

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2014-XXXX  
FOR  
HARRIS WOOLF CALIFORNIA ALMONDS  
BALLICO PROCESSING FACILITY  
MERCED 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 Central Valley Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. 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 the operator is trained in the proper use of the instrument and each instrument is serviced and/or calibrated at the recommended frequency by the manufacturer or in accordance with manufacturer instructions.

Analytical procedures shall comply with the methods and holding times specified in the following: *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA); *Test Methods for Evaluating Solid Waste* (EPA); *Methods for Chemical Analysis of Water and Wastes* (EPA); *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA); *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125). Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the California Department of Public Health's Environmental Laboratory Accreditation Program. The Discharger may propose alternative methods for approval by the Executive Officer.

If monitoring consistently shows no significant variation in magnitude of a constituent concentration or parameter after at least 12 months of monitoring, the Discharger may request this MRP be revised to reduce monitoring frequency. The proposal must include adequate technical justification for reduction in monitoring frequency.

A glossary of terms used within this MRP is included on page 10.

The Discharger shall monitor the following locations to demonstrate compliance with the requirements of this Order:

| <b>Monitoring Point Name</b> | <b>Monitoring Location Description</b>  |
|------------------------------|---|
| <b>FM-01 and FM-02</b>       | Location where the volume/flow of wastewater can be measured prior to discharge to the wastewater retention pond (FM-1) and the location where the volume/flow of wastewater can be measured prior to discharge to the LAAs (FM-2). |
| <b>EFF-01</b>                | Location where a representative sample of the Plant's wastewater can be obtained prior to discharge to the wastewater retention pond.   |
| <b>MW-1 through MW-3,</b>    | Groundwater monitoring wells MW-1 through MW-3, and any other wells added to the groundwater monitoring network.  |
| <b>SW-1</b>                  | Supply well (SW-1) and any other supply wells added to the supply well network.   |
| <b>IW-1</b>                  | Location where a representative sample of irrigation water (IW-1) can be obtained prior to discharge to the LAAs.   |
| <b>PND -01</b>               | Location where a representative sample of the wastewater retention pond can be obtained.  |

### EFFLUENT MONITORING

The Discharger shall monitor the volume of wastewater discharged to the wastewater retention pond at FM-1 and the volume of wastewater discharged to the LAAs at FM-002. The discharge shall monitor effluent at EFF-001 for the constituents listed below. The wastewater samples shall be representative of the volume and nature of the discharges. Time of collection of the samples shall be recorded. Wastewater monitoring shall include at least the following:

| <u>Frequency</u> | <u>Constituent/Parameter</u> | <u>Units</u>      | <u>Sample Type</u> |
|------------------|------------------------------|-------------------|--------------------|
| Continuous       | Flow                         | mgd               | Meter              |
| Weekly           | pH                           | pH Units          | Grab               |
| Monthly          | Electrical Conductivity      | umhos/cm          | 24-hour composite  |
| Monthly          | Total Dissolved Solids       | mg/L              | 24-hour composite  |
| Monthly          | Fixed Dissolved Solids       | mg/L              | 24-hour composite  |
| Twice Monthly    | Biochemical Oxygen Demand    | mg/L              | 24-hour composite  |
| Twice Monthly    | Nitrate as Nitrogen          | mg/L              | 24-hour composite  |
| Twice Monthly    | Nitrite as Nitrogen          | mg/L              | 24-hour composite  |
| Twice Monthly    | Ammonia as Nitrogen          | mg/L              | 24-hour composite  |
| Twice Monthly    | Total Kjeldahl Nitrogen      | mg/L              | 24-hour composite  |
| Twice Monthly    | Total Nitrogen               | mg/L              | 24-hour composite  |
| Annually         | General Minerals             | mg/L <sup>1</sup> | 24-hour composite  |

<sup>1</sup> mg/L or ug/L, as appropriate.

### POND MONITORING

Effluent storage ponds monitoring shall include at least the following:

| <u>Frequency</u> | <u>Constituent/Parameter</u> | <u>Units</u> | <u>Sample Type</u> |
|------------------|------------------------------|--------------|--------------------|
| Weekly           | DO <sup>1</sup>              | mg/L         | Grab               |

<sup>1</sup>. Should the DO be below 1.0 mg/L during a weekly sampling event, the Discharger shall take all reasonable steps to correct the problem and commence daily DO monitoring in the affected ponds until the problem has been resolved

The Discharger shall inspect the condition of the wastewater retention pond once per week and write visual observations in a bound logbook. Notations shall include observations of whether weeds are developing in the water or along the bank, and their location; whether dead algae, vegetation, scum, or debris are accumulating on the wastewater retention pond surface and their location; whether burrowing animals or insects are present; and the color of the pond water (e.g., dark sparkling green, dull green, yellow, gray, tan, brown, etc.).

