

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2009-XXXX  
FOR  
BYRON SANITARY DISTRICT  
BYRON WASTEWATER TREATMENT FACILITY  
CONTRA COSTA COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring the wastewater treatment facility (WWTF) influent, wastewater ponds, groundwater, and biosolids disposal. 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.

Regional 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 or matrix of material sampled. The time, date, and location of each sample shall be recorded on the sample chain of custody form.

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

1. The user is trained in proper use and maintenance of the instruments;
2. The instruments are field calibrated prior to monitoring events at the frequency recommended by the manufacturer;
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.

### WWTF INFLUENT MONITORING

The Discharger shall monitor influent wastewater in accordance with the following. Samples shall be collected at the headworks. Influent monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency <sup>1</sup>
Flow	gpd	Flow Meter Observation	Daily	Monthly
BOD <sup>2</sup>	mg/L	Grab	Monthly	Monthly
Total suspended solids	mg/L	Grab	Monthly	Monthly
Electrical conductivity	mg/L	Grab	Quarterly	Quarterly

<sup>1</sup> Results shall be reported in the Monthly Monitoring Report for the month during which samples were obtained.

<sup>2</sup> Five-day, 20° Celsius biochemical oxygen demand.

### WWTF POND MONITORING

The Discharger shall monitor all ponds at the WWTF, in accordance with the following. Samples shall be collected from permanent monitoring locations that will provide samples representative of the wastewater in each pond. Freeboard shall be measured vertically from the water surface to the lowest elevation of the pond berm, and shall be measured to the nearest 0.10 feet. Pond monitoring shall include, at a minimum, the following:

Constituent/Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency <sup>1</sup>
Freeboard	0.1 Feet	Staff Gauge Observation	Weekly	Monthly
Dissolved Oxygen <sup>2</sup>	mg/L	Grab	Weekly	Monthly
pH <sup>2</sup>	pH units	Grab	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Pond berm condition	--	Observation	Weekly	Monthly

<sup>1</sup> Results shall be reported in the Monthly Monitoring Report for the month during which samples were obtained.

<sup>2</sup> Samples shall be collected opposite each pond inlet at a depth of one foot between 0700 and 0900 hours.

### WWTF EFFLUENT MONITORING

The Discharger shall monitor effluent wastewater in accordance with the following. When Ponds 5 and 6 are being utilized, samples shall be representative of the effluent to these ponds. For example, a grab sample from Pond 5 or 6 taken adjacent to the influent pipe is considered representative of the effluent if either or both of these ponds contain more than one foot of water. Otherwise, a grab sample taken from the pipeline manhole carrying wastewater from Pond 3 and 4 is considered representative of the effluent.

Additionally, when the Land Disposal Area is being utilized samples shall be representative of the effluent to the Land Disposal Area. A grab sample from Pond 2 within five feet of the outlet to the Land Disposal Area is considered representative of the effluent. Effluent monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency <sup>1</sup>
BOD <sup>2</sup>	mg/L	Grab	Monthly	Monthly
Total Kjeldahl nitrogen	mg/L	Grab	Monthly	Monthly
Nitrate nitrogen	mg/L	Grab	Monthly	Monthly
Total nitrogen	mg/L	Grab	Monthly	Monthly

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency <sup>1</sup>
Electrical conductivity	umhos/cm	Grab	Quarterly	Quarterly
Total dissolved solids	mg/L	Grab	Quarterly	Quarterly

<sup>1</sup> Results shall be reported in the Monthly Monitoring Report for the month during which samples were obtained.

<sup>2</sup> Five-day, 20° Celsius biochemical oxygen demand.

### LAND APPLICATION AREA MONITORING

Monitoring of the land application area shall be conducted **daily** when disposal is occurring, and the results shall be included in the monthly monitoring report. All land application areas shall be inspected following a disposal event to identify any equipment malfunction or other circumstance that might allow recycled water or treated wastewater to runoff the land application area and/or create ponding conditions that violate the Waste Discharge Requirements. Evidence of erosion, saturation, irrigation runoff, or the presence of nuisance conditions shall be noted in the report. A log of these inspections as well as any public complaints of runoff shall be kept at the facility and made available for review upon request.

