

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM \_\_\_

FOR  
HUGHSON NUT, INC.  
VERDUGA ROAD FACILITY  
STANISLAUS COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring the ponds, wastewater flow, wastewater quality, land application area, groundwater, and residual solids. This MRP is issued pursuant to Water Code section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

Central Valley Water Board staff shall approve specific sampling locations prior to any sampling activities. All samples shall be representative of the volume and nature of the discharge. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form.

Field test instruments (such as those used to test pH and electrical conductivity) may be used provided that:

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

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. Where technically feasible, laboratory reporting limits shall be lower than the applicable water quality objectives for the constituents to be analyzed.

### POND MONITORING

Ponds 1 and 2 shall be monitored in accordance with the following schedule. If the ponds are dry the monitoring report shall so note. Dissolved oxygen monitoring applies to any wastewater pond containing more than one foot of standing water

Constituent	Units	Type of Sample	Monitoring Frequency	Reporting Frequency
Dissolved oxygen <sup>1</sup>	mg/L	Grab	Weekly	Monthly
Freeboard	0.1 feet	Measurement	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Berm/levee condition	--	Observation	Monthly	Monthly

<sup>1</sup> Samples shall be collected at a depth of one foot from each pond in use, opposite the inlet.

### FLOW MONITORING

The Discharger shall monitor wastewater flows, and wastewater and supplemental irrigation water flows discharged to each LAA field as follows. **Effective immediately**, flows from Pond 1 and Pond 2 shall be based on supply well flows. **Effective 1 September 2014**, flows from Pond 1 and Pond 2 shall be determined using flow meters installed pursuant to Provision H.1.b:

Flow Source	Units	Type of Measurement	Monitoring Frequency	Reporting Frequency
Pond 1	gallons	Meter	Daily <sup>1</sup>	Monthly
Pond 2	gallons	Meter	Daily <sup>1</sup>	Monthly
Supplemental irrigation (On-site groundwater well)	gallons	Meter	Daily <sup>1</sup>	Monthly
Supplemental irrigation (TID)	gallons	Calculation	Daily <sup>1</sup>	Monthly
Total discharge to LAA	gallons and inches	Calculation	Daily <sup>2</sup>	Monthly

<sup>1</sup> Report as total daily flow from the flow source to each LAA field.

<sup>2</sup> Includes all wastewater and supplemental irrigation water discharged to the LAAs.

### WASTEWATER MONITORING

Wastewater samples shall be collected from the effluent sampling location as shown on Attachment C and shall be representative of wastewater from the Pond 2 prior to discharge to the land application areas. Sampling is not required during periods when no wastewater is discharged to the land application areas. At a minimum, wastewater monitoring shall include the following:

<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
pH	Standard Units	Grab	Every 2 weeks	Monthly
BOD <sub>5</sub> <sup>1</sup>	mg/L	Grab	Every 2 weeks	Monthly
FDS	mg/L	Grab	Every 2 weeks	Monthly
Total nitrogen	mg/L	Grab	Every 2 weeks	Monthly

BOD denotes Biochemical oxygen demand. FDS denotes Fixed dissolved solids.

<sup>1</sup> 5-day, 20 degrees Celsius biochemical oxygen demand.

### LAND APPLICATION AREA MONITORING

The Discharger shall monitor the land application area **daily during operation**, and shall submit the results in the corresponding monthly monitoring reports. Evidence of erosion, field saturation, runoff, or the presence of nuisance conditions shall be noted in the report. The report shall also document any corrective actions taken based on observations made.

The Discharger shall perform the following routine monitoring and loading calculations for each LAA field during all months when land application occurs, and shall present the data in the Monthly and Annual Monitoring Reports. If irrigation does not occur during a reporting period, the monitoring report shall so indicate.