### GROUNDWATER MONITORING

After measuring water levels and prior to collecting samples, each monitoring well (MW-1 through MW-3) shall be adequately purged to remove water that has been standing within the well screen and casing that may not be chemically representative of formation water. Depending on the hydraulic conductivity of the geologic setting, the volume removed during purging is typically from 3 to 5 volumes of the standing water within the well casing and screen, or additionally the filter pack pore volume.

The Discharger shall monitor all wells in its Groundwater Monitoring Network, and any additional wells installed, for the following:

| <u>Frequency</u> | <u>Constituent/Parameter</u> | <u>Units</u>      | <u>Sample Type</u> |
|------------------|------------------------------|-------------------|--------------------|
| Semi-Annually    | Depth to Groundwater         | Feet <sup>1</sup> | Measured           |
| Semi-Annually    | Groundwater Elevation        | Feet <sup>2</sup> | Computed           |
| Semi-Annually    | pH                           | pH Units          | Grab               |
| Semi-Annually    | EC                           | umhos/cm          | Grab               |
| Semi-Annually    | Nitrate as Nitrogen          | mg/L              | Grab               |
| Semi-Annually    | Nitrite as Nitrogen          | mg/L              | Grab               |
| Semi-Annually    | Ammonia as Nitrogen          | mg/L              | Grab               |
| Semi-Annually    | Total Kjeldahl Nitrogen      | mg/L              | Grab               |
| Semi-Annually    | Total Nitrogen               | mg/L              | Grab               |
| Semi-Annually    | Arsenic                      | mg/L <sup>3</sup> | Grab               |
| Semi-Annually    | Iron                         | mg/L <sup>3</sup> | Grab               |
| Semi-Annually    | Manganese                    | mg/L <sup>3</sup> | Grab               |
| Annually         | General Minerals             | mg/L <sup>3</sup> | Grab               |

1. To the nearest hundredth of a foot.  
2. To the nearest hundredth of a foot above Mean Sea Level.  
3. mg/L or ug/L, as appropriate

The Discharger shall maintain its groundwater monitoring well network. If a groundwater monitoring well(s) are dry for more than two consecutive sampling events, the Discharger shall submit a work plan and proposed time schedule to replace the well(s). The well(s) shall be replaced following written Executive Officer approval of the work plan and time schedule.

### SOURCE WATER MONITORING

The Discharger shall collect samples at SW-1 and any wells added, and analyze them for the constituents specified in the following table. If the source water is from more than one well, the results shall also be presented as a flow weighted average of all the wells used.

| <u>Frequency</u> | <u>Constituent/Parameter</u> | <u>Units</u> | <u>Sample Type</u>    |
|------------------|------------------------------|--------------|-----------------------|
| Annually         | EC                           | mg/L         | Grab/Computed average |
| Annually         | TDS                          | TDS          | Grab/Computed average |
| Annually         | Nitrate as Nitrogen          | mg/L         | Grab/Computed average |
| Annually         | Nitrite as Nitrogen          | mg/L         | Grab/Computed average |
| Annually         | Ammonia as Nitrogen          | mg/L         | Grab/Computed average |
| Annually         | Total Kjeldahl Nitrogen      | mg/L         | Grab/Computed average |
| Annually         | Total Nitrogen               | mg/L         | Grab/Computed average |
| Annually         | General Minerals             | mg/L         | Grab/Computed average |

### LAND APPLICATION AREA MONITORING

The Discharger shall monitor the LAAs daily while wastewater is being discharged, and weekly during non-application periods. The volume of the effluent applied will be monitored at FM-002. The monitoring report shall identify the volume of the effluent applied, the specific parcels to which it is applied, the acreage to which it is applied, and the type of crops grown on each parcel. This information shall be submitted as part of the annual monitoring report in addition to a map, that shows the specific parcels that received Plant effluent.

