

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-\_\_\_

FOR  
COLUSA INDUSTRIAL PROPERTIES  
COLUSA INDUSTRIAL PROPERTIES WASTEWATER TREATMENT FACILITY  
COLUSA COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring the ponds, industrial process wastewater, domestic wastewater, land application area, groundwater, and crop and food 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.

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.

**GENERAL POND MONITORING**

Ponds 1, 2, and 3 shall be monitored as follows. Freeboard shall be measured vertically from the surface of the pond water to the lowest elevation of the surrounding berm and shall be measured to the nearest 0.1 feet.

Constituent	Units	Type of Sample	Sample 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. Samples shall be collected between 0700 and 0900 hours.

### INDUSTRIAL PROCESS WASTEWATER MONITORING

The Discharger shall monitor industrial process wastewater flows as follows:

Flow Source	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Total process wastewater discharged to Pond 3	Gallons	Meter	Daily	Monthly, Annually
Discharge from Pond 3 to land application areas	Gallons	Meter	Daily	Monthly, Annually
Daily subtotal to each irrigation field or check	gallons and inches	Calculation	Daily <sup>1</sup>	Monthly, Annually

<sup>1</sup> Calculated based on total daily flows, flow rates, checks in use, and length of set time for each check.

The Discharger shall monitor process wastewater in accordance with the following. Grab samples shall be obtained from Pond 3 near the outlet to the land application areas. Process wastewater monitoring is only required during periods when process wastewater is applied to the land application areas. If the pond is dry and/or no wastewater was discharged to the land application areas, the monitoring report shall so state. Process wastewater monitoring shall include, at a minimum, the following:

Constituents	Units	Type of Sample	Sample Frequency	Reporting Frequency
pH	pH units	Grab	Weekly <sup>2</sup>	Monthly
BOD <sub>5</sub> <sup>1</sup>	mg/L	Grab	Weekly <sup>2</sup>	Monthly
FDS	mg/L	Grab	Weekly <sup>2</sup>	Monthly
Chloride	mg/L	Grab	Weekly <sup>2</sup>	Monthly
Sodium	mg/L	Grab	Weekly <sup>2</sup>	Monthly
Total Nitrogen	mg/L	Grab	Weekly <sup>2</sup>	Monthly

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

<sup>2</sup> During each week that wastewater is discharged to the LAAs.

### DOMESTIC WASTEWATER MONITORING

The domestic wastewater ponds (Pond 1 and 2) shall be monitored in accordance with the following:

Constituent	Units	Type of Sample	Sample Frequency	Reporting Frequency
Influent Flow	gallons per day	Continuous	Daily	Monthly, Annually
Sludge Depth	inches	Measurement	Annually	Annually

### LAND APPLICATION AREA MONITORING

The Discharger shall monitor the land application areas **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 and irrigation check during all months when land application occurs, and shall present the data in the Monthly and Annual Monitoring Reports. If no wastewater was land applied during a reporting period, the monitoring report shall so state.

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Supplemental Irrigation Water Flow	gallons	Meter <sup>1</sup>	Daily	Monthly
Precipitation	0.1 in	Rain gauge <sup>2</sup>	Daily	Monthly, Annually
Checks Receiving Wastewater	--	Observation	Daily	Monthly
Hydraulic Loading Rate	in	Calculated <sup>3</sup>	Daily	Monthly, Annually
Flow-weighted Annual Average FDS Concentration <sup>6</sup>	mg/L	Calculated	Monthly	Monthly, Annually
Flow-weighted Annual Average BOD <sub>5</sub> Concentration <sup>6</sup>	mg/L	Calculated	Monthly	Monthly, Annually
BOD <sub>5</sub> Loading Rate <sup>7</sup>	lb/ac/day	Calculated <sup>3,4</sup>	Daily	Monthly, Annually
Total Nitrogen Loading Rate	lb/ac	Calculated <sup>3,5</sup>	Monthly	Monthly, Annually

<sup>1</sup> Monitoring requires daily meter reading or automated data collection and shall define the volume of supplemental water discharged to the land application areas.

<sup>2</sup> Data obtained from the nearest National Weather Service, California Irrigation Management Information System (CIMIS), or on-site rain gauge is acceptable.

<sup>3</sup> Designate identification numbers for discrete checks within each disposal site or area. Rate shall be calculated for each field or discrete check based on combined loading from wastewater and supplemental irrigation water.

<sup>4</sup> BOD<sub>5</sub> shall be calculated using the daily applied volume of wastewater, actual application area, and most recent BOD<sub>5</sub> results for the wastewater.