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
Precipitation	0.1 in.	Rain gauge <sup>1</sup>	Daily	Monthly
Hydraulic loading rate (from each source)	Inches	Calculated <sup>2,5</sup>	Daily	Monthly
Cycle average BOD <sub>5</sub> loading rate	lb/ac	Calculated <sup>2,3</sup>	Daily	Monthly
Total nitrogen loading rate (including commercial fertilizers)	lb/ac	Calculated <sup>2,4</sup>	Monthly	Monthly

<sup>1</sup> Data obtained from the nearest National Weather Service, California Irrigation Management Information System (CIMIS), or on-site rain gauge is acceptable.

<sup>2</sup> Rate shall be calculated for each LAA field.

<sup>3</sup> BOD<sub>5</sub> shall be calculated using the applied volume of wastewater, actual application area, and the most recent wastewater BOD<sub>5</sub> result.

<sup>4</sup> Total nitrogen loading rates shall be calculated using the applied volume of wastewater, actual application area, and the most recent wastewater total nitrogen result plus loading rates for supplemental nitrogen calculated using the actual load and application area.

<sup>5</sup> **Effective immediately**, flows from Pond 1 and Pond 2 shall be based on supply well flows. **Effective 1 September 2014**, flows from Pond 2 shall be determined using the flow meter installed pursuant to Provision H.1.b.

At least **once per week** when wastewater is being applied to the land application areas, the application areas in use shall be inspected to identify any equipment malfunction or other circumstance that might allow irrigation runoff to leave the area and/or create ponding conditions that violate the Waste Discharge Requirements. A log of these inspections shall be kept at the facility and summarized for submittal with the monthly monitoring reports.

### APPLICABILITY OF GROUNDWATER LIMITATIONS

Prior to construction and/or sampling of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for review and approval. Once installed, all new wells shall be added to the compliance monitoring network. The following table lists all existing monitoring wells and designates the purpose of each well.

MW1 <sup>1</sup>      MW2 <sup>1</sup>      MW3 <sup>1</sup>

<sup>1</sup> Compliance well.

The Groundwater Limitations set forth in Section E of the WDRs shall apply to the specific compliance monitoring wells tabulated below. This table is subject to revision by the Executive Officer following construction of any new compliance monitoring wells.

<b>Constituent</b>	<b>Groundwater Limitation</b>	<b>Date Effective</b>	<b>Compliance Wells to which Limitation Applies</b>
Nitrate nitrogen	Background groundwater quality or the Water Quality Objective, whichever is greater <sup>1</sup>	Immediately	All compliance wells
All Others	Contain constituents in concentrations that exceed either the Primary or Secondary MCLs.	Immediately	All compliance wells
All Others	Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.	Immediately	All compliance wells

<sup>1</sup> Compliance with this requirement shall be determined on an intrawell basis for each of the specified wells using approved statistical methods.

### GROUNDWATER MONITORING

Prior to sampling, depth to groundwater measurements shall be measured in each monitoring well to the nearest 0.01 feet. Groundwater elevations shall then be calculated to determine groundwater gradient and flow direction.

Low or no-purge sampling methods are acceptable, if described in an approved Sampling and Analysis Plan. Groundwater monitoring for all monitoring wells shall include, at a minimum, the following:

<b>Constituent</b>	<b>Units</b>	<b>Type of Sample</b>	<b>Sampling Frequency</b>	<b>Reporting Frequency</b>
Depth to groundwater	0.01 feet	Measurement	Quarterly	Quarterly
Groundwater elevation <sup>1</sup>	feet	Calculated	Quarterly	Quarterly

<b>Constituent</b>	<b>Units</b>	<b>Type of Sample</b>	<b>Sampling Frequency</b>	<b>Reporting Frequency</b>
Gradient magnitude	feet/feet	Calculated	Quarterly	Quarterly
Gradient direction	degrees	Calculated	Quarterly	Quarterly
pH	pH units	Grab	Quarterly	Quarterly
TDS	mg/L	Grab	Quarterly	Quarterly
TKN	mg/L	Grab	Quarterly	Quarterly
Nitrate nitrogen	mg/L	Grab	Quarterly	Quarterly
Total nitrogen	mg/L	Calculated	Quarterly	Quarterly
Standard minerals <sup>2</sup>	mg/L	Grab	Quarterly for 6 consecutive events then Semiannually	Quarterly
Metals <sup>3,4</sup>	mg/L	Grab	Quarterly for 6 consecutive events then Semiannually	Quarterly

TDS denotes Total dissolved solids. TKN denotes Total Kjeldahl nitrogen.