In addition, the Discharger shall perform the following monitoring and loading calculations for each LAA. If supplemental irrigation water is used, samples shall be collected from the irrigation well (IW-1). The data shall be collected and presented in both a graphical (map) and tabular format and shall include the following:

| <u>Frequency</u>                      | <u>Constituent/Parameter</u>         | <u>Units</u>      | <u>Sample Type</u>       |
|---------------------------------------|--------------------------------------|-------------------|--------------------------|
| Daily                                 | Application area                     | Acres             | n/a                      |
| Daily                                 | Wastewater flow                      | Gallons           | Metered                  |
| Daily                                 | Wastewater loading                   | Inches/day        | Metered                  |
| Daily                                 | Supplemental irrigation              | Inches/day        | Metered                  |
| Daily                                 | Precipitation                        | Inches            | Rain gage <sup>1</sup>   |
| Monthly                               | Total Hydraulic loading <sup>2</sup> | Inches/acre-month | Calculated               |
| <b><u>BOD Loading<sup>3</sup></u></b> |                                      |                   |                          |
| Daily                                 | Day of application                   | lbs/ac/day        | Calculated               |
| Cycle                                 | Cycle average                        | lbs/ac/day        | Calculated cycle average |

Nitrogen loading<sup>4</sup>

|        |                                    |           |            |
|--------|------------------------------------|-----------|------------|
| Annual | From wastewater                    | lbs/ac/yr | Calculated |
| Annual | From fertilizers                   | lbs/ac/yr | Calculated |
| Annual | From supplemental irrigation water | lbs/ac/yr | Calculated |

Salt loading<sup>4</sup>

|        |                                    |           |            |
|--------|------------------------------------|-----------|------------|
| Annual | From wastewater                    | lbs/ac/yr | Calculated |
| Annual | From supplemental irrigation water | lbs/ac/yr | Calculated |

1. National Weather Service or CIMIS data from the nearest weather station is acceptable.
2. Combined loading from wastewater, irrigation water, and precipitation.
3. Loading rates to be calculated using the applied volume of wastewater, applied acreage, and average of the three most recent concentrations for BOD. The BOD loading rate shall be divided by the #days between applications to determine cycle average
4. Nitrogen and salt loading shall be calculated using the applied volume of wastewater, applied acreage, and average of the four most recent results for total nitrogen and FDS.

In addition, the Discharger shall inspect the application areas and evidence of erosion, field saturation, runoff, or the presence of nuisance conditions (i.e., flies, ponding, etc.) shall be noted in field logs and included as part of the annual monitoring report.

**SOIL MONITORING**

The Discharger shall establish, with Central Valley Water Board staff concurrence, a suitable number of monitoring locations within the LAA and at least two locations to represent background conditions in areas that are cropped in a manner similar to LAAs, but that do not receive applications of almond processing wastewater. The samples shall be collected and analyzed for the following constituents.

| <u>Frequency</u> | <u>Constituent/Parameter</u>   | <u>Units</u>               | <u>Sample Type</u>        |
|------------------|--------------------------------|----------------------------|---------------------------|
| Annually         | Moisture content               | % volume                   | 4 feet <sup>1</sup>       |
| Annually         | Cation Exchange Capacity       | meq/100 grams              | 4 feet <sup>1</sup>       |
| Annually         | Soil pH                        | pH units                   | 4 feet <sup>1</sup>       |
| Annually         | Buffer pH                      | mg/kg as CaCO <sub>3</sub> | 4 feet <sup>1</sup>       |
| Annually         | Sodium                         | mg/kg                      | 4 feet <sup>1</sup>       |
| Annually         | Chloride                       | mg/kg                      | 4 feet <sup>1</sup>       |
| Annually         | Nitrate as nitrogen            | mg/kg                      | 4 feet <sup>1</sup>       |
| <u>Annually</u>  | <u>Total Kjeldahl Nitrogen</u> | <u>mg/kg</u>               | <u>4 feet<sup>1</sup></u> |

1. Samples to be analyzed shall be collected at 6-inches, 2, and 4 feet below the ground surface.

**REPORTING**

All monitoring results shall be tabulated and submitted in **Quarterly Reports**, which shall be due by the first day of the second month after the calendar quarter. Therefore, monitoring reports are due as follows:

First Quarter Monitoring Report: **1 May**

Second Quarter Monitoring Report: **1 August**

Third Quarter Monitoring Report: **1 November**

#### Fourth Quarter Monitoring Report: **1 February**

**A transmittal letter shall accompany each monitoring report.** The transmittal letter shall discuss any violations that occurred during the reporting period and all actions taken or planned for correcting violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions or a time schedule for implementing the corrective actions, reference to the previous correspondence is satisfactory.