- <sup>5</sup> Total nitrogen loading rates shall be calculated using the applied volume of wastewater, actual application area, and most recent total nitrogen results for the wastewater. Loading rates for supplemental nitrogen (including commercial fertilizers, manure from cattle, etc.) shall be calculated using the actual load and application area.
- <sup>6</sup> For LAAs cropped with rice.
- <sup>7</sup> For LAAs cropped with sudan grass or row crops.

At least once per week when wastewater is being applied to the land application areas, the entire application area 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. If wastewater was not applied to the land application area, then the monthly monitoring reports shall so state.

### 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>	MW3 <sup>1</sup>	MW4 <sup>2</sup>	MW5 <sup>1</sup>	MW6 <sup>1</sup>	MW7 <sup>1</sup>	MW8 <sup>2</sup>	MW9 <sup>3</sup>	MW10 <sup>1</sup>
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<sup>1</sup> Compliance well.

<sup>2</sup> Not suitable for use as a compliance well.

<sup>3</sup> Not suitable for use as a compliance well until such time when wastewater is applied to the remaining Davis Property LAAs.

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.

Constituent	Groundwater Limitation	Compliance Wells to which Limitations Applies
Nitrate nitrogen	Current groundwater quality <sup>1,2</sup>	MW-5
All others, except for TDS, chloride, sodium, iron, and manganese	Concentrations that exceed either the Primary or Secondary MCL.	MW-1, MW-3, MW-5, MW-6, MW-7, MW-9, MW-10
All others, except for TDS, chloride, sodium, iron, and manganese	Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.	MW-1, MW-3, MW-5, MW-6, MW-7, MW-9, MW-10

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

<sup>2</sup> "Current groundwater quality" means the quality of groundwater in the well as evidenced by monitoring completed as of the date of WDRs.

### 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. Samples shall be collected and analyzed using standard EPA methods. Groundwater monitoring for all monitoring wells shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Depth to groundwater	0.01 feet	Measurement	Semi-annual <sup>2</sup>	Semi-annual <sup>2</sup>
Groundwater elevation <sup>1</sup>	0.01 feet	Calculated	Semi-annual <sup>2</sup>	Semi-annual <sup>2</sup>
Gradient magnitude	feet/feet	Calculated	Semi-annual <sup>2</sup>	Semi-annual <sup>2</sup>
Gradient direction	degrees	Calculated	Semi-annual <sup>2</sup>	Semi-annual <sup>2</sup>
pH	pH units	Grab	Semi-annual <sup>2</sup>	Semi-annual <sup>2</sup>
TDS	mg/L	Grab	Semi-annual <sup>2</sup>	Semi-annual <sup>2</sup>
Chloride	mg/L	Grab	Semi-annual <sup>2</sup>	Semi-annual <sup>2</sup>
Sodium	mg/L	Grab	Semi-annual <sup>2</sup>	Semi-annual <sup>2</sup>
Nitrate nitrogen	mg/L	Grab	Semi-annual <sup>2</sup>	Semi-annual <sup>2</sup>

<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> Semi-annual groundwater monitoring shall occur in the first (January – March) and third (July - September) quarter of each calendar year.

### 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.

Constituent	Compliance Wells	Trigger Concentration, mg/L
Nitrate Nitrogen	MW-1, MW-3, MW-6, MW-7, MW-9, MW-10	5.0

If the annual evaluation of groundwater quality performed pursuant to this MRP shows that the annual average of the trigger concentration has been exceeded in any compliance well during the calendar year, the Discharger shall submit either of the following technical reports by **1 May of the following calendar year** (e.g., if the trigger concentration is 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 that, although the nitrate 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.

### **CROP AND FOOD PROCESSING RESIDUAL SOLIDS MONITORING**

The Discharger shall monitor the crop and food processing residual solids generated and disposed of on a monthly basis. The following shall be monitored and reported for each month:

1. Volume of Solids Generated. Solids may include pomace, seeds, stems, hulls, straw, screenings, and sump solids, 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. Volume Disposed of On-site: Describe the amount of disposed (tons); location of on-site disposal (e.g., land application area field); method of application, spreading, and incorporation; application rate (tons/acre); BOD (lb/ac/application) and total nitrogen (lb/ac/year) loading rates; and weekly grab sample analysis for total nitrogen.