<sup>1</sup> Groundwater elevation shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and surveyed reference elevation.

<sup>2</sup> Standard Minerals shall include, at a minimum, the following elements/compounds: boron, bromide, calcium, fluoride, magnesium, phosphate, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness as CaCO<sub>3</sub>.

<sup>3</sup> Samples for metals shall be filtered with a 0.45-micron filter prior to sample preservation. Analytical methods shall be selected to provide reporting limits below the Water Quality Limit for each constituent.

<sup>4</sup> At a minimum, the following metals shall be included: arsenic, iron, manganese, nickel, and zinc.

### Groundwater Trigger Concentrations

The following groundwater trigger concentrations are intended only to serve as a means of assessing whether the discharge might potentially cause a violation of one or more of the Groundwater Limitations of the WDRs at some later date.

<b>Constituent</b>	<b>Compliance Wells</b>	<b>Trigger Concentration, mg/L</b>
TDS	All compliance wells	800

If the annual evaluation of groundwater quality performed pursuant to this MRP shows that the annual average of one or more of the trigger concentrations has been exceeded in any compliance well during the calendar year, the Discharger shall submit one or both of the following technical reports by **1 May of the following calendar year** (e.g., if one or more trigger concentrations are exceeded for calendar year 2020, the appropriate report is due by **1 May 2021**):

- a. A technical evaluation of the reason[s] for the concentration increase[s] and a technical demonstration on a constituent-by-constituent that, although the concentration has increased more than expected in one or more compliance wells, continuing the discharge without additional treatment or control will not result in

exceedance of the applicable groundwater limitation.

- b. An Action Plan that presents a systematic technical evaluation of each component of the facility's waste treatment and disposal system to determine whether additional treatment or control is feasible for each waste constituent that exceeds a trigger concentration. The plan shall evaluate each component of the wastewater treatment, storage, and disposal system (as applicable); describe available treatment and/or control technologies; provide preliminary capital and operation/maintenance cost estimates for each; designate the preferred option[s] for implementation; and specify a proposed implementation schedule. The schedule for full implementation shall not exceed one year, and the Discharger shall immediately implement the proposed improvements.

### **RESIDUAL SOLIDS MONITORING**

The Discharger shall monitor the residual solids generated and disposed of on a monthly basis. The following shall be monitored and reported:

1. Volume of solids generated. Solids may include hulls, shells, skins, screenings, sump solids, pond sludge, or other material.
2. Volume disposed of off-site. Describe the disposal method (e.g. animal feed, land application, off-site composting, landfill, etc.), the amount disposed (tons), and the name of the hauling company.
3. Where and how residual solids were stored on site. Describe the location and method of storage to comply with the Solids Disposal Specifications of the WDRs.

### **REPORTING**

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, pond, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported to the Central Valley Water Board.

As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Professional Engineer or Geologist and signed by the registered professional.

#### **A. Monthly Monitoring Reports**

Daily, weekly, and monthly monitoring data shall be reported in the monthly monitoring reports. Monthly reports shall be submitted to the Central Valley Water Board on the **1<sup>st</sup> day of the second month following sampling** (i.e. the January Report is due by

1 March). At a minimum, the reports shall include:

1. Tabulated pond monitoring data.
2. Tabulated daily flow measurements from Pond 1 to Pond 2, and from Pond 2 and supplemental irrigation water to each LAA field.
3. The cumulative annual wastewater flow from Pond 1 and Pond 2 to date, and the average daily wastewater flow for the month.
4. Tabulated wastewater monitoring data.
5. Tabulated land application area monitoring data for each LAA field, including; calculation of the hydraulic loading, cycle average BOD loading, and total nitrogen loading for the month and calendar year to date. The average of the three most recent monitoring results shall be used to determine cycle average BOD and total nitrogen loading. Loading rates for commercial fertilizers shall be calculated using actual load and application areas.
6. A summary of the daily pre-application inspection reports for the month.
7. Calculation of the flow-weighted average FDS concentration to date.
8. Monthly volume of residual solids generated and disposed of off-site. Include location and method of on-site storage.
9. A comparison of monitoring data to the flow limitations, effluent limitations; mass loading limitations (for each LAA field), and discharge specifications, and an explanation of any violation of those requirements.
10. If requested by staff, copies of laboratory analytical report(s).
11. Copies of current calibration logs for all field test instruments.