Effluent monitoring results shall be used in calculations to ascertain loading rates at the land application area. Monitoring of the land application area shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency <sup>1</sup>
Flow	Gallons	Estimated	Daily	Monthly
Land app. berm condition	--	Observation	Monthly	Monthly
Rainfall <sup>2</sup>	Inches	Observation	per CIMIS	Monthly
Acreage applied	Acres	Calculated	Daily	Monthly
Water application rate	gal/ac/day	Calculated	Daily	Monthly
BOD loading rate <sup>3</sup>	lbs/ac/day	Calculated	Daily	Monthly
Nitrogen loading rate <sup>3</sup>	lbs/ac/day	Calculated	Daily	Monthly

<sup>1</sup> Results shall be reported in the Monthly Monitoring Report for the month during which samples were obtained.

<sup>2</sup> Rainfall data shall be reported as provided by the Brentwood California Irrigation Management Information System (CIMIS) station (Station 47).

<sup>3</sup> Results shall be calculated based on the daily calculated water application rate and monthly effluent monitoring constituent data.

### FACILITY INSPECTIONS

The Discharger shall inspect the WWTF at least weekly. At a minimum, the inspection shall include the following elements:

- a. Condition of fences designed to prevent public access (monthly).
- b. Odors discernible at the property boundary (weekly).
- c. Integrity of all berms, dikes, and levees, including consideration of damage from erosion, wave action, and burrowing rodents (weekly).
- d. Headworks damage and debris accumulation (weekly).
- e. Flow metering system function (weekly).
- f. Piping systems, including control valves and visible piping (weekly).

### GROUNDWATER MONITORING

The Discharger shall establish a quarterly sampling schedule for groundwater monitoring, with samples obtained approximately every three months.

This monitoring program applies to all seven existing monitoring wells, as well as those constructed after issuance of this MRP. Prior to construction of any additional groundwater monitoring wells, the Discharger shall submit plans and specifications to the Regional Water Board for review and approval. Once installed, all new monitoring wells shall be added to the MRP, and shall be sampled and analyzed according to the schedule below.

Prior to well purging, groundwater elevations shall be measured. Depth to groundwater shall be measured to the nearest 0.01 feet. Water table elevations shall be calculated and used to determine groundwater gradient and direction of flow. The monitoring wells shall be purged of at least three well volumes or until temperature, pH, and electrical conductivity have stabilized. Samples shall be collected and analyzed using approved EPA methods. Groundwater monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Depth to groundwater	0.01 feet	Measurement	Quarterly	Quarterly
Groundwater elevation <sup>1</sup>	0.01 feet	Calculated	Quarterly	Quarterly
Gradient	feet/feet	Calculated	Quarterly	Quarterly
Gradient direction	Degrees	Calculated	Quarterly	Quarterly
pH	pH units	Grab	Quarterly	Quarterly
Nitrate nitrogen	mg/L	Grab	Quarterly	Quarterly
Ammonia nitrogen	mg/L	Grab	Quarterly	Quarterly
Total Kjeldahl nitrogen	mg/L	Grab	Quarterly	Quarterly
Total coliform organisms <sup>2</sup>	MPN/100 ml	Grab	Quarterly	Quarterly

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Electrical conductivity	umhos/cm	Grab	Semi annually	Semi annually
Total dissolved solids	mg/L	Grab	Semi annually	Semi annually
Standard minerals <sup>3</sup>	mg/L	Grab	Annually	Annually <sup>5</sup>
Metals <sup>4</sup>	ug/L	Grab	Annually	Annually <sup>5</sup>

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

<sup>2</sup> Using a minimum of 15 tubes or three dilutions

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

<sup>4</sup> At a minimum, the following metals shall be included: arsenic, copper, lead, iron, manganese, nickel, and zinc. Analytical methods shall be selected to provide reporting limits below the Water Quality Limit for each constituent.

