INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS ORDER __
HUGHSON NUT, INC.
VERDUGA ROAD FACILITY
STANISLAUS COUNTY

Background

Hughson Nut, Inc. ("Discharger") owns and operates the Hughson Nut Verduga Road Facility, which is located approximately three miles east from the City of Hughson and one mile south of the Tuolumne River. The facility began operation in 1985 and processes harvested almonds that have been hulled and shelled. The facility neighbors an almond hulling and shelling company, which is owned and operated independently.

The facility sorts raw almonds by variety, size, and quality. Sorted almonds are transferred for either dry processing or steam blanching to remove the skin. The blanching process was added in 1988 and generates wastewater from prewashing, blanching and rinsing of almonds, boiler blowdown, and blanching equipment cleaning/sanitization. The majority of wastewater is generated during the actual steam blanching process. The facility operates up to 20 to 22 hours a day, 6 days a week during the peak almond processing season, which is typically September through April. During the peak season the facility employees up to 150 workers.

The Discharger has not metered wastewater flows. The 2007 Report of Waste Discharge estimates the monthly average wastewater flow to be 15,000 to 16,000 gallons per day (gpd) during the peak operating season based on the blancher size. In September 2013 the Discharger provided information to amend the 2007 RWD. The Discharger states that almond production has increased from approximately 45,000 to 90,000 pounds per day and the monthly average wastewater flow is now expected to be approximately 41,000 gpd. Wastewater flows are based on metered flows from the supply groundwater well and estimated water losses during the blanching process and from domestic use. The estimation of wastewater flows is not accurate and, therefore, this Order requires the Discharger to install a flow meter to reliably measure wastewater flows. The Discharger is requesting a monthly average flow limit of 64,000 gpd to accommodate future expansion.

All process wastewater is run through a parabolic screen prior to being discharged to Pond 1, which is a concrete lined aeration pond. Effluent from Pond 1 gravity flows to Pond 2, which is an aerated unlined earthen pond. Wastewater from Pond 2 is used for irrigation of about 55 acres of on-site almond orchards.

Site-Specific Conditions

The site is relatively level at an elevation of approximately 140 feet above mean sea level (MSL). Surface water drainage is generally south to north toward the Tuolumne River, which is approximately 1 mile north of the facility. Surrounding land uses are primarily agricultural with some residences. The Discharger states that local agriculture crops primarily consist of almond orchards that use groundwater and Turlock Irrigation District water for irrigation.

Groundwater Considerations

In January 2011 the Discharger installed three groundwater monitoring wells MW-1, MW-2, and MW-3. Groundwater monitoring data indicate that depth to groundwater is generally 70 to 85-feet below ground surface and flows toward the east with a gradient that ranges from 0.0009 to 0.0019. Based on the groundwater gradient, MW-1 is downgradient of Pond 2, Pond 3, and the LAA. MW-2 is spatially upgradient of Pond 2 but is likely influenced by percolation from Pond 2. MW-3 was intended to monitor background groundwater quality but the proposed land application area was changed and now encompasses MW-3. Because the facility does not have an adequate groundwater monitoring well network, this Order requires the Discharger to submit a *Groundwater Monitoring Well Installation Workplan* to monitor background groundwater quality.

Groundwater quality was sampled for key constituents a few days after installing the monitoring wells. Since then, pH and total dissolved solids (TDS) have been sampled on a quarterly basis. Sampling results are summarized in the following table:

Constituent	Units	MW-1	MW-2	MW-3	Potential WQO
pH [1]	S.U.	6.4 (5.9 - 6.9)	7.0 (6.7 - 7.5)	7.2 (6.6 - 7.7)	6.5 - 8.5[3]
TDS [1]	mg/L	403 (350-440)	638 (580-700)	459 (420-500)	450[5] - 1,500[3]
Nitrate (as N) [2]	mg/L	15.8	28.4	15.0	10[4]
Chloride [2]	mg/L	15	25	19	106[5]- 600[3]
Sodium [2]	mg/L	37	50	132	69[5]
Boron [2]	mg/L	0.05	0.09	< 0.1	0.7[5]
Iron [2]	mg/L	< 0.05	< 0.05	< 0.05	0.3[3]
Manganese [2]	mg/L	0.0132	0.0057	0.02	0.05[3]
Potassium [2]	mg/L	3	4	4	– –

[1] Average and range of data collected quarterly from January 2011 through May 2013.
[2] Single sample collected in January 2011 after the monitoring wells were installed.
[3] Secondary Maximum Contaminant Level
[4] Primary Maximum Contaminant Level
[5] Lowest agricultural water quality goal

Without background groundwater monitoring data it is not possible to evaluate whether degradation has occurred or the extent of degradation. The following preliminary assessment of groundwater degradation is based on available monitoring data but is not conclusive:

a. MW-2 data indicate that Pond 2 may be causing groundwater degradation with respect to TDS but not exceedance of the water quality objective. MW-2 data also indicates that the discharge may have caused or contributed to localized nitrate pollution.

b. Monitoring well MW-1 data indicate that infiltration from the storm water pond (Pond 3) may dilute groundwater TDS concentrations as groundwater travels from

MW-2 to MW-1. MW-1 data also show the pH concentration is, at times, below the lower MCL of 6.5. It is not clear whether the low pH concentration is naturally occurring or is caused by Pond 2, Pond 3, or acidic leachate associated with temporary storage of almond hulls by the neighboring hulling company.

Basin Plan, Beneficial Uses, and Regulatory Considerations

Local drainage is to Tuolumne River. The beneficial uses of Tuolumne River, as stated in the Basin Plan, are municipal and domestic supply; agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; wildlife habitat; migration of aquatic organisms; and spawning, reproduction, and/or early development.

