CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

REVISED MONITORING AND REPORTING PROGRAM NO. 5-00-264 (REV3)
FOR
MURPHYS SANITARY DISTRICT
MURPHYS WASTEWATER TREATMENT PLANT
CALAVERAS COUNTY

This monitoring and reporting program (MRP) describes requirements for monitoring of influent wastewater, treated effluent, treatment and storage ponds, onsite spray field land application areas (LAAs) groundwater, biosolids, and community water supply for the Murphys Sanitary District wastewater treatment plant (WWTP). 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. Specific sampling locations shall be approved by Central Valley Water Board staff prior to implementation of 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 grab sample shall be recorded on the chain of custody form. All samples shall be collected and preserved in accordance with EPA and analytical methodology.

Field testing instruments (such as those used to test pH 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. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are provided with the appropriate monitoring report.

INFLUENT MONITORING

Influent flow monitoring shall be performed at the WWTP headworks. Samples shall be collected at approximately the same time as effluent samples and should be representative of the influent flow to the WWTP. At a minimum, influent monitoring shall consist of the following:

Constituent/Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Influent Flow	mgd	Continuous Meter	Daily	Monthly
BOD[1]	mg/l	Grab	Monthly	Monthly

[1] BOD, denotes five-day, 20^0 Celsius Biochemical Oxygen Demand

POND MONITORING

The Discharger shall monitor all wastewater ponds as follows:

Constituent/Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Freeboard[1]	Feet	Measurement	Weekly	Monthly
Dissolved Oxygen[2]	mg/l	Grab	Weekly	Monthly
pH	pH units	Grab	Weekly	Monthly

[1] Freeboard monitoring shall be performed at Pond 4 only.
[2] Samples shall be collected at a depth of one foot from each pond in use. Samples shall be collected between 0700 and 0900 hours.

EFFLUENT MONITORING

The Discharger shall collect effluent samples just prior to discharge to Hay Station Ranch and the on-site spray field LAAs. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form. Effluent samples shall be representative of the volume and nature of the discharge. At a minimum, effluent monitoring shall consist of the following:

Constituent/Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Rainfall	Inches	Cumulative	Daily	Monthly
Volume Discharged to Ironstone Vineyards	Gallons	Cumulative	Daily	Monthly
Total Coliform Organisms[1]	MPN/ 100 ml	Grab	Daily	Monthly
BOD[2]	mg/l	Grab	Weekly	Monthly
Total Dissolved Solids	mg/l	Grab	Weekly	Monthly
Nitrate as Nitrogen	mg/l	Grab	Quarterly	Quarterly
Total Kjeldahl Nitrogen	mg/l	Grab	Quarterly	Quarterly

[1] Using a minimum of 10 tubes or two dilutions.
[2] 5-Day, 20^0 Celsius Biochemical Oxygen Demand.

POND 4 WINTER MONITORING

MSD shall collect effluent samples from Pond 4 (storage pond) during the non discharge months (December to February) to Hay Station Ranch. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form. Effluent samples should be representative of the wastewater contained in the pond. At a minimum, effluent monitoring shall consist of the following:

Constituent/Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency
BOD[1]	mg/l	Grab	Quarterly	Quarterly
Total Dissolved Solids	mg/l	Grab	Quarterly	Quarterly
Nitrates as Nitrogen	mg/l	Grab	Quarterly	Quarterly
Total Kjeldahl Nitrogen	mg/l	Grab	Quarterly	Quarterly

[1] 5 Day, 20^0 Celsius Biochemical Oxygen Demand

SPRAY FIELD LAND APPLICATION AREA MONITORING

The monitoring shall be conducted daily when the spray field LAAs are used. 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. The monthly report shall clearly states whether or not the LAAs were used during that month. Evidence of erosion, field saturation, irrigation runoff, or the presence of nuisance conditions shall be evaluated. Effluent monitoring results shall be used in calculations to determine loading rates at the LAAs. Monitoring of the LAAs shall include the following:

Constituent	Units	Sample Type	Sampling Frequency	Reporting Frequency
Wind speed	miles/hour	Meter observation	Daily	Monthly
Flow to each LAA	gpd	Meter observation	Daily	Monthly
Acreage applied	acres	Calculated	Daily	Monthly
Water application rate [1]	inches/day	Calculated	Daily	Monthly
Rainfall [2]	inches	Observation	Daily	Monthly
Total nitrogen loading rate [1]	lbs./ac/mont	Calculated	Monthly	Monthly
Tailwater runoff [3]	NA	Observation	Daily	Monthly

[1] Average calculated for each LAA.
[2] Rainfall data collected from the weather station that is nearest to the LAAs or a properly maintained on-site rain gauge.
[3] When wastewater is being applied to the land application areas, the entire application area shall be inspected **daily** to identify any equipment malfunction or other circumstance that might allow irrigation runoff to leave the area and/or create ponding conditions that violate the Waste Discharge Requirements.

