

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2012-0039

WASTE DISCHARGE REQUIREMENTS
FOR
CALIFORNIA OLIVE RANCH
ARTOIS MILL AND RANCH
GLENN COUNTY

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

1. California Olive Ranch (hereafter Discharger) submitted a Report of Waste Discharge (RWD) dated 1 September 2010 to obtain Waste Discharge Requirements (WDRs) for the discharge of olive oil processing wastewater to land. Addenda to the RWD were submitted on 23 November 2010 and 8 February 2012.
2. The Artois Mill and Ranch (hereafter Facility) is located at 5945 County Road 35 in Artois in Glenn County. The Facility is located in Section 12, Township 20 North, Range 4 West, MDB&M. The Facility and land application area are shown on Attachment A, which is attached hereto and made part of this Order.
3. In June 2009, the Discharger was enrolled under the Waiver of Waste Discharge Requirements for Small Food Processors, Including Wineries (Waiver), Resolution R5-2003-0106 for the 2009 discharge season. Wastewater flows were projected to exceed 100,000 gallons per year in 2010; therefore the Discharger submitted a report of waste discharge on 1 September 2010 to obtain individual WDRs. The Discharger did not submit the RWD in time to obtain WDRs for the 2010 discharge season. Therefore, in November 2010, the Discharger obtained coverage under the *revised* Small Food Processor Waiver R5-2009-0097 for discharge of 100,000 gallons of wastewater to land; wastewater in excess of 100,000 gallons was stored in above ground storage tanks for discharge in 2011.
4. The Discharger owns and operates an olive oil processing mill in Artois that operates seasonally from September to 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; wastewater and solids from the separators are sent to vertical centrifuges to capture any residual oil.

5. 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 clean-in-place (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. Each year, the sludge settling tanks and oil storage tanks are rinsed with cleaning agents after the oil has been drained, thus generating CIP wastewater.

Wastewater from the separators and equipment washdown is sent through a grease trap; all wastewater (except the water softener backwash) is collected in sumps and is sent through a pre-filter for particulate solids removal prior to transfer to the wastewater storage tanks. All process wastewater (with the exception of the pre-filter flow) and CIP rinse water is sent through the water softener; in lieu of sodium chloride, potassium chloride is used. The Discharger has opted to use potassium chloride to reduce the salinity impacts of their wastewater and because potassium is an essential nutrient for olive trees. Backwash from the water softener is sent to a separate storage tank so that it can be metered into the irrigation water at agronomic rates.

6. All wastewater generated from olive oil processing is stored in fully-enclosed aboveground storage tanks at the Facility prior to discharge to the adjacent 350-acre olive orchard land application area. Wastewater is metered from the wastewater storage tanks into the pressurized drip irrigation system at a maximum of 1 part wastewater to 8 parts irrigation; however, the dilution can be increased as needed depending on the annual testing results and concentrations of constituents in the wastewater. Wastewater and irrigation water are filtered through a stationary Lakis sand media filtration system prior to being sent through the pressurized irrigation drip system; the Discharger utilizes District irrigation water for irrigation purposes when it is available and uses well water when District water is limited. 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). Backwash wastewater from the water softener is stored in a separate wastewater storage tank and metered into the irrigation system at agronomic rates.
7. 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 projected wastewater flows are presented in the table below:

<u>Production Year</u>	<u>Number of Process Lines</u>	<u>Process Wastewater Generated per Year (gallons)¹</u>	<u>CIP Wastewater Generated per Season (gallons)</u>	<u>Water Softener Backwash Generated per Year (gallons)</u>	<u>Total Wastewater Generated per Year² (gallons)</u>
2011	5	2,009,500	188,000	110,483	3,784,000
Future Capacity	8	3,215,200	320,000	176,033	5,151,300

¹Flow does not include pre-filter volume of 28,800 gpd.

²Based upon average of actual rates for 2011 production season with 50 days of operation. Includes process wastewater volume, pre-filter volume, CIP volume, and water softener backwash volume produced each year.

8. The total volume of wastewater and supplemental irrigation water (measured in inches over the application area) applied each year at the 350-acre land application area is as follows:

	<u>Total Annual Discharge (Mgal)</u>	<u>Total Depth of Water Applied Each Year (inches)</u>
Wastewater (current)	3.784	0.39
Wastewater (future)	5.151	0.54
Irrigation Water	228	24

9. 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 data is summarized below:

<u>Parameter</u>	<u>Weighted Average</u>	<u>Composite Sample</u>	<u>Units</u>
Total Suspended Solids	5,336	--	mg/L
Nitrate as N	<4.0	--	mg/L
Nitrite as N	<1.0	--	mg/L
Total Kjeldahl Nitrogen	--	88.2	mg/L
Ammonia as N	--	3.71	mg/L
Total Dissolved Solids	1,682	2,170	mg/L
Total Volatile Dissolved Solids	--	1,250	mg/L
Fixed Dissolved Solids	--	920	mg/L
BOD ₅	--	11,200	mg/L
Specific Conductance	1,368	--	umhos/cm
Chloride	52	--	mg/L
Sulfate	10	--	mg/L
Alkalinity as CaCO ₃	263	--	mg/L
Bicarbonate	320	--	mg/L
Carbonate	<2.0	--	mg/L
Calcium	51	--	mg/L
Magnesium	45	--	mg/L

Potassium	252	--	mg/L
Sodium	26	--	mg/L
pH	5	--	standard units
Hardness	256	--	mg/L
Iron	4.6	--	mg/L
Manganese	0.22	--	mg/L
Total Phosphorus as P	--	27.5	mg/L
Boron	--	0.73	mg/L
Hydroxide	<2.0	--	mg/L

The wastewater samples above did not include CIP wastewater, water softener backwash, and pre-filter wastewater and were taken prior to the installation the parallel wastewater storage system. The CIP wastewater and water softener backwash would only contribute to the overall TDS of the wastewater as shown below.

