

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

REVISED MONITORING AND REPORTING PROGRAM NO. 94-187 (Revision No. 2)

FOR
CITY OF DIXON
DIXON WASTEWATER TREATMENT FACILITY
SOLANO COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring influent, treated effluent, wastewater ponds, land application areas, groundwater, biosolids, and the community water supply. This MRP is issued pursuant to California 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.

Section 13267 of the California Water Code states, in part:

“In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.”

Section 13268 of the California Water Code states, in part:

“(a) Any person failing or refusing to furnish technical or monitoring program reports as required by subdivision (b) of Section 13267, or failing or refusing to furnish a statement of compliance as required by subdivision (b) of Section 13399.2, or falsifying and information provided therein, is guilty of a misdemeanor and may be liable civilly in accordance with subdivision (b).

(b)(1) Civil liability may be administratively imposed by a regional board in accordance with Article 2.5 (commencing with section 13323) of Chapter 5 for a violation of subdivision (a) in an amount which shall not exceed one thousand dollars (\$1,000) for each day in which the violation occurs.”

The Discharger owns and operates the facility that is subject to Waste Discharge Requirements (WDRs) Order No. 94-187 and Cease and Desist Order (CDO) No. R5-2005-0078, and the reports are necessary to ensure that the City of Dixon complies with the WDRs and CDO.

Pursuant to Section 13267 of the California Water Code, the Discharger shall implement this MRP and shall submit the monitoring reports described herein.

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 grab sample shall be recorded on the sample chain of custody form.

Field test instruments (such as those used to test pH and dissolved oxygen) 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.

INFLUENT MONITORING

Influent flow monitoring shall be performed at the headworks. Samples shall be collected at approximately the same time as effluent samples. Influent monitoring shall include the following:

Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow	gpd	Flow Meter Observation	Daily	Monthly
BOD ₅ ¹	mg/L	24-hr. Composite ²	Twice Monthly	Monthly
Total Suspended Solids	mg/L	24-hr. Composite ²	Twice Monthly	Monthly
Electrical Conductivity	µmhos/cm	24-hr. Composite ²	Weekly	Monthly

¹ 5-day biochemical oxygen demand.

² The BOD, TSS, and electrical conductivity samples shall be flow-proportional composite samples beginning 1 August 2008. Until the compositor is installed and operational, grab samples may be collected.

EFFLUENT MONITORING

Effluent samples shall be collected at approximately the same time as influent samples. Effluent samples shall be collected immediately downstream of the treatment ponds prior to discharge into the percolation/evaporation ponds or land application disposal areas. In addition, composite samples comprised of equal volume aliquots shall be considered representative of the salinity of the effluent at the following stages of the treatment and disposal process: (a) evaporation/percolation ponds and (b) land application disposal areas. For each of the two effluent categories described above, composite samples shall be obtained as follows and analyzed for chloride, sodium, and total dissolved solids at the frequency described below:

1. One aliquot shall be obtained from a point near the outlet of each evaporation/percolation pond and land application disposal area.
2. The aliquots from each of the evaporation/percolation ponds shall be composited together to form a sample representative of the evaporation/percolation ponds.
3. The aliquots from each of the land application disposal areas shall be composited together to form a sample representative of the land application disposal areas.
4. If, at the time of sampling, a percolation/evaporation pond or land application disposal area contains less than six inches of water across the entire bottom surface, inclusion of an aliquot from that pond or disposal area is not required.

Effluent monitoring shall include at least the following:

Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
BOD ₅	mg/L	Composite ¹	Monthly	Monthly
Boron	mg/L	Composite ¹	Monthly	Monthly
Chloride	mg/L	Composite ¹	Monthly	Monthly
Sodium	mg/L	Composite ¹	Monthly	Monthly
Total Dissolved Solids	mg/L	Composite ¹	Monthly	Monthly
Nitrate (as N)	mg/L	Composite ¹	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Composite ¹	Monthly	Monthly
Standard Minerals ¹	mg/L	Composite ¹	Semi-Annually	Monthly ²

¹ Samples collected from the outlet structure of the treatment ponds will be considered adequately composited.