The following information is to be included on all monitoring reports, as well as report transmittal letters:

Harris Woolf California Almonds  
Ballico Processing Facility  
MRP Order R5-2014-XXXX  
Contact Information (telephone and email)

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner that illustrates clearly, whether the Discharger complies with waste discharge requirements.

In addition to the details specified in Standard Provision C.3, monitoring information shall include the method detection limit (MDL) and the Reporting limit (RL) or practical quantitation limit (PQL). If the regulatory limit for a given constituent is less than the RL (or PQL), then any analytical results for that constituent that are below the RL (or PQL) but above the MDL shall be reported and flagged as estimated.

Laboratory analysis reports do not need to be included in the monitoring reports; however, the laboratory reports must be retained for a minimum of three years in accordance with Standard Provision C.3.

All monitoring reports shall comply with the signatory requirements in Standard Provision B.3. All monitoring reports 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.

At any time henceforth, the State or Central Valley Regional Water Board may notify the Discharger to electronically submit monitoring reports using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>) or similar system. Until such notification is given, the Discharger shall submit hard copy monitoring reports.

**A. Quarterly Monitoring Reports** shall include the following:

**Wastewater Reporting:**

1. The results of effluent monitoring specified on page 2.

2. For each month of the quarter, calculation of the maximum daily flow and the monthly average flows from the wastewater stream.
3. For each month of the quarter, calculation of the 12-month rolling average EC of the discharges using the EC value for that month averaged with the EC values for the previous 11 months for each discharge.
4. A summary of daily BOD loading rates.

### **Pond Monitoring Reporting**

1. The results of the monitoring specified on page 3.

### **Land Application Area Reporting**

1. The results of the monitoring and reporting and loading calculations specified on pages 4 and 5.
2. For each month that wastewater is applied to the LAAs, calculation of the monthly hydraulic load for wastewater and supplemental irrigation water in millions of gallons and/or acre-feet to each discrete irrigation area.
3. A summary of the notations made in the LAAs log during each semi-annual period. The entire contents of the log do not need to be submitted.
4. For each month, calculation of the daily BOD cycle average using the BOD results for the month.

**B. Fourth Quarter/Annual Monitoring Report**, in addition to the above, shall include the following:

### **Facility Information:**

1. The names and general responsibilities of all persons in charge of wastewater handling and disposal.
2. The names and telephone numbers of persons to contact regarding the Facility for emergency and routine situations.
3. A statement certifying when the flow meters and other monitoring instruments and devices were last calibrated, including identification of who performed the calibrations (Standard Provision C.4).
4. A statement whether the current operation and maintenance manual, sampling plan, nutrient management plan, and contingency plan, reflect the Facility as currently constructed and operated, and the dates when these documents were last reviewed for adequacy.
5. A summary of any changes in processing that might affect waste characterization and/or discharge flow rates.

### **Groundwater Reporting:**

1. The results of groundwater monitoring specified on pages 3 and 4.
2. For each monitoring well, a table showing constituent concentrations for at least the last five monitoring events (2.5 years), up through the current semi-annual monitoring period.
3. A groundwater contour map based on groundwater elevations for the semi-annual monitoring period. The map shall show the gradient and direction of groundwater flow under/around the Facility and/or effluent disposal area(s). The map shall also include the locations of monitoring wells and wastewater storage and discharge areas.

### **Source Water Reporting**

1. For each annual period, the results of the source water monitoring specified on page 4. Results must include supporting calculations.

### **Solids Reporting**

1. Annual production of totals solids (excluding trash and recyclables) in dry tons or cubic yards.
2. A description of disposal methods, including the following information related to the disposal methods used. If more than one method is used, include the percentage disposed of by each method.
  - a. For landfill disposal, include: the name and location of the landfill, and the Order number of WDRs that regulate it.
  - b. For land application, include: the location of the site, and the Order number of any WDRs that regulate it.
  - c. For incineration, include: the name and location of the site where incineration occurs, the Order number of WDRs that regulate the site, the disposal method of ash, and the name and location of the facility receiving ash (if applicable).
  - d. For composting, include: the location of the site, and the Order number of any WDRs that regulate it.
  - e. For animal feed, include: the location of the site, and the Order number of any WDRs that regulate it.