<u>Parameter</u>	<u>CIP Wastewater</u>	<u>Water Softener Wastewater</u>
<u>TDS (mg/L)</u>	2,857	12,337*

*1,300 mg/L as calcium, 391 mg/L as magnesium, 5,825 mg/L as potassium, and 5,871 mg/L as chloride. Although the concentration calculated by summing the individual constituent's concentrations (13,387 mg/L) is slightly higher than the total TDS concentration provided by the manufacturer (12,337 mg/L), it is within the standard 10% error associated with such calculations and is considered negligible.

The pre-filter provides additional treatment of the wastewater by removing particulates from the wastewater. The pre-filter uses fresh water to clean solids removed from the wastewater off the filter screen and is a significant portion of the total wastewater volume produced. As such, the pre-filter wastewater acts to dilute the wastestream; thus decreasing expected concentrations of nitrogen, TDS, and BOD. Wastewater now flows sequentially through one of two parallel systems comprised of five wastewater tanks. The first tank of each wastewater system is conical and water flows over a weir at the top of the tank in order to settle out any residual solids within the wastewater. The solids are periodically removed and sent to the solids storage area. The rest of the tanks are cylindrical and wastewater is drawn from the center of each tank so that any remaining oil and solids are retained within the storage system, thereby providing further reduction in the TDS and nitrogen content of the wastewater. As the wastewater storage system and pre-filter were not installed when the wastewater sampling and analysis occurred, it is anticipated that the nitrogen, TDS, and BOD content of the wastewater would be lower than reported above.

10. All pomace produced at the Facility and all solids removed from the pre-filter are stored on site in an underground storage tank or an aboveground hopper for transport off-site to a permitted solar drying facility in the area. This solids disposal practice is consistent with the Solids Specifications requirements required in Provision D.2. of this Order.
11. 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 (Food Processing Manual)*, published by the California

League of Food Processors, which measures the acceptability of wastewater application according to risk categories. 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.

Risk Category	Description
1 (Lowest) ¹	Loading rates substantially below agronomic rates. Risk indistinguishable from good farming operations. Waiver typically appropriate for small systems, depending upon current waiver eligibility criteria.
2	Loading rates or conditions up to agronomic criteria, providing minimal risk of unreasonable degradation of groundwater. Some risk for systems with water distribution, crop and/or operational problems; causing treatment and reuse effects to be inadequate or spotty.
3	Total loading rates above agronomic rates, but still within calculated capacities. Requires detailed planning, good operation, and monitoring. May require specific design to enhance treatment and losses of some constituents.
4 (Highest)	Loading rates above calculated capacities. Pilot testing and/or intensive monitoring likely to be required to prove efficacy.

¹Based on loading rates alone, category 1 systems should typically be eligible for a waiver or simplified waste discharge requirements.

- The BOD in the wastewater comes from the process wastewater; the CIP wastewater and water softener backwash were not included as the BOD of these waste streams is negligible. The pre-filter had not been installed at the time the composite wastewater sample was obtained; the pre-filter uses a significant volume of fresh water to clean the screen, thus diluting the expected BOD concentration of the wastewater. A flow-weighted BOD concentration that takes into account the process wastewater and pre-filter volumes and concentrations is shown below:

Maximum process wastewater flow (8 lines) = 64,304 gpd at BOD of 11,200 mg/L
 Pre-filter flow (well water) = 28,800 gpd at negligible BOD concentration
 Flow Weighted BOD concentration = 7,735 mg/L

In addition, the pre-filter is expected to remove a significant portion of the particulate BOD; applying a conservative 20 percent BOD removal to the flow weighted BOD concentration yields an expected BOD concentration of 6,190 mg/L.

BOD loading was calculated based on a hydraulic loading rate of 309 gallons per acre per day; the BOD load would not exceed 15.9 pounds per acre per day. For a Risk Category 1, the loading rate for BOD must not exceed 50 pounds per acre per day. In addition, USEPA recommends a BOD loading rate not to exceed 100 lbs per acre per day in order to avoid

nuisance conditions, according to publication No. 625/3-77-007C, *Pollution Abatement in the Fruit and Vegetable Industry*. The BOD loading rate from the discharge is below the USEPA nuisance level and the threshold for a Risk Category 1.