## **B. Quarterly Monitoring Report**

The Discharger shall establish a quarterly sampling schedule for groundwater monitoring such that samples are obtained approximately every three months. Quarterly monitoring reports shall be submitted to the Water Quality Control Board by the **1<sup>st</sup> day of the second month after the quarter** (i.e. the January-March quarter is due by May 1<sup>st</sup>) each year. The Quarterly Report submittal schedule is shown in the table below.

<b>Quarter</b>	<b>Monitoring Period</b>	<b>Quarterly Report Due Date</b>
First	January - March	1 May
Second	April - June	1 August
Third	July – September	1 November
Fourth	October - December	1 February

The Quarterly Report shall include the following:

1. Results of groundwater monitoring.
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDRs, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; method of purging and parameters measured before, during, and after purging. Low or no-purge sampling methods are acceptable if described in an approved Sampling and Analysis Plan.
3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison with previous flow direction and gradient data, and discussion of seasonal trends if any;
4. Summary data tables of historical and current water table elevations and analytical results;
5. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and
6. Copies of laboratory analytical report(s) for groundwater monitoring.

### **C. Annual Monitoring Report**

An Annual Report shall be submitted to the Central Valley Water Board by **1 February** each year and shall include the following:

1. Total annual flow measurement from wastewater and each supplemental irrigation source to the LAAs for the calendar year. Comparison of wastewater flow to the annual maximum flow limit.
2. Flow-weighted annual average FDS concentration from Pond 2 for the calendar year with supporting data and calculations and comparison to the effluent limit.
3. Total hydraulic loading rate and total nitrogen loading rate applied to each LAA field for

the calendar year with supporting data and calculations and comparison to crop evapotranspiration rate and nitrogen demand.

4. A nitrogen mass balance (from all sources) for the calendar year with supporting data and calculations. Include description of ground cover crops if planted and dates of planting and harvest for each crop. If the mass balance indicates that nitrogen has been applied in excess of the agronomic rate, include a discussion of any corrective action performed during the year and a plan and schedule for additional corrective actions if needed to ensure future compliance with the land application area specifications of the WDRs.
5. Concentration vs. time graphs for each monitored constituent using all historic groundwater monitoring data. Each graph shall show the background groundwater concentration range, the trigger concentration specified above (where applicable), and the Groundwater Limitation as horizontal lines at the applicable concentration.
6. An evaluation of the groundwater quality beneath the site and determination of whether any trigger concentrations were exceeded in any compliance well at any time during the calendar year. This shall be determined by comparing the annual average concentration for each well during the calendar year to the corresponding trigger concentration specified above. If any groundwater trigger concentrations were exceeded, include acknowledgment that the technical report described in the Groundwater Trigger Concentrations section of this MRP will be submitted in accordance with the specified schedule.
7. **Effective 1 February 2017**, an evaluation of the groundwater quality beneath the site and determination of Compliance with the Groundwater Limitations of the WDRs based on statistical analysis for each constituent monitored for each compliance well in accordance with the approved *Groundwater Limitations Compliance Assessment Plan*. Include all calculations and data input/analysis tables derived from use of statistical software as applicable.
8. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.
9. A discussion of the following:
  - a. Waste constituent reduction efforts implemented in accordance with any required workplan;
  - b. Other treatment or control measures implemented during the calendar year either voluntarily or pursuant to the WDRs, this MRP, or any other Order; and
  - c. Based on monitoring data, an evaluation of the effectiveness of the treatment or control measures implemented to date.
10. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: \_\_\_\_\_  
PAMELA C. CREEDON, Executive Officer

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