

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO.

FOR

LAKE BERRYESSA RESORT IMPROVEMENT DISTRICT  
NAPA COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring influent wastewater, treated effluent, wastewater treatment and storage ponds, land application areas, 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. Regional Water Board staff shall approve specific sample station locations prior to implementation of sampling activities.

This MRP is effective upon date of signature; however, portions of the MRP will not be relevant until the land application areas have been constructed and are in use. In the meantime, the Discharger shall submit the monitoring data that is possible to collect, monthly construction status reports, and quarterly groundwater monitoring reports as described in the "Reporting" section of this MRP.

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 measure pH and dissolved oxygen) 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; and
4. Field calibration reports are submitted as described in the "Reporting" section of the MRP.

**INFLUENT MONITORING**

Influent flow monitoring shall be performed prior to discharge to the first wastewater treatment pond. Samples shall be collected at approximately the same time as effluent samples. Influent monitoring shall include the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Flow <sup>1</sup>	gpd	Continuous Meter	Daily	Monthly
Average Daily Flow <sup>2</sup>	gpd	Calculated	Monthly	Monthly
BOD <sub>5</sub> <sup>3</sup>	mg/L	Grab	Monthly	Monthly

<sup>1</sup> Flow represents the daily flow rate.

<sup>2</sup> Average Daily Flow represents the daily flow rate averaged over the month.

<sup>3</sup> BOD denotes 5-day Biochemical Oxygen Demand.

### EFFLUENT MONITORING

Effluent samples shall be collected prior to the discharge to the land application areas and shall be representative of the volume and nature of the discharge. Effluent monitoring shall include at least the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
BOD <sub>5</sub>	mg/L	Grab/Composite <sup>1</sup>	Monthly	Monthly
Chlorine Residual	mg/L	Grab/Composite <sup>1</sup>	Daily <sup>6</sup>	Monthly
Total Coliform Organisms <sup>2</sup>	MPN/100 ml <sup>3</sup>	Grab	Weekly <sup>7</sup>	Monthly
Total Dissolved Solids	mg/L	Grab/Composite <sup>1</sup>	Monthly	Monthly
Sodium	mg/L	Grab/Composite <sup>1</sup>	Monthly	Monthly
Chloride	mg/L	Grab/Composite <sup>1</sup>	Monthly	Monthly
Nitrate as Nitrogen	mg/L	Grab/Composite <sup>1</sup>	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab/Composite <sup>1</sup>	Monthly	Monthly
Total Nitrogen (as N)	mg/L	Grab/Composite <sup>1</sup>	Monthly	Monthly
Standard Minerals <sup>4</sup>	mg/L	Grab/Composite <sup>1</sup>	Annually	Annually
Trihalomethanes <sup>5</sup>	ug/L	Grab/Composite <sup>1</sup>	Annually	Annually

<sup>1</sup> Grab/Composite indicates samples may be collected by composite sampler or grab method.

<sup>2</sup> Using a minimum of 15 tubes or 3 dilutions.

<sup>3</sup> Most probable number per 100 ml.

<sup>4</sup> Standard Minerals shall include, at a minimum, the following elements/compounds: boron, calcium, magnesium, potassium, sulfate, iron, manganese, total alkalinity (including alkalinity series), and hardness.

<sup>5</sup> Individual trihalomethane constituent concentrations shall be identified, using EPA Method 8260B or equivalent.

<sup>6</sup> Samples collected 5 days per week.

<sup>7</sup> Samples collected at a minimum every 5 days.

### POND MONITORING

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

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Dissolved Oxygen <sup>1</sup>	mg/L	Grab	Weekly	Monthly
Freeboard	0.1 feet	Measurement	Weekly	Monthly
pH <sup>1</sup>	Standard	Grab	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Berm 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.