The beneficial uses of underlying groundwater as set forth in the Basin Plan are municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.

Antidegradation Analysis

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 is consistent with the maximum benefit to the people of the state.

b. The degradation will not unreasonably affect present and anticipated future 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 or control (BPTC) to minimize degradation.

The Discharger has been monitoring groundwater quality at the site since 2011. The California Department of Water Resources' (DWR) Water Quality Library indicates one well, station name 04S10E11J001M, that is close to the facility and has been monitored for ground water quality. The well was monitored once in December 1949 using an unknown analytical method and results were as follows: 0.16 mg/L boron; 21 mg/L chloride; 160 µmhos/cm electrical conductivity; 0.7 mg/L magnesium; and 46 mg/L sodium. The DWR states that unknown analytical methods may not compare with modern data. Based on the data available, it is not possible to determine pre-1968 groundwater quality. Therefore, determination of compliance with Resolution 68-16 for this facility must be based on existing background groundwater quality. As stated previously, background quality cannot yet be determined due to an inadequate groundwater monitoring well network.

Constituents of concern that have the potential to degrade groundwater include salts (primarily TDS), nutrients, and pH. Degradation of groundwater by some of the typical waste

constituents associated with discharge from food processing facilities, after effective source control, treatment, and control measures are implemented, is consistent with the maximum benefit to the people of the state. The economic prosperity of the community by direct employment of fulltime and seasonal personnel and associated industry is of maximum benefit to the people of the State, and provides sufficient justification for allowing limited groundwater degradation that may occur pursuant to this Order.

The following treatment and control measures are implemented at the facility:

- Use of high quality water for source water and supplemental irrigation, which reduces percolate salinity.
- Disposing of boiler precipitate at a landfill to reduce constituent concentrations in the wastewater.
- Screening the wastewater prior to discharge to reduce BOD and nitrogen.
- Approximately 55 acres of LAAs are available. Crops are grown on the LAAs and will take up the nutrients found in the wastewater if wastewater application rates are carefully controlled.

To assure protection of the beneficial uses of groundwater, this Order establishes flow limitations, effluent and mass loading limitations, groundwater limitations, discharge specifications, land application area requirements, solids disposal specifications, and groundwater monitoring requirements.

Flow Limitations

Influent flows to the wastewater treatment system shall not exceed the following limits:

Flow Measurement	Flow Limit
Maximum Average Daily Flow [2]	64,000 MGD
Total Annual Flow [1]	23.5 MG

[1] As determined by the total flow during the calendar month divided by the number of days in that month.

[2] As determined by the total flow for the calendar year.

Effluent and Mass Loading Limitations

The blend of treated wastewater, storm water, and supplemental irrigation water applied to the LAAs shall not exceed the following effluent and mass loading limits:

Constituent	Units	Cycle Average[1]	Annual Maximum
BOD Mass Loading	lb/ac/day	100	--
Average FDS Concentration	mg/L	--	500 [2]

Constituent	Units	Cycle Average[1]	Annual Maximum
Total Nitrogen Mass Loading	lb/ac/year	--	Crop Demand

[1] This limit applies as irrigation cycle average. For the purpose of this Order, "irrigation cycle" is defined as the time period between the start of an irrigation event and the start of the next irrigation event on the same LAA field identified in Attachment B.

[2] Flow-weighted average based on total flow and concentration discharged.

Groundwater Limitations

Release of waste constituents from any portion of the facility shall not cause groundwater to contain any of the specified constituents in a concentration statistically greater than the maximum allowable concentration tabulated below. **The wells to which these requirements apply are specified in the Monitoring and Report Program.**

Parameter	Units	Water Quality Objective	Allowable Concentration	Date Effective[1]
Nitrate nitrogen	mg/L	10	Background groundwater quality or the Water Quality Objective, whichever is greater	Immediately

[1] Applies only to the specific compliance monitoring wells listed in the Monitoring and Reporting Program.

Provisions

a. By **1 July 2014**, the Discharger shall submit a *Groundwater Monitoring Well Installation Workplan* that proposes at least two additional monitoring wells to ensure adequate monitoring upgradient and downgradient of all wastewater ponds as well as the land application area.

b. By **1 September 2014**, the Discharger shall submit a *Flow Meter Installation Report*. The report shall describe the installation of a flow meter to monitor effluent flows at the locations shown schematically on Attachment C.

c. By **1 November 2014**, the Discharger shall submit a *Groundwater Monitoring Well Installation Report* for any new groundwater monitoring wells.

d. By **1 February 2017**, the Discharger shall submit a *Groundwater Quality Study* that determines background groundwater quality, evaluates groundwater degradation, and describes the statistical methods used to determine compliance.

If groundwater monitoring results show that the discharge of waste is causing groundwater to contain any waste constituents in concentrations statistically greater than the Groundwater Limitations of this Order, within 120 days of the request of the Executive Officer, the Discharger shall submit a *BPTC Evaluation Workplan*.

Monitoring Requirements

The Monitoring and Reporting Program is designed to verify compliance with the flow and effluent limitations and operational requirements of the WDRs. The Order requires monitoring

of the ponds, wastewater flows to the land application areas, wastewater quality, land application area, groundwater, and residual solids. Groundwater limitations are necessary to protect the municipal and domestic use of groundwater. If results of the monitoring reveal a previously undetected threat to water quality or indicate a change in waste character such that the threat to water quality is significantly increased, the Central Valley Water Board may reopen this Order to reconsider groundwater limitations and other requirements to comply with Resolution 68-16.