13. The nitrogen uptake for super high density planting (SHDP) olives ranges from 80-150 pounds per acre per year. The projected wastewater nitrogen loading for the current and future Facility are shown below:

	Annual Process Flow (Mgal)	Annual N Load from Process (lb/acre/yr)	Annual Pre-filter Flows (Mgal)	Annual N Load from pre-filter (lb/acre/yr)	Annual CIP Volume (Mgal)	Annual N Load from CIP (lb/acre/yr)	Annual N Loading Rate ¹ (lb/acre/yr)
Current Facility (5 lines)	2.01	4.22	1.44	0.14	0.188	1.86	6.22
Future Capacity (8 lines)	3.22	6.76	1.44	0.14	0.320	3.16	10.06

¹Does not include water softener backwash since the N contribution is negligible.

The projected nitrogen loading rates are significantly below the nitrogen uptake for SHDP olives.

For a Risk Category 1, the loading rate of nitrogen must be less than half of the agronomic rate on an annual basis. Thus, a nitrogen loading rate of less than 40 pounds per acre per year is acceptable and conservative; the loading rates calculated are significantly below the threshold for a Risk Category 1.

In addition, the RWD provided a nitrogen balance for the land application area that evaluated nitrogen inputs from: wastewater, irrigation water, and fertilizer. The following table shows the loading rates for the Facility at current capacity and at buildout.

	Applied Fertilizer N (lb/acre/yr)	Applied Irrigation Well Water N ¹ (lb/acre/yr)	Applied Wastewater N (lb/acre/yr)	Crop Uptake N ² (lb/acre/yr)	Net N Load (lb/acre/year)
Current Facility (5 lines)	53.23	21.92	6.22	100	-18.6
Future Capacity (8 lines)	53.23	21.92	10.06	100	-14.8

¹Calculated by multiplying the total volume of irrigation well water (24 in/yr) by the average nitrogen concentration of the irrigation water (4.03 mg/L) and the appropriate conversion factors.

²The crop uptake was calculated by accounting for the nitrogen uptake of olives (80 lb/acre/yr) and using the most conservative nitrogen loss factor (0.2).

In addition, a cover crop of clover and fescue is planted in between the rows of olive trees; the cover crops have nitrogen uptake rates of 155 lb/acre/yr (clover) and 130-290 lbs/acre/yr (fescue). The uptake of nitrogen from the cover crop was not included in the RWD calculations.

As shown above, all nitrogen that is applied is taken up by the crop and there is an overall net nitrogen deficiency.

14. The Discharger obtained groundwater samples from a source well, several agricultural wells at the land application area, and a Department of Water Resources well in the vicinity of the Facility. In addition, the Discharger sampled the District irrigation water. As shown by the data below, groundwater and district water are below water quality objectives.

<u>Parameter</u>	<u>District Water</u>	<u>Source Well</u>	<u>Ag Well #1¹</u>	<u>Ag Well #3¹</u>	<u>Ag Well #6¹</u>	<u>DWR Well²</u>	<u>Water Quality Objectives</u>
EC, umhos/cm	150	519	270	370	490	na	700 ³
TDS, mg/L	84	297	143	197	265	198	450 ³
Sulfate, mg/L	6.4	11.7	15.5	4.5	13.1	na	250 ⁴
Chloride, mg/L	3	6.55	12.9	4.2	9.3	na	106 ³

¹Wells range in depth from 580 to 660 feet deep.

²Average of samples collected in 2000 and 2006 from station 20N04W02Q001M. Located approximately 1 mile north of the facility. Well screened from 220-248 feet.

³Ag. Goal (Food & Ag. Org. of United Nations).

⁴DPH secondary MCL

15. The *Food Processing Manual* uses mineral salinity concentration risk categories to evaluate potential salinity impacts to groundwater; it compares process/rinse wastewater inorganic dissolved solids (FDS) concentrations to TDS concentrations in irrigation water. Since organic dissolved solids are broken down in the soil profile, the salinity of process/rinse water is best measured by the concentration of FDS; although FDS is slightly less than the total mineral salinity of process/rinse wastewater, it is a reasonable basis for comparison with irrigation water TDS, which represents slightly less than the total salinity from irrigated agriculture including fertilizers and soil amendments. The FDS concentration of the wastewater sample was 920 mg/L; as the FDS concentrations were not available for the CIP and water softener backwash wastewaters, the TDS concentrations were utilized. The RWD provided a weighted average FDS/TDS concentration for all waste streams at Facility Capacity (8 processing lines) as shown below.

	<u>Facility Capacity</u>	<u>Units</u>
Process Wastewater Volume	3,215,200	gallons
Process Wastewater FDS Concentration	920	mg/L
Pre-Filter Wastewater Volume	1,440,000	gallons
Pre-Filter Wastewater TDS (well water)	265	mg/L
CIP Wastewater Volume	320,000	gallons
CIP TDS Concentration	2,857	mg/L
Water Softener Backwash Volume	176,033	gallons
Water Softener Backwash TDS Concentration	12,337	mg/L
Weighted Average FDS/TDS Concentration	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. The weighted average FDS/TDS concentration did not fall within the TDS range for irrigation water in the general area (which is the criteria for a Risk Category 1), and thus, warranted further investigation.

