CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION
MONITORING AND REPORTING PROGRAM __

FOR
CITY OF DIXON
DIXON WASTEWATER TREATMENT FACILITY
SOLANO COUNTY

This Monitoring and Reporting Program (MRP) presents requirements for monitoring of wastewater influent, effluent, storage pond, groundwater and water supply. 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 sample shall be recorded on the sample chain of custody form.

Field testing instruments (such as those used to test pH, wind speed, precipitation 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 each monitoring event;

3 The instruments are serviced and/or calibrated by the manufacturer at the recommended frequency;

4 Field calibration reports are submitted as described in the "Reporting" section of this MRP.

INFLUENT MONITORING

Influent samples shall be collected at the headworks prior to treatment. A 24-hour flow proportionate composite sample will be considered to be representative of the influent. At a minimum, the Discharger shall monitor influent as specified below:

Constituent	Units	Sample Type	Sampling Frequency	Reporting Frequency
Influent flow	gpd	Meter Observation	Daily	Monthly
Monthly average influent flow	gpd	Calculated	Monthly	Monthly
BOD_5 [2]	mg/L	24 hr. Composite	Monthly	Monthly

[1] 5-day biochemical oxygen demand.

EFFLUENT MONITORING

The Discharger shall collect effluent samples prior to discharge into the percolation basins as shown in Attachment C. At a minimum, effluent monitoring shall include the following:

Constituent	Units	Sample Type	Sampling Frequency	Reporting Frequency
Effluent flow	gpd	Meter Observation	Daily	Monthly
BOD_5	mg/L	Grab	Monthly	Monthly
Total dissolved solids	mg/L	Grab	Monthly	Monthly
Chloride	mg/L	Grab	Monthly	Monthly
Nitrate nitrogen	mg/L	Grab	Weekly	Monthly
Total Kjeldahl nitrogen	mg/L	Grab	Weekly	Monthly
Boron	mg/L	Grab	Monthly	Monthly

POND MONITORING

The Discharger shall monitor each of the percolation basins with at least one foot of standing water as specified below:

Constituent	Units	Sample Type	Sampling Frequency	Reporting Frequency
Dissolved oxygen[1]	mg/L	Grab	Weekly	Monthly
pH	Std.	Grab	Weekly	Monthly
Freeboard	0.1 feet	Observation	Weekly	Monthly
Berm condition	NA	Observation	Weekly	Monthly
Seepage [2]	NA	Observation	Weekly	Monthly
Odors	NA	Observation	Weekly	Monthly

[1] Samples shall be collected at a depth of one foot from each pond in use.
[2] Pond containment berms shall be observed for signs of seepage or surfacing water along the exterior toe. If surfacing water is found, then a sample shall be collected and tested for total coliform organisms and total dissolved solids.

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.

Background Wells	Compliance Wells
SW-MWR	SE-MW
MW-11	MW-7
MW-12	MW-8
MW-13	MW-9
MW-14	MW-10
MW-15	

The Groundwater Limitations set forth in Section E of the WDRs shall apply to the specific compliance monitoring wells tabulated below.

Constituent	Groundwater Limitation	Date Effective	Compliance Wells to which Limitation Applies
Nitrate nitrogen	No temporal increase [1]	Immediately	All compliance wells [2]
TDS	1,600 mg/L	Immediately	All compliance wells [2]
Chloride	600 mg/l	Immediately	All compliance wells [2]
Sodium	340 mg/L	Immediately	All compliance wells [2]
Boron	1.65	Immediately	All compliance wells [2]

[1] Temporal increase is defined as an increase relative to the 2013 annual average concentration for each individual compliance well.

[2] Including any compliance wells installed subsequent to adoption of this Order.

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:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Depth to groundwater	0.01 feet	Measurement	Quarterly	Quarterly
Groundwater elevation [1]	feet	Calculated	Quarterly	Quarterly
Gradient magnitude	feet/feet	Calculated	Quarterly	Quarterly
Gradient direction	degrees	Calculated	Quarterly	Quarterly
pH	pH units	Grab	Quarterly	Quarterly
Nitrate nitrogen	mg/L	Grab	Quarterly	Quarterly
TDS	mg/L	Grab	Quarterly	Quarterly
Chloride	mg/L	Grab	Quarterly	Quarterly
Sodium	mg/L	Grab	Quarterly	Quarterly
Boron	mg/L	Grab	Quarterly	Quarterly
Total coliform organisms	MPN/100 mL	Grab	Quarterly	Quarterly

[3] Groundwater elevation shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and surveyed reference elevation.