### LAND APPLICATION AREA MONITORING

Monitoring of each land application area shall be conducted **daily** during the irrigation season, and the results shall be included in the monthly monitoring report. All land application areas shall be inspected following an irrigation event to identify any equipment malfunction or other circumstance that might allow the wastewater to runoff the land application areas 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 areas shall include the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Flow	Gallons	Continuous	Daily	Monthly
Rainfall	Inches	Observation	Daily	Monthly
Acreage Applied <sup>1</sup>	Acres	Calculated	Daily	Monthly
Water Application Rate <sup>2</sup>	gal/acre-day	Calculated	Daily	Monthly
Total Nitrogen Loading Rate <sup>2</sup>	lbs/ac•month	Calculated	Monthly	Monthly
TDS Loading Rate <sup>2</sup>	lbs/ac•month	Calculated	Monthly	Monthly

<sup>1</sup> Land application areas shall be identified and a map identifying all land application areas included.

<sup>2</sup> For each of the land application areas.

### GROUNDWATER MONITORING

Prior to construction and/or sampling of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Regional Water Board for review and approval. All wells identified in the groundwater monitoring well network in the Findings of this Order, as well as any wells installed after adoption of this Order, 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 well 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 using standard EPA methods. Groundwater monitoring shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
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

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Gradient Direction	Degrees	Calculated	Quarterly	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly	Quarterly
Nitrate as Nitrogen	mg/L	Grab	Quarterly	Quarterly
Total Kjeldahl Nitrogen	mg/L	Grab	Quarterly	Quarterly
pH	pH units	Grab	Quarterly	Quarterly
Trihalomethanes <sup>2</sup>	µg/L	Grab	Quarterly	Quarterly
Boron	mg/L	Grab	Quarterly	Quarterly
Chloride	mg/L	Grab	Quarterly	Quarterly
Iron	mg/L	Grab	Quarterly	Quarterly
Manganese	mg/L	Grab	Quarterly	Quarterly
Sodium	mg/L	Grab	Quarterly	Quarterly
Total Coliform Organisms	MPN/100 mL	Grab	Quarterly	Quarterly
Standard Minerals <sup>3</sup>	mg/L	Grab	Annually	Annually
Metals <sup>4</sup>	ug/L	Grab	Annually	Annually

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

<sup>2</sup> Individual trihalomethane constituent concentrations shall be identified, using EPA Method 8260B or equivalent.

<sup>3</sup> Standard Minerals shall include, at a minimum, the following elements/compounds: calcium, magnesium, potassium, sulfate, total alkalinity (including alkalinity series), and hardness.

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

### SLUDGE MONITORING

A composite sample of digested sludge shall be collected at least once per year 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.

### WATER SUPPLY MONITORING

A sampling station shall be established where a representative sample 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:

<u>Constituents</u>	<u>Units</u>	<u>Sampling Frequency</u>
Total Dissolved Solids	mg/L	Annually
pH	Std. Unit	Annually
Standard Minerals <sup>1</sup>	mg/L	Annually

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

## 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 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 Professional 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 **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. The report shall include the following:
  - a. Results of influent; effluent; wastewater ponds; and land application area monitoring.
  - b. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements. Data shall be presented in tabular format;
  - c. If requested by staff, copies of laboratory analytical report(s); and
  - d. A calibration log verifying calibration of all hand-held monitoring instruments and devices used to comply with 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 **1<sup>st</sup> day of the second month after the quarter** (i.e. the January-March quarterly report is due by May 1<sup>st</sup>) 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; and
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 will 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 groundwater monitoring report for the last sampling event of the year;
2. If requested by staff, tabular and graphical summaries of all data collected during the year;
3. An evaluation of the groundwater quality beneath the wastewater treatment facility, and land application areas;
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. Summary of information on the disposal of sludge and/or solid waste;
8. The results from annual monitoring of the groundwater wells and water supply;
9. The results from any sludge monitoring required by the disposal facility;
10. Equipment maintenance and calibration records, as described in Standard Provision No. C.4;
11. A forecast of influent flows, as described in Standard Provision No. E.4;
12. A discussion of the following:
  - a. Compliance with any interim effluent performance limits as specified in the Effluent Limitations of the WDRs;
  - b. Salinity reduction efforts implemented in accordance with any required workplan;
  - c. Other best practical treatment and control measures implemented pursuant to any approved BPTC Workplan (if required by the Executive Officer); and
  - d. Based on monitoring data, an evaluation of the BPTC measures that were implemented.

A letter transmitting the self-monitoring reports shall accompany each report. Such a 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 on the first day of the month following adoption of this Order.

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

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(Date)