### **Land Application Area Reporting**

1. The type of crop(s) grown, planting and harvest dates, and the quantified nitrogen and fixed dissolved solids uptakes (determined by representative plant tissue analysis). Include any soil and/or tissue sampling results.
2. The monthly and annual discharge volumes during the reporting year expressed as million gallons and inches.
3. A monthly balance for the reporting year that includes:

- a. Monthly average  $ET_0$  (observed evapotranspiration) – Information sources include California Irrigation Management Information System (CIMIS)  
<http://www.cimis.water.ca.gov/>
  - b. Monthly crop uptake
    - i. Crop water utilization rates are available from a variety of publications available from the local University of California Davis extension office.
    - ii. Irrigation efficiency – Frequently, engineers include a factor for irrigation efficiency such that the application rate is slightly greater than the crop utilization rate. A conservative design does not include this value.
  - c. Monthly average precipitation – this data is available at  
<http://www.cimis.water.ca.gov/> or  
<http://www.ncdc.noaa.gov/oa/climate/online/ccd/nrmlprcp.html>.
  - d. Monthly average and annual average discharge flow rate.
4. A summary of daily and cycle average BOD loading rates.
  5. The total pounds of nitrogen applied to the LAAs from all sources (wastewaters, fertilizers, and irrigation waters) as calculated from the sum of the monthly loading to the LAAs in lbs/ac/yr.
  6. The total pounds of FDS that have been applied to the LAAs, as calculated from the sum of the monthly loadings to the LAAs in lbs/ac/yr.

### Soils Reporting

1. The results of soil monitoring specified on page 5. The analytical results should be presented in tabular form and include depth of sample. If no sample is collected at a specified depth it should be noted in the table along with the reason no sample was collected.
2. A site map showing the location of each sampling point. The map shall also include the locations of all monitoring wells and wastewater storage and/or discharge areas.

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

Ordered by: \_\_\_\_\_

PAMELA C. CREEDON, Executive Officer

\_\_\_\_\_  
(Date)

## GLOSSARY

|                   |  |           |         |
|-------------------|--|-----------|---------|
| BOD <sub>5</sub>  | Five-day biochemical oxygen demand   |           |         |
| CBOD              | Carbonaceous BOD   |           |         |
| DO                | Dissolved oxygen   |           |         |
| EC                | Electrical conductivity at 25° C   |           |         |
| FDS               | Fixed dissolved solids   |           |         |
| NTU               | Nephelometric turbidity unit   |           |         |
| TKN               | Total Kjeldahl nitrogen  |           |         |
| TDS               | Total dissolved solids   |           |         |
| TSS               | Total suspended solids   |           |         |
| Continuous        | The specified parameter shall be measured by a meter continuously.   |           |         |
| 24-Hour Composite | Unless otherwise specified or approved, samples shall be a flow-proportioned composite consisting of at least eight aliquots.  |           |         |
| Daily             | Samples shall be collected every day.  |           |         |
| Twice Weekly      | Samples shall be collected at least twice per week on non-consecutive days.  |           |         |
| Weekly            | Samples shall be collected at least once per week.   |           |         |
| Twice Monthly     | Samples shall be collected at least twice per month during non-consecutive weeks.  |           |         |
| Monthly           | Samples shall be collected at least once per month.  |           |         |
| Bimonthly         | Samples shall be collected at least once every two months (i.e., six times per year) during non-consecutive months   |           |         |
| Quarterly         | Samples shall be collected at least once per calendar quarter. Unless otherwise specified or approved, samples shall be collected in January, April, July, and October.        |           |         |
| Semiannually      | Samples shall be collected at least once every six months (i.e., two times per year). Unless otherwise specified or approved, samples shall be collected in April and October. |           |         |
| Annually          | Samples shall be collected at least once per year. Unless otherwise specified or approved, samples shall be collected in October.  |           |         |
| mg/L              | Milligrams per liter   |           |         |
| mL/L              | Milliliters [of solids] per liter  |           |         |
| µg/L              | Micrograms per liter   |           |         |
| µmhos/cm          | Micromhos per centimeter   |           |         |
| mgd               | Million gallons per day  |           |         |
| MPN/100 mL        | Most probable number [of organisms] per 100 milliliters  |           |         |
| General Minerals  | Analysis for General Minerals shall include at least the following:  |           |         |
|                   | Alkalinity   | Chloride  | Sodium  |
|                   | Bicarbonate  | Hardness  | Sulfate |
|                   | Calcium  | Magnesium | TDS     |
|                   | Carbonate  | Potassium |         |
|                   | General Minerals analyses shall be accompanied by documentation of cation/anion balance.   |           |         |