

## INFORMATION SHEET

ORDER NO. R5-2014-XXXX  
HARRIS WOOLF CALIFORNIA ALMONDS  
BALLICO PROCESSING FACILITY  
MERCED COUNTY

Harris Woolf California Almonds (Harris Woolf) owns and operates an almond processing facility and land application areas at 11,805 Newport Road about a quarter of a mile north of the community of Ballico in Merced County.

### Background

Harris Woolf processes almonds (blanches, slices, and grinds) and its predecessor at the site, Gold Hills Nut Company (Gold Hills), submitted a November 2009 Report of Waste Discharge (RWD) in order to obtain Waste Discharge Requirements (WDRs) for its discharge of process wash water to an adjacent almond orchard. Gold Hills and Harris Woolf have voluntarily sampled the effluent for a suite of constituents recommended by Central Valley Regional Water Quality Control Board staff since October 2009.

The Harris-Woolf property contains 22-acres. The almond processing plant (Plant) itself is spread over about eight acres and consists of five main buildings (pre-processing, sizing, manufacturing (processing), dry storage, and cold storage), a fumigation chamber, and two storage ponds (a Fire Retention Pond and an almond processing wastewater retention pond). The remaining property contains two orchards totaling 14-acres that are used as land application areas (LAAs).

The current LAA is a 10-acre orchard currently planted with Almonds. Wastewater is used to irrigate the orchard year round, but additional irrigation water is required as the amount of wastewater produced is insufficient to provide all of the irrigation needs of the orchard. Wastewater comprises about one third of the water need to irrigate the orchard.

### Existing Discharge

Wastewater is generated from the washing, blanching, roasting, and slicing of almonds, and from the cleaning of the processing equipment. Wastewater is collected in channel drains that rout the discharge to an unlined wastewater retention pond. Wastewater from the wastewater retention pond is used to irrigate a 10-acre LAA north of the Plant. The Plant currently discharges about 22,500 gallons per day (gpd) to the wastewater retention pond. The average analytical results since 2011 for Harris Woolf's effluent are summarized in the following table.

<u>Parameter</u>	<u>Units</u>	<u>Effluent</u>
Electrical Conductivity (EC)	Micromhos per centimeter (umhos/cm)	672
Total Dissolved Solids (TDS)	Milligrams per liter (mg/L)	699
Fixed Dissolved Solids (FDS)	Milligrams per liter	295
Chloride	Milligrams per liter	72
Sodium	Milligrams per liter	52
Nitrate as Nitrogen	Milligrams per liter	1.0
Total Kjeldahl Nitrogen	Milligrams per liter	54
Total Nitrogen	Milligrams per liter	55

The results indicate good effluent quality with the exception of TDS, which exceeds the recommended Secondary maximum contaminant level (MCL) of 500 mg/L. However, the TDS results are higher than the corresponding EC results indicating the discharge is high in organic material and FDS was used to estimate the salt load from the discharge as discussed in the following section.

**Proposed Discharge**

Harris Woolf currently uses only the 10-acre orchard as an LAA, but will now use the other existing four-acre LAA for a total of 14-acres for the recycling of wastewater. Harris-Woolf revised the loading estimates presented in the 2009 RWD to include the additional four acres and a more representative effluent volume. However, the analyses only included the flows to the LAAs, not the entire flow to the wastewater retention pond. Central Valley Water Board staff updated the loading estimates based on a flow of 30,000 gpd with a loss of 15 percent of the wastewater to evaporation/percolation in the wastewater storage pond. The results indicate the proposed discharge will add up to 217 pounds per acre per year (lbs/ac/yr) of nitrogen, and the almond trees will require about 218 lbs/ac/yr. This Order contains Provision F.12 that requires Harris Woolf to submit a nutrient management plan to assess and implement measures to ensure nitrogen is applied at agronomic rates.

Salt loading using the average FDS result of 295 mg/L indicates the discharge will add 1,166 lbs/ac/yr. Biochemical oxygen demand (BOD) estimates indicate the discharge will add a monthly average of about 8 pounds per acre per day (lbs/ac/day).

**Groundwater Conditions**

Groundwater in the vicinity of the Facility is unconfined and is present at about 75 feet below the ground surface (bgs). Harris Woolf monitors a three well groundwater monitoring network (MW-1 through MW-3). MW-1 was installed along the western property boundary as an upgradient well, while MW-2 and MW-3 were installed as downgradient wells. MW-2 was installed on the eastern edge of the 10-acre LAA and MW-3 on the eastern edge of the Facility and the four-acre LAA. The direction of groundwater flow is generally to the east. The averages for selected constituents since June 2010 are summarized in the following table.