² Standard minerals shall include, at a minimum, the following: barium, calcium, iron, magnesium, potassium, sulfate, alkalinity series, and total hardness (as CaCO₃).

³ Results shall be reported in the applicable Monthly Monitoring Report.

WASTEWATER POND MONITORING

Each of the wastewater treatment, storage, and evaporation/percolation ponds shall be monitored as specified below:

Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Freeboard ¹	0.1 feet	Measurement	Weekly	Monthly
Dissolved Oxygen ²	mg/L	Grab	Weekly	Monthly
Electrical Conductivity	µmhos/cm	Grab	Weekly	Monthly
pH	Std. Units	Grab	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Berm Condition ³	--	Observation	Weekly	Monthly

¹ For any pond that contains an insignificant amount of water, the result may be reported as “dry”.

² 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.

³ Pond containment berms shall be observed for signs of seepage or surfacing water along the exterior and toe. If seepage or surfacing water is found, a sample shall be obtained and tested for total coliform organisms if practical.

LAND APPLICATION AREA MONITORING

A. Pre-Application Inspections

The Discharger shall inspect each land application area prior to discharge, and observations from those inspections shall be documented for inclusion in the monthly monitoring reports. The following items shall be documented:

1. Containment berm condition;
2. Ponding conditions prior to discharge;
3. Potential runoff to off-site areas; and
4. Odors that have the potential to be objectionable at or beyond the property boundary.

The notations shall also document any corrective actions taken based on observations made. A copy of entries made in the log during each month shall be submitted as part of the Monthly Monitoring Report.

B. Land Application Area Monitoring

The Discharger shall perform the following routine monitoring and loading calculations for each land application area, and shall present the data in the Monthly and Annual Monitoring Reports.

<u>Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
		Meter		
Flow	gallons	Observation	Daily	Monthly
Precipitation	0.1 in.	Rain Gauge	Daily	Monthly
Hydraulic Loading	in./acre/day	Calculated ¹	Daily	Monthly
TDS Loading Rate	lb/acre/day	Calculated ^{1, 2}	Daily	Monthly
Pan Evaporation	0.1 in.	Evap. Pan	Weekly	Monthly

¹ Rate shall be calculated for each irrigation check and pond.

² TDS loading rates shall be calculated using the applied volume of wastewater, actual application area, and the average of the three most recent results for effluent TDS.

GROUNDWATER MONITORING

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 wells shall be added to the MRP and shall be sampled and analyzed according to the schedule below.

Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged at least three casing volumes until temperature, pH and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Samples shall be collected and analyzed using standard EPA methods. Groundwater monitoring shall include, at a minimum, the following:

<u>Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Monitoring and Reporting Frequency</u>
Depth to Groundwater	0.01 feet	Measurement	Quarterly
Groundwater Elevation ¹	0.01 feet	Calculated	Quarterly
Gradient Magnitude	feet/feet	Calculated	Quarterly
Gradient Direction	degrees	Calculated	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly
Electrical Conductivity	µmhos/cm	Grab	Quarterly
Nitrate (as N)	mg/L	Grab	Quarterly
Total Kjeldahl Nitrogen	mg/L	Grab	Quarterly
pH	std. units	Grab	Quarterly
Total Coliform Organisms	MPN/100 mL	Grab	Quarterly
Boron	mg/L	Grab	Quarterly

Parameter	Units	Type of Sample	Monitoring and Reporting Frequency
Chloride	mg/L	Grab	Quarterly
Iron	mg/L	Grab	Quarterly
Manganese	mg/L	Grab	Quarterly
Sodium	mg/L	Grab	Quarterly
Standard Minerals ²	mg/L	Grab	Annually

¹ Groundwater elevation shall be determined based on depth-to-water measurements using a permanent surveyed reference point on the well casing.

