

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

REVISED MONITORING AND REPORTING PROGRAM NO. R5-2011-0092 REV1

FOR
CITY OF PLYMOUTH
PLYMOUTH WASTEWATER TREATMENT FACILITY
AMADOR COUNTY

This Monitoring and Reporting Program (“MRP”) presents requirements for monitoring of wastewater influent, effluent, treatment ponds and storage reservoir, land application areas, recycled water construction use, groundwater, sludge, 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 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;
4. Field calibration reports are submitted as described in the “Reporting” section of this MRP.

WWTF INFLUENT MONITORING

Influent samples shall be collected at the headworks prior to treatment. Grab samples will be considered to be representative of the influent. Influent 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>
Flow	gpd	Continuous	Daily	Monthly
BOD ₅ ¹	mg/L	Grab	Monthly	Monthly
Total Zinc	µg/L	Grab	Quarterly	Quarterly
Total Phenols	µg/L	Grab	Quarterly	Quarterly
Formaldehyde	µg/L	Grab	Quarterly	Quarterly

¹ 5-day biochemical oxygen demand.

RV PARK WASTEWATER MONITORING

The samples of the RV park wastewater shall be collected from the last manhole or lift station within the 49er Village RV Park upstream of the point where wastewater flows into the community sewer. Grab samples will be considered to be representative of the influent. The 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>
Total Zinc	µg/L	Grab	Quarterly	Quarterly
Total Phenols	µg/L	Grab	Quarterly	Quarterly
Formaldehyde	µg/L	Grab	Quarterly	Quarterly

WWTF EFFLUENT MONITORING

Effluent samples shall be representative of the treated wastewater prior to discharge to the LAAs after full chlorine contact has been achieved. The samples shall be collected at the sampling stations shown on Attachment C of the WDRs. The sampling location for each sampling event shall be reported in the Monthly Monitoring Reports. At a minimum, effluent monitoring shall consist of the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
BOD ₅	mg/L	Grab	Weekly	Monthly
Total Coliform Organisms ¹	MPN ² /100 mL	Grab	Weekly	Monthly
Total Dissolved Solids	mg/L	Grab	Quarterly	Quarterly
Chloride	mg/L	Grab	Quarterly	Quarterly
Total Nitrogen	mg/L	Grab	Quarterly	Quarterly
Total Zinc	µg/L	Grab	Quarterly	Quarterly
Total Phenols	µg/L	Grab	Quarterly	Quarterly
Formaldehyde	µg/L	Grab	Quarterly	Quarterly
Standard Minerals ³	mg/L	Grab	Annually	Annually

¹ Using a minimum of 15 tubes or three dilutions.

² Most Probable Number.

³ Standard minerals shall include, at a minimum, the following elements/compounds: boron, calcium, iron, magnesium, manganese, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.

WASTEWATER TREATMENT POND AND STORAGE RESERVOIR MONITORING

Samples shall be collected from an established sampling station located in an area that will provide a sample representative of the wastewater in each aerated pond, polishing pond, and storage reservoir. 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. Monitoring of all three treatment ponds and the storage reservoir 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>
pH	Standard Units	Grab	Weekly	Monthly
Dissolved Oxygen ¹	mg/L	Grab	Weekly	Monthly
Freeboard	0.1 feet	Measurement	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Berm condition ²	--	Observation	Weekly	Monthly

¹ Samples shall be collected at a depth of one foot, opposite the inlet.

² Containment berms shall be observed for signs of seepage or surfacing water along the exterior toe of the berms.

LAND APPLICATION AREA MONITORING

Monitoring of the land application areas (“LAAs”) shall be conducted **daily** when the disposal areas are used, and the results shall be included in the monthly monitoring report. Evidence of erosion, field saturation, irrigation runoff, or the presence of nuisance conditions shall be noted in the report. Effluent monitoring results shall be used in calculations to determine loading rates at the LAAs. Monitoring of the LAAs shall include the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Flow to each LAA	Gallons	Continuous	Daily	Monthly
Acreage Applied ¹	Acres	Calculated	Daily	Monthly
Water Application Rate ²	Inches/day	Calculated	Daily	Monthly
Rainfall ³	Inches	Observation	Daily	Monthly
Total Nitrogen Loading Rate ²	lbs/ac/month	Calculated	Monthly	Monthly
LAA Berm Condition	NA	Observation	Weekly	Monthly

¹ Specific LAAs shall be identified.

² Average calculated for each LAA.

³ Rainfall data collected from the weather station that is nearest to the LAAs or a properly maintained on-site rain gauge.