### **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 for each month of the calendar year.
2. Tabulated industrial process wastewater monitoring data, including cumulative flow to date, and comparison to the Flow Limitations and Effluent Limitations of the WDRs.
3. Tabulated domestic wastewater monitoring data for each month of the calendar year, including cumulative flow to date, and comparison to the Flow Limitations of the WDRs.
4. Tabulated land application area monitoring data, including at least the following:
  - a. Hydraulic loading rate for each disposal field.
  - b. Flow-weighted monthly average FDS concentration from all sources including supplemental irrigation.
  - c. Flow-weighted monthly average BOD concentration from all sources including supplemental irrigation.
  - d. Daily BOD<sub>5</sub> loading rate for each disposal field and/or irrigation check using the total volume applied on the day of application, estimated application area, and the most recent sample results for BOD<sub>5</sub> and comparison to the Mass Loading Limitations of the WDRs.
  - e. Total nitrogen loading rates shall be calculated for each disposal field and/or irrigation check using the total volume applied on the day of application, estimated application area, and the most recent sample results for total nitrogen and cumulative loading to date for the year.
5. Tabulated residual solids monitoring data and the required off-site and/or on-site disposal information.
6. Daily precipitation data in tabular form accompanied by starting and ending dates of irrigation for each field or check, except those cropped with rice.
7. A statement that summarizes the daily application inspection reports for the month.

8. A comparison of monitoring data to the flow limitations, effluent and mass loading limitations, and discharge specifications and an explanation of any violation of those requirements.
9. Copies of laboratory analytical report(s).
10. Copies of current calibration logs for all field test instruments.

## **B. Semi-Annual Monitoring Report**

The Semi-Annual Report shall establish a sampling schedule for groundwater monitoring such that samples are obtained during the first and third quarter of each calendar year and obtained approximately every six months. Groundwater monitoring reports shall be submitted to the Central Valley Water Board by the **1st day of the second month after the reporting period** (i.e., the January-June semi-annual report is due by 1 August each year). The monitoring report shall include the following:

1. Results of the semi-annual monitoring of the groundwater in tabular format.
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; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;
3. Calculation of groundwater elevations, determination of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any;
4. Summary data tables of historical and current groundwater elevations;
5. For the first Semi-Annual Report due by **1 August**, provide a description of the work conducted after the end of each rice decomposition season to prepare the fields for planting, including irrigation draining procedures of each rice land application area field and location of discharge (if any).
6. A scaled map showing relevant structures and features of the facility, land application areas and irrigation check boundaries, locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and
7. 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 industrial process wastewater flow to the LAAs for the calendar year and comparison to the annual maximum flow limit.
2. Total annual domestic wastewater flow to the domestic wastewater disposal pond(s) for the calendar year and comparison to the annual maximum flow limit.
3. Total annual supplemental irrigation water flow to the LAAs. Specify total flow for specific discharge location (i.e., for LAAs cropped with rice, sudan grass, or row crops).
4. Flow-weighted annual average BOD concentration (from all sources including supplemental irrigation water) discharged to the LAAs for the calendar year with supporting data and calculation and comparison to the Effluent Limitations.
5. Flow-weighted annual average FDS concentration (from all sources including supplemental irrigation water) discharged to the LAAs for the calendar year with supporting data and calculations and comparison to the Effluent Limitations.
6. 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.
7. A nitrogen mass balance (from all sources) for the calendar year with supporting data and calculations. Include description of the types of crops 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.
8. Concentration vs. time graphs for each monitored constituent using all historic groundwater monitoring data. Each graph shall show the pre-discharge groundwater concentration (where applicable), the trigger concentration specified above (where applicable), and the Groundwater Limitation as horizontal lines at the applicable concentration.
9. 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.

10. An evaluation of the groundwater quality beneath the site and determination of compliance with the Groundwater Limitations E.1 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.
11. In the event that additional processors begin discharging their industrial process wastewater to the LAAs, provide a description of the wastewater character, flow and date of first discharge operation.
12. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.
13. A forecast of new tenants that intend to discharge their industrial process wastewater to the land application area system, including a description of the wastewater character, projected flows, operating season, industrial processes, chemicals used during the processes, wastewater pre-treatment methods (if any), and salinity source control measures. Provide a discussion that evaluates the new source of wastewater and the potential to degrade the underlying groundwater, including potential contributions of salinity and nutrient loadings to the land application system. Provide a discussion that demonstrates that the domestic wastewater disposal system and industrial process wastewater land application system have adequate disposal and/or storage capacity to accommodate the additional wastewater and comply with the flow limitations, effluent and mass loading limitations, and discharge specifications of the Order.
14. 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.
15. 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

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(Date)