Wastewater (process, CIP, and water softener) is applied at less than four-tenths of an inch annually and supplemented with 24 inches of District irrigation water annually at current Facility capacity. At Facility expansion, the total annual depth of wastewater applied will increase to just above half an inch. Therefore, the RWD calculated the average mineral salinity of applied water (process wastewater, CIP wastewater, water softener backwash wastewater, and irrigation water) for the entire year. The RWD provided two calculations for average mineral salinity of applied water depending upon the irrigation source: well water versus District water. Typically the Discharger only irrigates with District water, but occasionally District water is not available and well water is used. The calculated average mineral salinities for both irrigation scenarios are shown below:

	<u>Average Mineral Salinity for Well Irrigation Water (mg/L)</u>	<u>Average Mineral Salinity for District Irrigation Water (mg/L)</u>
Facility Capacity	286	110

It is important to note that FDS, rather than TDS, should have been used to calculate the average mineral salinity, yet FDS data was not available. Thus, the calculated average mineral salinity could be overestimated. The calculated average mineral salinity of the wastewater and well irrigation water at Facility capacity is 286 mg/L, which is slightly above the highest observed ambient concentration of TDS in groundwater which was 265 mg/L, but below water quality objectives; this corresponds to a Risk Category 2. A Risk Category 2 is defined as being similar to local agriculture and requires that best practicable treatment and control (BPTC) measures be implemented; the Discharger implements BPTC. The calculated average mineral salinity of the wastewater and District irrigation water at Facility capacity is 110 mg/L, which is substantially below the ambient concentration of TDS in groundwater and below water quality objectives; as such, the discharge of District irrigation water and wastewater serves to dilute and improve the groundwater in terms of its salinity concentration.

16. The low pH of the discharge can contribute to soil acidity at the land application area. Excessive acidity in soils can be toxic to crops, reducing the availability of phosphorus, and restricting the population of microorganisms that require neutral soil conditions to convert nitrogen and sulfur into acceptable forms for crop uptake. The low pH of the discharge could also contribute to the mobilization of certain metals in the soil potentially degrading groundwater. However, the relatively short processing season and effective use of lime and/or other soil amendments to control soil pH minimizes the potential for the discharge to degrade groundwater.
17. Depth to first encountered groundwater at the land application area was 48 feet below ground surface. Groundwater gradient and flow were determined from the 2009

groundwater elevation maps for the Sacramento Valley provided by the Department of Water Resources, Northern District. The groundwater at the land application site changes its magnitude and direction of flow based on the time of year. During the spring and summer, the groundwater flows to the northeast at an approximate gradient of 0.0011 and 0.0006 ft/ft, respectively. In contrast, in the fall the groundwater flows southwest at an approximate gradient of 0.0019 ft/ft.

18. The RWD provided two water balances for the land application area: one at current capacity and one at Facility capacity (8 processing lines). The components of the water balance included applicable precipitation for a 100-year return period, evapotranspiration, percolation, wastewater (process wastewater, CIP wastewater, and water softener backwash) application, and irrigation water application. The water balances demonstrated that there is no significant potential for flooding and/or runoff to occur at the land application area due to irrigation or wastewater application.
19. Domestic wastewater at the Facility is discharged separately to two septic tank / leachfield systems not regulated by the county. This Order requires monthly visual monitoring of the leachfield for surfacing effluent and weed growth when the Facility is in operation; in addition, the Order requires septic tank maintenance inspections every five years.
20. According to the USDA Natural Resources Conservation Service soil survey, soils in the land application area are primarily comprised of gravelly loam, gravelly clay loam, and clay. The average infiltration rate for the land application area was determined to be 0.07 inches per hour; each irrigation set containing wastewater is applied at a rate of 0.02 inches per hour.
21. Surface water at the land application site flows east to a tailwater retention pond. Wastewater and irrigation water runoff should be negligible due to the use of a drip irrigation system, low application rates, and prohibitions against discharge during wet weather. Surface water drainage at the Facility and land application area are to White Cabin Creek and Sheep Corral Creek.
22. The Discharger is not required to obtain coverage under the National Pollutant Discharge Elimination System Industrial Storm Water Permit since all storm water runoff at the Facility and land application area is retained onsite and does not discharge into a water of the United States. The only equipment located outside is a receiving hopper for olives and a conveyor to move them into the Facility; all other equipment, including washers, is located indoors.
23. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, revised October 2011 (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 Water Code section 13263(a), WDRs must implement the Basin Plan.

24. Surface water drainage at the Facility and land application area are to White Cabin Creek and Sheep Corral Creek, which are tributary to Wilson Creek, which is tributary to Willow Creek, which is tributary to the Colusa Basin Drain. The Basin Plan designates the beneficial uses of the Colusa Basin Drain as: irrigation, stock watering, contact recreation, canoeing and rafting, warm and cold freshwater habitat, warm migration, warm spawning, and wildlife habitat.
25. The beneficial uses of underlying groundwater are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.
26. State Water Resources Control Board Resolution No. 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State") (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:
 - a. The degradation is consistent with the maximum benefit to the people of the State;
 - b. The degradation will not unreasonably affect present and anticipated beneficial uses;
 - c. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives; and
 - d. The discharger employs best practicable treatment and control (BPTC) to minimize degradation.
27. The Discharger conducted an antidegradation analysis in the RWD that evaluated potential impacts of the discharge on groundwater quality. Agronomic loading rates for BOD, nitrogen, and TDS were calculated and evaluated in accordance with the *Food Processing Manual*. The Facility and land application area do not have shallow groundwater monitoring wells. Therefore, the antidegradation analysis used groundwater data from the supply well and agricultural wells on site and a DWR well in the vicinity of the Facility to evaluate potential impacts to groundwater. The analysis showed that the loading rates proposed by the Discharger are substantially below agronomic rates and that the risk to groundwater is indistinguishable from good farming practices. The antidegradation analysis concluded that the discharge will not result in any measureable groundwater degradation. As expected based on the antidegradation analysis provided by the Discharger, groundwater data from the supply well and agricultural wells on site were below water quality objectives.