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
TDS	All compliance wells	1,580
Chloride	All compliance wells	400

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.

WATER SUPPLY MONITORING

One or more sampling stations shall be established where representative samples of the municipal water supply can be obtained. Water supply monitoring shall include at least the following for each water source used during the previous year. As an alternative to annual water supply monitoring, the Discharger may submit results of the most current Department of Public Health Consumer Confidence Report.

Constituent	Units	Sampling and Reporting Frequency
Total dissolved solids	mg/L	Annually
pH	standard units	Annually
Standard minerals [1]	mg/L	Annually

[1] Standard Minerals shall include, at a minimum, the following elements/compounds: boron, calcium, chloride, iron, magnesium, manganese, nitrogen, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.

SLUDGE AND/OR BIOSOLIDS MONITORING

A composite sample of digested sludge shall be collected when sludge is removed from the wastewater treatment system for disposal in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and analyzed for cadmium, copper, nickel, chromium, lead, and zinc.

Sampling 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. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., influent, 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 in the next scheduled monitoring report.

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

Monthly reports shall be submitted to the Regional Board by the **1st day of the second month** following the end of the reporting period (i.e. the January monthly report is due by 1 March). At a minimum, the reports shall include:

1. Results of influent, effluent, and pond monitoring.
2. Cumulative total effluent flow to the percolation basins from 1 January to date.
3. A comparison of the monitoring data to the influent flow limitations, effluent limitations, and discharge specifications, and an explanation of any violation of those requirements. Data shall be presented in tabular format.

4. If requested by staff, copies of laboratory analytical report(s).
5. A calibration log verifying calibration of all monitoring instruments and devices used to fulfill the prescribed 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 Board by the 1st day of the second month after the quarter (i.e. the January-March quarter is due by May 1st) each year. The Quarterly Monitoring Reports 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. For each monitoring event:
    a. 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; and
    b. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal tends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).
4. A comparison of the monitoring data to the groundwater limitations and an explanation of any violation of those requirements;
5. Summary data tables and graphs of historical and current water table elevations and analytical results;
6. 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
7. Copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Report

An Annual Report shall be submitted to the Regional Board by **1 February** each year. The Annual Report shall include the following:

1. The results from annual monitoring of the effluent, groundwater, water supply, and sludge for the year;
2. Total annual influent flow, average monthly influent flows for each month of the year, the

average influent dry weather flow, and a comparison of these results to the influent flow limitations of this Order

3. Total annual effluent flow and average monthly effluent flows for each month of the year;
4. Effluent annual average total nitrogen concentration, chloride concentration, and boron concentration and comparison to the effluent limits of this Order;
5. A digital database (Microsoft Excel) containing historic groundwater and effluent data;
6. **Effective the first calendar year** after CDO __ (or subsequent revision thereto) is rescinded, for each compliance groundwater monitoring well, a statistical evaluation of the groundwater quality beneath the wastewater treatment facility, in accordance with the approved report submitted pursuant to Provision I.1.b of the WDRs and a comparison of the results to the groundwater limitations.
7. An evaluation of the performance of the WWTF, including discussion of capacity issues, infiltration and inflow rates, nuisance conditions, and a forecast of the flows anticipated in the next year;
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 summary of information on the disposal of sludge and/or solid waste. The results from any sludge monitoring required by the disposal facility.
10. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program;
11. 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 California Code of Regulations, title 23, division 3, chapter 26;
12. A forecast of influent flows, as described in Standard Provision No. E.4; and
13. A statement of when the O&M Manual was last reviewed for adequacy, and a description of any changes made during the year.

A transmittal letter shall accompany each self-monitoring report. The letter shall include a discussion of all violations of the WDRs or this MRP during the reporting period and actions taken or planned for correcting each violation. If the Discharger has previously submitted a report describing corrective actions taken and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. Pursuant to Section B.3 of the Standard Provisions and General Reporting Requirements, the transmittal letter shall contain a statement by the Discharger or the Discharger's authorized agent certifying under penalty of perjury that the report is true, accurate and complete to the best of the signer's knowledge.

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)