrigation water for the Discharger's olive orchard. Backwash wastewater from the water softener is stored in a separate wastewater storage tank and metered into the irrigation system. Wastewater (process and clean-in-place (CIP)) and irrigation water are filtered through a stationary Lakis sand media filtration system prior to being sent through the pressurized irrigation drip system; an injection pump injects wastewater into the drip system at a maximum of 1 part wastewater to 8 parts irrigation water. Wastewater is applied to the land application area at a maximum rate of 150 gallons per minute for a maximum of 12 hours per day, which equates to a maximum of 108,000 gallons of wastewater each day applied to the 350 acres (309 gallons per acre per day). Wastewater is comprised of: (1) wash water from the washers, (2) discharge water from the vertical centrifuges, (3) water generated from the washdown of equipment (minus boiler), (4) water used for cleaning the pre-filter, (5) water from the CIP washing, and (6) backwash water from the water softener. The first four sources of wastewater are only generated during the production season and are herein referred

to as process wastewater in order to differentiate it from the CIP and water softener backwash water. Solids are transported off site for disposal at a permitted solar-drying facility.

The Discharger has five process lines at the facility; each line is comprised of two hammer mills, a malaxer, a decanter, two vertical centrifuges, and a secondary vertical centrifuge. Within two years, the Discharger anticipates adding three more processing lines (for a total of eight processing lines), increasing the total capacity to approximately 80 tons per hour. Current and future wastewater flows are presented in the table below:

	<u>Total Wastewater Generated per Year (gallons)<sup>1</sup></u>
Facility Capacity (as-built)	3,784,000
<u>Future Capacity</u>	5,151,300

<sup>1</sup>Includes process wastewater, CIP, and water softener backwash

### Loading Rates

The Discharger sampled the process wastewater in November 2009; a weighted average was computed from samples of the washer and separator waste streams; in addition, a composite sample was taken from the storage tanks. Wastewater is collected and combined within storage tanks located at the Facility prior to land application; thus although there are variations in the volume and quantity of the wastewater generated on a daily basis, the variations are normalized in the storage tanks. Therefore, a composite sample is considered representative of the wastewater discharged to the land application area. The constituents of concern in the sample were biochemical oxygen demand (BOD), nitrogen, and total dissolved solids (TDS).

The RWD provided an analysis of loading rates for BOD, nitrogen, and TDS. The analysis was performed in accordance with the *Manual of Good Practice for Land Application of Food Processing/Rinse Water* (the "Food Processing Manual"), published by the California League of Food Processors, which measures the acceptability of wastewater application according to risk categories. A Risk Category 1 is the lowest category and means that loading rates are substantially below agronomic rates and that the risk to groundwater is indistinguishable from good farming practices. It should be noted that although the Food Processing Manual has not been subject to scientific peer review, the Central Valley Water Board was consulted during its preparation. Compliance with the guidelines in the Food Processing Manual demonstrates that the Discharger is implementing treatment and control measures consistent with those promoted by the industry to limit the potential for groundwater degradation.

BOD loading was calculated based on a hydraulic loading rate of 309 gallons per acre per day, and BOD loading will not exceed 15.9 pounds per acre per day at future capacity (8 lines). For a Risk Category 1, the loading rate for BOD must not exceed 50 pounds per acre per day. In addition, BOD loading rates should not exceed 100 lbs per acre per day in order to avoid nuisance conditions (USEPA Publication No. 625/3-77-007C, *Pollution Abatement in the Fruit and Vegetable Industry*). The BOD loading rates proposed in the RWD are below the nuisance loading rate and threshold for a Risk Category 1.

For a Risk Category 1, the loading rate of nitrogen must be less than half of the agronomic rate of the crop on an annual basis; the typical nitrogen requirement for super high density planting olives is 80-150 lbs per acre per year. At current Facility capacity, the RWD estimated the wastewater nitrogen loading at 6.22 pounds per acre per year. When the plant is expanded to eight processing lines, the wastewater nitrogen loading will be 10 pounds per acre per year.

According to the Food Processing Manual, the loading rates calculated in the RWD for BOD and nitrogen are significantly below the threshold for a Risk Category 1, which means that the risk to groundwater from the discharge is indistinguishable from good farming practices and the discharge will not result in any measureable groundwater degradation.