The Facility provides best practicable treatment and control of the discharge that includes:

- a. Removal of solids at the plant before discharge to the land application area; solids are hauled offsite for reuse at a solar drying facility;
- b. The boilers are designed for zero wash down and zero blowdown;

- c. Wastewater is sent through multiple centrifuges to remove residual oil;
- d. Wastewater is sent through a grease trap to remove residual oil;
- e. Wastewater is sent through a pre-filter to remove additional particulates;
- f. Wastewater is metered into irrigation water at a dilution ratio of up to a maximum of one part wastewater to eight parts irrigation water;
- g. Use of District irrigation water (when available) which has a lower salinity content than well water;
- h. The wastewater storage system provides additional treatment of the wastewater by removing additional solids through settling;
- i. Application of wastewater at rates that will not allow wastewater to stand for more than 24 hours;
- j. Daily inspection of the land application area during discharge;
- k. Application of wastewater below recommended agronomic loading rates for BOD, nitrogen, and TDS;
- l. Application of supplemental irrigation water that results in minimal nutrient and salinity loading;
- m. Calculation of loading rates monthly for BOD and annually for inorganic TDS and nitrogen;
- n. Preparation and implementation of a Wastewater and Nutrient Management Plan;
- o. Preparation and implementation of a Salinity Evaluation and Minimization Plan.

28. The discharge is consistent with Resolution 68-16 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 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 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 BPTC by removing solids and excess oil from the wastewater through filtration and centrifugation, sending all wastewater through a grease trap, utilizing boilers that do not generate wash down or blow down, using a pre-filter prior to the wastewater storage tanks, metering wastewater into the irrigation system 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 inspecting the land application area daily during the discharge season.
29. The California Code of Regulations, title 27 ("Title 27") contains 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.
30. The discharge authorized by this Order is exempt from Title 27 because:
- a. 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;
 - b. The discharge complies with the Basin Plan groundwater below the land application site does not exceed water quality objectives. The Discharger has demonstrated that the application of wastewater below agronomic loading rates for a short period of time (approximately 100 days annually), will not result in measureable groundwater degradation;
 - c. The discharge is not considered a hazardous waste and does not need to be managed according to Title 22.
31. Any degradation from the application of wastewater to land cannot be monitored separately from any degradation due to agricultural practices at the land application area; fertilizers will

be added annually at the land application area because the wastewater discharge is not sufficient to provide the full agronomic needs of the olives. However, based on the limited volume of the discharge, the seasonal nature of the discharge, the character of the waste, the direct application of wastewater to the land application area below agronomic rates, the use of supplemental irrigation water, and site-specific soil and groundwater conditions, the discharge has minimal potential to degrade groundwater quality. Therefore, shallow groundwater monitoring is not necessary unless the discharge changes significantly or new information regarding the threat to groundwater quality becomes available. However, it is appropriate to require that the Discharger not allow the salinity of the wastewater to increase, and to require that the Discharger develop and implement a salinity evaluation and minimization plan. In addition, the Discharger is required to calculate and report loading rates monthly for BOD and annually for nitrogen and inorganic TDS.

32. Based on the threat and complexity of the discharge, the Facility is determined to be classified 3-C as defined below:
 - a. Category 3 threat to water quality, defined as, "Those discharges of waste that could degrade water quality without violating water quality objectives, or could cause a minor impairment of designated beneficial uses as compared with Category 1 and Category 2." The Discharger's handling, storage, transfer, and land discharge of food processing wastewater will not cause a nuisance, which would require that the Facility be rated a Category 2. Wastewater is stored at the Facility and land application area in fully enclosed tanks, precluding nuisance conditions (odors); in addition, the Discharger is located in a remote agricultural area with few neighbors. Wastewater is blended with irrigation water through micro-sprinklers at the land application area below the BOD nuisance loading rate of 100 pounds per acre per day, precluding nuisance conditions.
 - b. Category C complexity, defined as, "Any discharger for which waste discharge requirements have been prescribed pursuant to Section 13263 of the Water Code not included in Category A or Category B as described above. Included are dischargers having no waste treatment systems or that must comply with best management practices, dischargers having passive treatment and disposal systems, or dischargers having waste storage systems with land disposal."
33. On 14 July 2009, the Glenn County Planning Department approved the current modifications to the facility as a ministerial action under the California Environmental Quality Act ("CEQA") pursuant to California Code of Regulations, title 14, section 15268(a). 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.).