² Standard Minerals shall include, at a minimum, the following: barium, calcium, magnesium, potassium, sulfate, alkalinity series, and total hardness (as CaCO₃).

BIOSOLIDS MONITORING

When biosolids are removed from the ponds, at least one composite sample of biosolids shall be collected in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and tested for cadmium, copper, nickel, chromium, lead, and zinc. Sampling and analysis records shall be retained for a minimum of five years. A log shall be kept of sludge quantities generated and of handling and disposal activities.

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 location of disposal, and copies of all analytical data required by the entity accepting the waste. All records shall be submitted as part of the Annual Monitoring Report.

WATER SUPPLY MONITORING

The Discharger shall monitor the community water supply. Consumer Confidence Reports published by public or private water service providers may be submitted in lieu of analyses performed by the Discharger. If the Discharger elects to sample and analyze the water supply, a representative sample of the municipal water supply shall be obtained. If the source water is from more than provider, the results shall be reported as a weighted average and include copies of supporting calculations. Water supply monitoring shall include at least the following:

<u>Parameter</u>	<u>Units</u>	<u>Monitoring and Reporting Frequency</u>
Electrical Conductivity	µmhos/cm	Annually
Total Dissolved Solids	mg/L	Annually
pH	pH units	Annually
Nitrate (as N)	mg/L	Annually
<u>Standard Minerals</u> ¹	mg/L	Annually

¹ Standard Minerals shall include, at a minimum, the following elements/compounds: barium, calcium, magnesium, sodium, potassium, chloride, nitrogen, sulfate, total alkalinity (including alkalinity series), and total hardness (as CaCO₃).

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., influent, effluent, 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 the WDRs and CDO 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.

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 Engineer or Geologist and signed by the registered professional.

A. Monthly Monitoring Reports

Daily, weekly, and monthly monitoring data shall be reported in monthly monitoring reports. Monthly reports shall be submitted to the Regional Water Board on the **1st 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. Results of influent, effluent, pond, and land application area monitoring;
2. Monthly averages for influent flow rate (mgd) and the concentration of each effluent monitoring parameter except standard minerals (mg/L);
3. Calendar year to date cumulative totals for influent flow volume (MG), land application area hydraulic loading (gallons per acre and inches) and land application area TDS loading (pounds per acre per year);
4. A comparison of monitoring data to the flow and effluent limitations of the CDO and discharge specifications of the WDRs, and an explanation of any violation of those requirements. Data shall be presented in tabular format;
5. If requested by staff, copies of laboratory analytical report(s); and

6. A calibration log verifying calibration of all hand-held monitoring instruments and devices used to comply with the monitoring program.

B. Quarterly Monitoring Reports

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 Regional Water Board by the **1st day of the second month after the quarter** (*i.e.* the January-March quarterly report is due by May 1st) and may be combined with the monthly report. 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 WDR, 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 and submitted to the Regional Water Board by **1 February** each year. The Annual Report shall include all monitoring data required in the monthly/quarterly schedule. In addition, the Annual Report shall include the

following:

1. The contents of the regular groundwater monitoring report for the last sampling event of the year, including the results of groundwater analyses that are performed annually;
2. Tabular and graphical summaries of all data collected during the year;
3. An evaluation of the groundwater quality beneath the wastewater treatment facility;
4. 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;
5. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program;
6. A copy of the certification for each certified wastewater treatment plant operator working at the facility and a statement about whether the Discharger is in compliance with Title 23, CCR, Division 3, Chapter 26.
7. A summary of information on the disposal of biosolids and/or solid waste;
8. The results from any biosolids monitoring required by the disposal facility; and
9. A forecast of influent flows, as described in Standard Provision No. E.4.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of any and all WDR and CDO 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 **1 July 2008**.

Original signed by
Ordered by: _____
PAMELA C. CREEDON, Executive Officer
3 June 2008

(Date)