<sup>5</sup> Results for constituents analyzed annually shall be reported in the fourth quarterly monitoring report each year.

### BIOSOLIDS MONITORING

The Discharger shall keep records regarding biosolids generated by the treatment processes, including any analytical test results; the quantity of biosolids removed for disposal; the quantity of biosolids removed from the ponds and temporarily stored on site; and steps taken to prevent nuisance conditions. Records shall be stored onsite and available for review during inspections.

If biosolids are transported off-site for disposal, then the Discharger shall submit records identifying the hauling company, the amount of biosolids transported, the date removed from the facility, the disposal facility name and address, and copies of all analytical data required by the entity accepting the waste. These records shall be submitted as part of the Annual Monitoring Report.

### REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., influent, 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 Regional Water Board.

## **A. Monthly Monitoring Reports**

Monthly reports shall be submitted to the Regional Water Board on the **1<sup>st</sup> day of the second month following sampling** (e.g. the January Report is due by 1 March). Such reports shall bear the certification and signature of the Discharger's authorized representative. An example Monthly Monitoring Report is included as Attachment A to this MRP.

At a minimum, the monthly monitoring reports shall include:

1. Results of the following monitoring:
  - a. WWTF influent monitoring;
  - b. WWTF land application area monitoring;
  - c. WWTF effluent monitoring, including identification of the sampling locations from within the ponds; and
  - d. WWTF pond monitoring.
2. A comparison of monitoring data to the discharge specifications, disclosure of any violations of the WDRs, and an explanation of any violation of those requirements. Data shall be presented in tabular format.
3. Copies of current calibration logs for all field test instruments.
4. If requested by staff, copies of laboratory analytical report(s).
5. A summary facility inspection and repair report. The following items shall be inspected at the specified frequency and specifically addressed in the report:
  - a. Condition of fences designed to prevent public access (monthly).
  - b. Alarm system function (monthly).
  - c. Odors discernible at the property boundary (weekly).
  - e. Integrity of all berms, dikes, and levees, including consideration of damage from erosion, wave action, and burrowing rodents (weekly).
  - f. Headworks damage and debris accumulation (weekly).
  - g. Flow metering system function (weekly).
  - h. Piping systems, including control valves and visible piping (weekly).

The facility inspection and repair report shall include the name of the person conducting the inspections, dates of inspection, problems identified, repairs recommended, repairs completed, and dates of completion.

## **B. Quarterly Monitoring Reports**

The Discharger shall submit quarterly monitoring reports to the Regional Water 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.

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

The Quarterly Monitoring 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; 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, an assessment 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. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).
5. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements.
6. Summary data tables of historical and current water table elevations and analytical results.
7. 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.
8. Copies of laboratory analytical report(s) for groundwater monitoring.

### **C. Annual Report**

An Annual Report shall be prepared as the fourth quarter monitoring report. The Annual Report shall include all monitoring data required in the monthly/quarterly schedule. The Annual Report shall be submitted to the Regional Water Board by **1 February** each year. In addition to the data normally presented, the Annual Report shall include the following:

1. The contents of the regular quarterly monitoring report for the last quarter of the year.
2. Analytical results for all water supplies and other annual monitoring.
3. If requested by staff, tabular and graphical summaries of all data collected during the year.
4. An evaluation of the performance of the WWTF, including discussion of capacity issues, infiltration and inflow (I/I), nuisance conditions, and a forecast of the flows anticipated in the next year.
5. An evaluation of the groundwater quality beneath the wastewater treatment facility.
6. 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.
7. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.
8. Summary of information on the disposal of biosolids as described in the "Biosolids Monitoring" section.
9. A copy of the WWTF operator's current certification.
10. A discussion of the following:
  - a. Occurrences that the pond system was switched from the standard flow design (i.e. series mode) and the rationale for the switch.
  - b. Comparison of effluent values before and after the switch to flow design.

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 agents, 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)