34. Pursuant to Water Code section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue to discharge.
35. Water Code Section 13267(b) states 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..... 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 R5-2012-0039 are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

36. All portions of the facility (including the oil processing/storage buildings and wastewater storage tanks) are located within the 100-year flood plain. However, the processing and oil storage buildings were designed to be two feet above the 100-year flood elevation. This Order contains a Provision that includes a time-schedule for the wastewater storage tanks to be protected from a 100-year flood event. Portions of the land application area are located within the 100-year flood plain; however, Land Application Area Specifications (No. 7) prohibits discharge of wastewater when the ground is saturated.
37. All of the above and supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.

Public Notice

38. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
39. All comments pertaining to the discharge were heard and considered in a public meeting.

IT IS HEREBY ORDERED that, pursuant to Water Code sections 13263 and 13267, California Olive Ranch and their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted thereunder, shall comply with the following:

A. Discharge Prohibitions:

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. Bypass or overflow of untreated wastes, except as allowed by Provision E.2. of Standard Provisions and Reporting Requirements, is prohibited.
3. Discharge of waste classified as 'hazardous', as defined in California Code of Regulations, title 23, section 2521(a) is prohibited. Discharge of waste classified as 'designated waste', as defined in Water Code section 13173, in a manner that causes violation of groundwater limitations, is prohibited.
4. Discharge of irrigation tailwater from the wastewater land application area to any off-site area or drainage course is prohibited.
5. Application of wastewater in a manner or location other than that described herein is prohibited.

B. Discharge Specifications

1. The annual wastewater discharge to the land application area shall not exceed 3,800,000 gallons given current operation. Upon facility expansion, the annual wastewater discharge to the land application area shall not exceed 5,160,000 gallons when eight processing lines are operational.
2. Objectionable odors originating at the facility (including the wastewater land application area) shall not be perceivable beyond the property limits.
3. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge.
4. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of groundwater limitations.
5. All conveyance, treatment, storage, and disposal units shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

6. The facility shall have sufficient treatment, storage, and disposal capacity to accommodate allowable wastewater flow and design precipitation. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

C. Land Application Area Specifications

1. Average BOD loading to the land application area shall not exceed 100 lbs/acre/day, both long term and over the course of any discharge cycle (i.e., the time between successive applications.)
2. The perimeter of the land application area shall be graded to prevent ponding along public roads or other public areas and prevent runoff onto adjacent properties not owned or controlled by the Discharger.
3. The Discharger shall maximize use of the available land application area to minimize waste constituent loading rates.
4. Hydraulic loading of wastewater (and supplemental fresh water) to the land application areas shall be at reasonable agronomic rates designed to minimize percolation of waste constituents below the evaporative and root zones, except as needed to promote surface soil chemistry that is consistent with sustainable agricultural land uses.
5. Application of waste constituents to the land application area shall be at reasonable agronomic rates to preclude creation of nuisance or degradation of groundwater, considering the crop, soil, climate, and irrigation management system. The annual nutritive loading of the land application area, including the nutritive value of organic and chemical fertilizers and of the wastewater shall not exceed the annual crop demand.
6. The irrigation system shall be designed and managed to ensure even application of wastewater over each irrigation field and prevent the discharge of tailwater and overspray outside of the land application area.
7. Irrigation with wastewater shall not be performed within 24 hours before a predicted storm, during precipitation, or within 24 hours after the end of any precipitation event, nor shall it be performed when the ground is saturated.
8. There shall be no standing water in any portion of the land application area more than 24 hours after application of wastewater ceases.
9. The discharge shall not cause the buffering capacity of the soil profile to be exceeded nor shall it cause the soil to become reducing.

10. Application of process wastewater shall only occur where the field and irrigation system are maintained to provide uniform water distribution, minimize ponding, and provide complete tailwater control.
11. The land application area shall be managed to prevent breeding of mosquitoes and other vectors.
12. Tailwater ditches shall be maintained free of emergent, marginal, and floating vegetation.

D. Solids Specifications

1. Any handling and storage of solids and/or sludge at the facility or the land application area shall be temporary, and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations of this Order.
2. Collected screening, and other solids removed from the liquid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, rendering plants, composting sites, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy this specification.
3. Any proposed change in solids use or disposal practice shall be reported to the Executive Officer at least 90 days in advance of the change.

E. Groundwater Limitations

1. The discharge shall not cause underlying groundwater to contain any chemical constituent in concentrations greater than background groundwater quality.

F. Provisions

The following reports shall be submitted pursuant to Section 13267 of the Water Code and shall be prepared as described in Provision F.4:

1. **Within 90 days of adoption of the Order, the Discharger shall submit a Wastewater and Nutrient Management Plan** for the land application area. At a minimum, the Plan must include procedures for daily monitoring of the plant operation and land application area during the processing season, an action plan to deal with objectionable odors and/or nuisance conditions, identification of additional acreage for future land application of wastewater, a discussion on blending wastewater and supplemental irrigation water to achieve maximum dilution, supporting data and calculations for monthly and annual water and nutrient balances, and management

practices that will ensure wastewater, irrigation water, and commercial fertilizers are applied at agronomic rates.