The weighted average FDS/TDS concentration of the wastewater (process, CIP, and water softener) was calculated to be 1,247 mg/L. The TDS concentrations of irrigation wells at the land application site ranged from 143-265 mg/L and District irrigation water TDS was 84 mg/L. Wastewater is applied at less than four-tenths of an inch annually at current Facility capacity, and is supplemented with 24 inches of District or well irrigation water annually. After Facility expansion, the total annual depth of wastewater applied will increase to just above half an inch. The calculated average comparative mineral salinity of the wastewater blended with the District irrigation water at future capacity is 110 mg/L, which is substantially below the ambient concentration of TDS in groundwater, and is below the secondary MCL of 500 mg/L). The calculated average comparative mineral salinity of the wastewater blended with the well irrigation water at Facility buildout is 286 mg/L. The Discharger plans to only utilize District irrigation water and wastewater for irrigation purposes and will apply it at a dilution ratio of up to a maximum of one part of wastewater to eight parts irrigation water; onsite irrigation wells will only be used when District water is not available. This Order contains a Discharge Specification that limits the annual wastewater discharge to the land application area to 3,800,000 gallons, under current operations, and to 5,160,000 gallons when eight processing lines are operational. Due to its relatively high quality, the discharge of District irrigation water and wastewater will improve the groundwater in terms of its salinity concentration.

### **Groundwater Conditions**

Local groundwater quality was obtained from the source well at the Facility, agricultural wells at the land application area, and from a Department of Water Resources well in the vicinity of the Facility. TDS concentrations ranged from 143 mg/L to 297 mg/L and electrical conductivity ranged from 270 to 519 umhos/cm.

### **Antidegradation**

State Water Board Resolution No. 68-16, the *Statement of Policy with Respect to Maintaining High Quality Waters in California* (the "Antidegradation Policy") requires that high-quality waters be maintained "consistent with maximum benefit to the people of the State." Waters can be of high quality for some constituents and not others. Policy and procedures for complying with this directive are set forth in the Basin Plan.

The discharge is consistent with the Antidegradation Policy because:

- a. The discharge is consistent with the maximum benefit to the people of the State. The Discharger provides jobs in a small economically disadvantaged community. In addition, the use of wastewater for irrigation of crops results in the Discharger using less supplemental irrigation well water, which is a benefit to the people of the State;
- b. The discharge will not unreasonably affect present and anticipated beneficial uses because the discharge will not result in any measurable groundwater degradation. Wastewater is land applied below agronomic loading rates and is supplemented with fresh irrigation water;
- c. The discharge will not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives. Groundwater under the land application area is not and will not be impacted by the discharge and does not exceed water quality objectives;
- d. The Discharger implements best practicable treatment or control of the wastes in its discharge by removing solids from the wastewater, using boilers designed for zero wash down and zero blowdown, sending wastewater through three centrifuges and a grease trap to remove residual oil, pre-filtering the wastewater prior to storage, applying wastewater at a dilution ratio of one part wastewater to eight parts irrigation water, storing wastewater in aboveground tanks, applying wastewater below agronomic loading rates, and conducting daily inspections of the land application area during the discharge season.

## **Title 27**

The California Code of Regulations, title 27 ("Title 27") contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to provisions that exempt wastewater. The exemption, found at Title 27, section 20090(b), is described below:

(b) Wastewater – Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields, if the following conditions are met:

- (1) The applicable regional water quality control board has issued WDRs, or waived such issuance;
- (2) The discharge is in compliance with the applicable water quality control plan; and
- (3) The wastewater does not need to be managed ... as a hazardous waste.

The discharge authorized by this Order is exempt from Title 27 because:

- The Central Valley Water Board is issuing waste discharge requirements that will be protective of groundwater. The antidegradation analysis provided in the RWD demonstrated that the discharge will not result in any measureable groundwater degradation;

- The discharge complies with the Basin Plan; groundwater quality below the land application site does not exceed water quality objectives. The Discharger has demonstrated that the application of wastewater below agronomic loading rates to 350 acres of olive trees for a short period of time (approximately 100 days annually) will not result in measureable groundwater degradation;
- The discharge is not considered a hazardous waste and does not need to be managed according to Title 22.

### **CEQA**

All wastewater systems at the Facility have already been installed and are currently in use. This Order places additional regulatory requirements on the continued use of these structures and facilities. These requirements are being prescribed to ensure the continued protection of the environment. This action is therefore exempt from the provisions of the CEQA in accordance with California Code of Regulations, title 14, section 15301, which exempts the “operation, repair, maintenance, [and] permitting ... of existing public or private structures, facilities, mechanical equipment, or topographical features” from environmental review. This action may also be considered exempt because it is an action by a regulatory agency for the protection of natural resources (Cal. Code Regs., tit. 14, § 15307.) and an action by a regulatory agency for the protection of the environment (Cal. Code Regs., tit. 14, § 15308.).

### **Order Terms and Conditions**

The Order includes an annual wastewater flow limit of 3,800,000 gallons per year for the Facility as-built. The Order includes an annual wastewater flow limit of 5,160,000 gallons per year when eight processing lines are operational.

The proposed Order limits BOD loading at the land application area to 100 lbs/acre/day, both long-term and over the course of any discharge cycle.

### **Monitoring Requirements**

Water Code section 13267 authorizes the Central Valley Water Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the State. Water Code section 13268 authorizes assessment of civil administrative liability where appropriate.

The proposed Order includes wastewater monitoring requirements, supply water monitoring, irrigation supply monitoring, land application area monitoring, and solids monitoring.