

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER R5-2012-XXXX

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)<sup>1</sup></u>	<u>CIP Wastewater Generated per Season (gallons)</u>	<u>Water Softener Backwash Generated per Year (gallons)</u>	<u>Total Wastewater Generated per Year<sup>2</sup> (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

<sup>1</sup>Flow does not include pre-filter volume of 28,800 gpd.

<sup>2</sup>Based 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 <sub>5</sub>	--	11,200	mg/L
Specific Conductance	1,368	--	umhos/cm
Chloride	52	--	mg/L
Sulfate	10	--	mg/L
Alkalinity as CaCO <sub>3</sub>	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) <sup>1</sup>	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.

<sup>1</sup>Based 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 <sup>1</sup> (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

<sup>1</sup>Does 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 <sup>1</sup> (lb/acre/yr)	Applied Wastewater N (lb/acre/yr)	Crop Uptake N <sup>2</sup> (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

<sup>1</sup>Calculated 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.

<sup>2</sup>The 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 #1<sup>1</sup></u>	<u>Ag Well #3<sup>1</sup></u>	<u>Ag Well #6<sup>1</sup></u>	<u>DWR Well<sup>2</sup></u>	<u>Water Quality Objectives</u>
EC, umhos/cm	150	519	270	370	490	na	700 <sup>3</sup>
TDS, mg/L	84	297	143	197	265	198	450 <sup>3</sup>
Sulfate, mg/L	6.4	11.7	15.5	4.5	13.1	na	250 <sup>4</sup>
Chloride, mg/L	3	6.55	12.9	4.2	9.3	na	106 <sup>3</sup>

<sup>1</sup>Wells range in depth from 580 to 660 feet deep.

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

<sup>3</sup>Ag. Goal (Food & Ag. Org. of United Nations).

<sup>4</sup>DPH 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-XXXX 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-XXXX, 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](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 X 2012.

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PAMELA C. CREEDON, Executive Officer