2. **One year after adoption of the Order, the Discharger shall submit a Salinity Evaluation and Minimization Plan** detailing control measures taken to reduce salinity of the discharge. The Plan should also identify any additional methods that could be used to further reduce the salinity of the discharge to the maximum extent feasible, include an estimate on load reductions that may be attained through the methods identified, and provide a description of the tasks, cost, and time required to investigate and implement the various elements.
3. **Within 90 days of adoption of the Order, the Discharger shall protect the wastewater storage tanks from a 100-year flood event;** the method of protection should be presented the Central Valley Water Board prior to implementation.
4. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. To demonstrate compliance with California Code of Regulations, title 16, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
5. The Discharger shall comply with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991, which are part of this Order. This attachment and its individual paragraphs are referred to as *Standard Provisions*.
6. The Discharger shall comply with Monitoring and Reporting Program (MRP) R5-2012-0039, which is part of this Order, and any revisions thereto as adopted by the Central Valley Water Board or approved by the Executive Officer. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger self-monitoring reports.
7. The Discharger shall keep a copy of this Order at the Facility, including its Monitoring and Reporting Program, Information Sheet, Attachments, and Standard Provisions, for reference by operating personnel. Key operating personnel shall be familiar with its contents.
8. As described in the *Standard Provisions*, 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. Accordingly, the Discharger shall submit to the Central Valley Water Board on or before each report due date the specified document or, if an action is specified, a written report detailing evidence of compliance with the date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule. 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. In the event of any change in control or ownership of land or waste treatment and storage facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the appropriate Regional Water Board office.
11. To assume operation 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 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 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. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.
12. If the Central Valley Water Board determines that waste constituents in the discharge have reasonable potential to cause or contribute to an exceedance of any groundwater quality objective, this Order may be reopened for consideration of addition or revision of appropriate numerical wastewater or groundwater limitations, installation of groundwater monitoring wells, and/or BPTC evaluation for the constituents of concern.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order may result in the assessment of Administrative Civil Liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality

or will be provided upon request.

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 8 June 2012.

Original signed by

PAMELA C. CREEDON, Executive Officer

INFORMATION SHEET

R5-2012-0039
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)¹</u>
Facility Capacity (as-built)	3,784,000
<u>Future Capacity</u>	5,151,300

¹Includes 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.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2012-0039

CALIFORNIA OLIVE RANCH
ARTOIS MILL AND RANCH
GLENN COUNTY

This monitoring and reporting program (MRP) is required pursuant to Water Code section 13267. The Discharger shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts or the Executive Officer issues a revised MRP. Changes to sample location shall be established with concurrence of Regional Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer. All samples should be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each sample shall be recorded on the sample chain of custody form. All analyses shall be performed in accordance with Standard Provisions and Reporting Requirements for Waste Discharge Requirements, dated 1 March 1991 (Standard Provisions).

Field test instruments (such as pH) may be used provided that:

1. The operator is trained in the proper use of the instrument;
2. The instruments are calibrated prior to each use;
3. Instruments are serviced and/or calibrated at the recommended frequency by the manufacturer or in accordance with manufacturer instructions; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

In addition to details specified in Standard Provisions, Provisions for Monitoring C.3., records of monitoring information shall also include the following:

1. Analytical method;
2. Measured value;
3. Units;
4. Method detection limit (MDL);
5. Reporting limit (RL) (i.e. a practical quantitation limit or PQL); and

All laboratory results shall be reported down to the MDL. Non-detect results shall be reported as less than the MDL (<MDL). Results above the MDL, but below the concentration of the lowest calibration standard for multipoint calibration methods or below the reporting limit for other methods, shall be flagged as estimated.

Analytical procedures shall comply with the methods and holding times specified in: *Methods for Chemical Analysis of Water and Wastes* (EPA-600/4-79-020, 1983); *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA/600/R-93/100, 1993); *Standard Methods for the Examination of Water and Wastewater*, 20th Edition 9WEF, APHA,

AWWA); and *Soil, Plant and Water Reference Methods for the Western Region, 2003, 2nd Edition* (hereafter Western Region Methods).

WASTEWATER MONITORING

Wastewater samples shall be collected after the disk filter at the Facility prior to dispersal into the irrigation system. The Discharger shall monitor the discharge for the constituents and frequencies specified below throughout the processing season and while there is a wastewater discharge to the land application area.

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>	<u>Sample Frequency</u>
Daily Flow	Gallons	Continuous	Daily
pH	pH units	Grab	Twice per Month ⁴
Biochemical Oxygen Demand ¹	mg/L	Grab	Twice per Month ⁴
Electrical Conductivity	umhos/cm	Grab	Twice per Month ⁴
Total Dissolved Solids	mg/L	Grab	Twice per Month ⁴
Fixed Dissolved Solids	mg/L	Grab	Twice per Month ⁴
Total Nitrogen ²	mg/L	Grab	Twice per Month ⁴
General Minerals ³	mg/L	Grab	Annually

¹Five-day, 20°C.

²Total kjeldahl nitrogen and nitrate.

³General mineral analytes may vary depending on the lab, but shall include at least the following: alkalinity, bicarbonate, boron, calcium, carbonate, chloride, hardness, magnesium, phosphorus, potassium, sodium, and sulfate. An anion/cation balance shall accompany results.

⁴Twice monthly monitoring should occur in non-consecutive weeks when feasible.