<u>CONSTITUENTS</u>	<u>UNITS</u>	<u>MW-1</u>	<u>MW-2</u>	<u>MW-3</u>
Electrical Conductivity	umhos/cm	1170	812	1140
Total Dissolved Solids	mg/L	828	618	828
Chloride	mg/L	42	23	35
Sodium	mg/L	105	47	61
Bicarbonate	mg/L	279	212	245
Total Hardness	mg/L	383	319	480
Calcium	mg/L	96	83	128
Magnesium	mg/L	31	26	37
Potassium	mg/L	2.7	2.4	3.1
<u>Nitrate as Nitrogen</u>	mg/L	40	17	34

The best water quality is observed in downgradient well MW-2, and the results in upgradient MW-1 and downgradient MW-3 are nearly identical with MW-1 having slightly higher values for most of the constituents. The EC and TDS averages from MW-1 and MW-3 exceed the

“Recommended” Secondary MCLs for EC and TDS (900 umhos/cm for EC and 500 mg/L for TDS), but are lower than the “Upper” Secondary MCLs (1,600 umhos/cm for EC and 1,000 mg/L for TDS). Nitrate as nitrogen results from all of the wells exceed the Primary MCL of 10 mg/L and indicate pollution of the underlying groundwater.

The United States Geological Survey (USGS) monitors or has monitored several groundwater monitoring wells near the Facility. Most are deeper supply wells that have little value for comparing water quality results, but two wells (Well 372742120443601 and 3727461220443601) are located about two miles west and generally upgradient of the Facility. The well construction details were not provided, but both wells appear to monitor first encountered groundwater in the same portion of the aquifer as do the Harris Woolf groundwater monitoring wells. The depth to water was recorded in each well to have ranged from about 55 to 65 feet bgs since 1994 with water levels dropping to 65 feet bgs in 2012. The depth to groundwater in these wells is about the same but slightly less than (shallower) the depth to water observed in the Harris Woolf wells. Analytical results are nearly the same in each well. The results from USGS well 3727461220443601 are summarized in the following table.

<u>USGS WELL 372746120443601</u>					
<u>EC</u>	<u>TDS</u>	<u>Chloride</u>	<u>Sodium</u>	<u>Bicarbonate</u>	<u>Nitrate as N</u>
<u>(umhos/cm)</u>	<u>(mg/L)</u>	<u>(mg/L)</u>	<u>(mg/L)</u>	<u>(mg/L)</u>	<u>(mg/L)</u>
1,089	755	49.6	67.3	251	37.4
(932 – 1,310)	(682 – 901)	(31 – 61)	(65 – 72)	(223 – 278)	(33.7 – 40.4)

The results from the USGS wells are nearly identical to the results from MW-1, and indicate that MW-1 represents regional ambient or upgradient groundwater quality. The results also indicate that nitrate as nitrogen pollution in groundwater is a regional problem. The results in MW-2 indicate that the discharge in combination with the fresh water used to irrigate the 10-acre LAA appears to be actually improving groundwater quality downgradient of the LAA.

**Source Water**

Source water is obtained from an onsite 440-foot deep supply well. The well is screened from 240 to 260 feet bgs, and 340 to 440 feet bgs. The well was completed with a bentonite seal from about 5 feet bgs to 200 feet bgs. Source water quality is presented in the following table.

<u>CONSTITUENT</u>	<u>UNITS</u>	<u>RESULTS</u>
Electrical Conductivity	umhos/cm	182
Total Dissolved Solids	mg/L	158
Chloride	mg/L	22
Nitrate as Nitrogen	mg/L	1.0

**Basin Plan, Beneficial Uses, and Regulatory Considerations**

The *Water Quality Control Plan for the Plan for the Sacramento and San Joaquin River Basins, Fourth Edition* (revised October 2007) (Basin Plan) designates beneficial uses, establishes numerical and narrative water quality objectives, contains implementation plans and policies for protecting all waters of the basin, and incorporates by reference plans and

Policies of the State Water Board. The beneficial uses for the groundwater in the Facility area are municipal and domestic supply, agricultural supply, industrial process and service supply. The beneficial uses for the surface water in the Facility area (Merced River) are municipal and domestic supply, agricultural supply, industrial service supply; industrial process supply; hydropower generation; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; wildlife habitat; migration of warm and cold aquatic organisms; and warm and cold water spawning.

### **Antidegradation**

State Water Resources Control Board Resolution 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 will not unreasonably affect present and anticipated future beneficial uses.
- b. 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
- c. The discharger employs best practicable treatment or control (BPTC) to minimize degradation.
- d. The degradation is consistent with the maximum benefit to the people of the State.