At least **once per week** when the LAAs are being used, the LAAs shall be inspected to identify any equipment malfunction or other circumstances that might allow irrigation runoff to leave the irrigation area and/or create ponding conditions that violate the Waste Discharge Requirements. A daily log of each inspection shall be kept at the facility and be submitted with the monthly monitoring reports. Photocopies of entries into an operator’s field log are acceptable. If the land application areas are not used, then the monthly monitoring reports shall state so.

RECYCLED WATER FOR CONSTRUCTION USE

Monitoring the volume of recycled water for construction use shall be conducted daily when recycled water is used and the results shall be included in the monthly monitoring report. The total volume of recycled water for construction use shall be reported in the annual monitoring report.

GROUNDWATER MONITORING

This sampling program applies to all existing groundwater monitoring wells, and any wells subsequently installed under direction of the Central Valley Water Board. Prior to sampling, 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. Samples shall be collected and analyzed using approved EPA methods or other methods approved by the Central Valley Water Board.

Once the new background monitoring well is installed, well MW-3 may be monitored for groundwater elevation only. For the new background well, sampling shall be conducted quarterly for the first two years after installation (i.e., from July 2013 to June 2015); after two years, the sampling frequency can be changed to semi-annually. Groundwater monitoring shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling and Reporting</u>
Groundwater Elevation ¹	0.01 Feet	Calculated	Semi-annually
Depth to Groundwater	0.01 Feet	Measurement	Semi-annually
Gradient	Feet/Feet	Calculated	Semi-annually
Gradient Direction	Degrees	Calculated	Semi-annually
Total Coliform Organisms ²	MPN/100mL	Grab	Semi-annually
pH	Standard Units	Grab	Semi-annually
Total Dissolved Solids	mg/L	Grab	Semi-annually
Nitrate as Nitrogen	mg/L	Grab	Semi-annually
Total Zinc	µg/L	Grab	Annually
Total Phenols	µg/L	Grab	Annually
Formaldehyde	µg/L	Grab	Annually
Standard Minerals ³	mg/L	Grab	Annually

¹ Groundwater elevation shall be based on depth-to-water using a surveyed measuring point elevation on the well and a surveyed reference elevation.

² Using a minimum of 15 tubes or three dilutions.

³ Standard Minerals shall include, at a minimum, the following elements and compounds: boron, calcium, chloride, iron, magnesium, manganese, nitrogen, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.

⁴ Except for the new background well, which shall be sampled quarterly for two years after installation.

SLUDGE MONITORING

A composite sample of 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. As an alternative to annual water supply monitoring, the Discharger may submit results of the most current Department of Public Health Consumer Confidence Report.

<u>Constituent</u>	<u>Units</u>	<u>Sampling and Reporting Frequency</u>
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.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, reservoir, 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 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 the influent, effluent, treatment pond and storage reservoir, LAA and recycled water for construction use monitoring. The monthly monitoring reports for the months of March, June, September, and December shall also contain the results of quarterly RV park wastewater, WWTF influent, and WWTF effluent monitoring;
2. Copies of inspection logs;
3. A comparison of the monitoring data to the discharge specifications and an explanation of any violation of those requirements;
4. Copies of laboratory analytical report(s); and
5. Copies of current calibration logs for all field test instruments.

B. Semi-Annual Monitoring Report

In addition to the monthly monitoring reports, the Discharger shall establish a semi-annual sampling schedule for groundwater monitoring such that samples are obtained approximately

every six months. Semi-Annual Monitoring Reports shall be submitted to the Central Valley Water Board by the **1st day of August (for the first six months of the year) and February the following year (for the last six months of the year)**. The Semi-Annual Monitoring Reports shall include the following:

1. Results of groundwater monitoring, including quarterly data for the new background well for a period of two years following installation;
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, 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. 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 the monitoring data to the groundwater limitations and an explanation of any violation of those requirements;
6. Summary data tables and graphs 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

In addition to the monthly and semi-annual monitoring reports, an Annual Report shall be prepared. The Annual Report shall be submitted to the Central Valley Water Board by **1 February** each year. The Annual Report shall include the following:

1. The results from annual monitoring of the effluent, recycled water for construction use, groundwater, and water supply;
2. Tabular summaries of data collected during the year;
3. A digital database (Microsoft Excel) containing historic groundwater data;
4. An evaluation of the performance of the WWTF, including discussion of capacity issues, infiltration and inflow rates, pond sludge layer thickness, 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 and the land application area;
6. Summary of information on the disposal of sludge as described in the "Sludge Monitoring"