WATER SUPPLY MONITORING

The supply water (source well) for the Facility shall be monitored during the processing season for the following:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>	<u>Sample Frequency</u>
Electrical Conductivity	umhos/cm	Grab	Annually
Total Nitrogen ¹	mg/L	Grab	Annually
Total Dissolved Solids	mg/L	Grab	Annually

¹Total kjeldahl nitrogen plus nitrate

IRRIGATION SUPPLY MONITORING

The supplemental irrigation supply water (District water) and agricultural irrigation well(s) for the land application area shall be monitored during the processing season for the following:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>	<u>Sample Frequency</u>
Electrical Conductivity	umhos/cm	Grab	Annually
Total Nitrogen ¹	mg/L	Grab	Annually
Total Dissolved Solids	mg/L	Grab	Annually

¹Total kjeldahl nitrogen plus nitrate

LAND APPLICATION AREA MONITORING

The Discharger shall monitor the land application area throughout the processing season and while there is a discharge. Monitoring of the land application area shall include the following:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>	<u>Sample Frequency</u>
Supplemental Irrigation Flow	Gallons per Well	Calculated ¹	Daily ⁵
Rainfall	Inches	Measured ²	Daily ⁵
Wastewater flow	Gallons	Metered	Daily ⁵
Wastewater application area	Acres	N/A	Daily ⁵
Wastewater application rate	gal/acre-day	Calculated	Daily ⁵
BOD loading ³			
Day of application	lbs/acre	Calculated	Daily ⁵
Cycle average	lbs/acre/day	Calculated	Daily ⁵
Nitrogen loading ⁴			
From wastewater	lbs/acre/year	Calculated	Annually ⁶
From irrigation water	lbs/acre/year	Calculated	Annually ⁶
From fertilizers	lbs/acre/year	Calculated	Annually ⁶
Inorganic TDS loading ⁴	lbs/acre/year	Calculated	Annually ⁶

¹Based on application area and pump run times.

²Data obtained from the nearest National Weather Service rain gauge is acceptable.

³Loading rate to be calculated using the applied volume of wastewater, applied acreage, and average of the two most recent concentrations for BOD. The BOD loading rates shall be divided by the number of days between applications to determine cycle average.

⁴Wastewater nitrogen and inorganic TDS loading shall be calculated as a flow-weighted average using the applied volume of wastewater, actual application area, and the average concentration of total nitrogen and inorganic TDS for the season (starting as zero each January 1).

⁵Reporting frequency shall be Monthly.

⁶Reporting frequency shall be Annually.

The Discharger shall inspect the wastewater land application area **at least once daily prior and during irrigation events** and observations from those inspections shall be documented for

inclusion in the monthly monitoring reports. The following items shall be documented for each area to be irrigated on that day:

1. Soil saturation, ponding, and evidence of soil clogging;
2. Potential runoff to off-site areas and/or surface water;
3. Accumulation of organic solids at soil surface;
4. Odors that have the potential to be objectionable at or beyond the property boundary;
and
5. Vector insects.

SOLIDS/POMACE DISPOSAL MONITORING

The Discharger shall record and report **monthly** the quantity, disposal location, hauler, and method of disposal of solids/pomace generated during the process season.

The storage of any solids and olive pomace shall be described. The description shall include the material stored, approximate amount, location of storage, and measures implemented to prevent leachate generation or control and dispose of any leachate that is generated.

DOMESTIC LEACHFIELD AND SEPTIC TANK MONITORING

Septic tank maintenance inspections (including tank sludge level measurement) shall be performed at least **once every 5 years**. The leachfield(s) that is used to dispose of domestic wastewater shall be monitored and reported **monthly** when the Facility is in operation for signs of surfacing effluent and excessive weed growth.

REPORTING

The Discharger shall report monitoring data and information as required in this MRP as required in the Standard Provisions.

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g. wastewater, water supply), sample location, and the reported analytical result for each sample are readily discernable. 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 analyses performed in accordance with specified test procedures, taken more frequently than required at the locations specified in this MRP, shall be reported to the Central Valley Water Board and used in determining compliance.

A. Monthly Monitoring Reports

Monthly reports shall be submitted to the Central Valley Water Board on the **1st day of the second month following sampling** (i.e., the September report is due by 1 November). Wastewater monitoring is required in months when the facility is actively processing olives, processing olive oil, or performing cleaning activities prior to or after processing.

B. Annual Report

An annual report shall be submitted to the Central Valley Water Board by **1 February of the year following the processing season**. The Annual Report shall include the following:

1. The names and telephone numbers of persons to contact regarding emergency and routine situations;
2. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibrations (Standard Provision C.4.);
3. A summary and discussion of the compliance record for the reporting period. If violations have occurred, the report shall also discuss corrective actions taken and planned to bring the discharge into full compliance with this Order;
4. A discussion on the type of crops grown and their nutrient requirements; and
5. A discussion on loading rates.

A transmittal letter shall accompany each self-monitoring report. The letter shall discuss any violations during the reporting period and all actions taken or planned for correcting violations, such as operation of 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 the certification statement by the Discharger or the Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B. 3.

The Discharger shall implement the above monitoring program on the first day of the month following adoption of this Order.

Ordered by: Original signed by
PAMELA C. CREEDON, Executive Officer

8 June 2012

(date)