As discussed in the preceding groundwater section, groundwater results for EC and TDS exceed the recommended MCLs for EC and TDS of 900 umhos/cm and 500 mg/L, respectively, and nitrate concentrations exceed the Primary MCL of 10 mg/L in all of the wells. However, a review of regional and upgradient results indicate upgradient water quality has almost identical results for EC, TDS, and nitrate as nitrogen. The EC, TDS, and nitrate as nitrogen concentrations in MW-1 and MW-3 represent regional groundwater quality, not degradation/pollution from the discharge from the Plant. Results from MW-2 indicate that wastewater and irrigation water applications may be improving groundwater quality downgradient of the 10-acre LAA.

The Discharger screens solids from the waste stream prior to discharge to the wastewater retention pond, which is considered BPTC for the discharge. The WDRs include Provisions F.11 and F.12 that require the Discharger to submit Salinity and Nutrient Management Plans to further evaluate and implement measures to improve the quality of its discharge.

The Basin Plan incorporates the State's Antidegradation Policy. The Antidegradation Policy requires the Central Valley Water Board in regulating discharges of waste to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Central Valley Water Board's policies (e.g., quality that exceeds water quality objectives). Resolution 68-16 requires that the constituents contributing to degradation be regulated to meet best practicable treatment or

control (BPTC) to assure that pollution or nuisance will not occur and that the highest water quality consistent with the maximum benefit to the people of the State will be maintained.

With wastewater application at the loading rates authorized by this Order, appropriate application and resting periods, and the inclusion of four additional acres for the reuse of effluent to land planted with almonds, the discharge will not cause impermissible degradation of the underlying groundwater.

Degradation of groundwater by some of the typical waste constituents released with discharge from a food processing facility after effective source reduction is consistent with maximum benefit to the people of the State. Harris-Woolf contributes to the economic prosperity of the region by directly employing 60 to 100 workers at the Plant, provides incomes for numerous surrounding almond growers and associated trucking firms, and provides a tax base for local and county governments. Economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and therefore sufficient reason to accommodate growth and groundwater degradation provided terms of the Basin Plan are met.

The Order establishes effluent limits and groundwater limits for the Plant that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan. The Order contains requirements for groundwater monitoring to assure that the highest water quality consistent with the maximum benefit to the people of the State will be achieved.

### **Title 27**

Title 27 of the California Code of Regulations, section 20005 et seq (Title 27) contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for full containment of classified waste, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent in a classified waste is acceptable under Title 27 regulations.

Unless exempt, release of designated waste is subject to full containment pursuant to Title 27 requirements. Title 27 Section 20090(b) exempts discharges of designated waste to land from Title 27 containment standards and other Title 27 requirements provided the following conditions are met:

- a. The applicable regional water board has issued waste discharge requirements, or waived such issuance;
- b. The discharge is in compliance with the applicable basin plan; and
- c. The waste is not hazardous waste and need not be managed according to Title 22, CCR, Division 4.5, Chapter 11, as a hazardous waste.

The discharge from Harris Woolf's Ballico Plant meets the above requirements and is therefore exempt from Title 27.

### **CEQA**

For the existing Facility, the County of Merced issued Conditional Use Permit No. 3747 in 1993, circulated a Mitigated Negative Declaration on 26 January 1993, and adopted the Mitigated Negative Declaration on 9 March 1994 for the operation of an Almond processing facility on 22-acres of property (~ 8 acres for the Plant and ponds, and 14-acres of almond orchards for the reuse of wastewater). This Order does not increase the discharge volume, and does not authorize any additional construction activities to the Facility. The Order imposes regulatory requirements that are protective of the underlying groundwater quality; therefore, the existing discharge is exempt from the requirements of CEQA in accordance with California Code of Regulations, title 14, section 15301.

### **Proposed Order Terms and Conditions**

#### **Discharge Prohibitions, Effluent Limitations, Discharge Specifications, and Provisions**

The proposed Order would prohibit discharge to surface waters and water drainage courses.

The proposed Order would limit the monthly average daily discharge flow limit at 30,000 gpd.

The proposed Order would limit the EC of the discharge to 900 umhos/cm.

The discharge requirements regarding dissolved oxygen and freeboard are consistent with Central Valley Water Board policy for the prevention of nuisance conditions, and are applied to all such facilities.

The proposed WDRs would prescribe groundwater limitations that implement water quality objectives for groundwater from the Basin Plan. The limitations require that the discharge not cause or contribute to exceedance of these objectives or natural background water quality, whichever is greatest.

#### **Monitoring Requirements**

Section 13267 of the CWC 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 effluent, groundwater, pond, source water, and solids monitoring. The monitoring is necessary to evaluate the extent of the potential degradation from the discharge.

#### **Reopener**

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and

plans, and are intended to assure conformance with them. The proposed Order would set limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.