GROUNDWATER MONITORING

Groundwater samples shall be collected from each groundwater monitoring well in accordance with an approved groundwater monitoring workplan. Prior to sampling or purging, equilibrated groundwater elevations shall be measured to the nearest 0.01 feet. The wells shall then be purged of at least three wetted well volumes until pH electrical conductivity, and temperature have stabilized. Samples shall be collected using standard EPA methods. Groundwater monitoring shall include, at a minimum, the following:

Constituent/Parameter	Units	Type of Sample	Sampling and Reporting Frequency
Depth to Groundwater	0.01 feet	Measurement	Quarterly
Groundwater Elevation[1]	0.01 feet	Measurement	Quarterly
pH	pH units	Grab	Quarterly
Total Dissolved Solids	mg/l	Grab	Quarterly
Nitrates as Nitrogen	mg/l	Grab	Quarterly
Total Kjeldahl Nitrogen	mg/l	Grab	Quarterly
Total Coliform Organisms[2]	MPN/100 ml	Grab	Quarterly
Standard Minerals[3]	mg/l	Grab	Annually

1 Groundwater elevations shall be determined based on depth to water measurements 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/compounds: barium, calcium, magnesium, potassium, sulfate, total alkalinity (including alkalinity series), and hardness.

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 City of Ione 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
Electrical conductivity	µmhos/cm	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

Sludge and/or biosolids samples shall be analyzed to determine the total concentration in mg/Kg for the following constituents each time sludge is removed from any pond:

Arsenic	Lead	Nickel
Cadmium	Mercury	Selenium
Copper	Molybdenum	Zinc
Total Nitrogen	Total Solids	

Sludge and/or biosolids monitoring records shall be retained for a minimum of five years in accordance with 40 CFR, Part 503.17. A log shall be kept of sludge quantities

generated and of handling, application, and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis to report sludge monitoring.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type, 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 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

Monthly reports shall be submitted to the Regional Board by 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, pond, effluent and LAA monitoring.

2. 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.

3. If requested by staff, copies of laboratory analytical report(s).

4. A calibration log verifying weekly 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 and effluent monitoring (for constituents that require quarterly sampling) 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 report is due by May 1st) each year. The Quarterly Report shall include the following:

1. Results of groundwater.

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. Results of effluent samples collected from Pond 4 during the winter months.

5. A narrative discussion of the analytical results for all media and locations monitored including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).

6. A comparison of monitoring data to the discharge specifications, groundwater limitations and effluent limitations, and explanation of any violation of those requirements.

7. Summary of data tables of historical and current water table elevations and analytical results.

8. 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.

9. Copies of laboratory analytical reports(s) for groundwater water monitoring.

C. Annual Monitoring Reports

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

1. The results from annual monitoring of the effluent, groundwater, and water supply;
2. Average dry weather influent flow for the year; the monthly average discharge flow to the Hay Station Ranch; and a comparison of these results to the influent flow limitations of the WDRs.
3. Effluent annual average total nitrogen concentration and annual total nitrogen loading rate for each LAA;

4. A digital database (Microsoft Excel) containing historic groundwater and effluent data;
5. For each compliance groundwater monitoring well, a statistical evaluation of the groundwater quality beneath the wastewater treatment facility and a comparison of the results to the groundwater limitations.
6. 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;
7. The results of sludge and/or biosolids monitoring for the calendar year, including:
    a. The amount of sludge generated that year and the amount accumulated on site at the end of the calendar year (in dry tons).
    b. For biosolids, documentation of pathogen reduction methods and vector attraction reduction methods employed, as required in 40 CFR Parts 503.17 and 503.27.
    c. A description of disposal methods, including the following information. If more than one method was used, include the amount of sludge disposed of by each method in dry tons.
        i. For landfill disposal, include: the name and location of the landfill, and the Order number of WDRs that regulate it.
        ii. For off-site land application, include: the name and location of the site, and the Order number of any WDRs that regulate it.
        iii. For incineration, include: the name and location of the incineration facility.
        iv. For off-site composting, include: the name and location of the facility, and the Order number of any WDRs that regulate it.
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 discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program;
10. A copy of the certification for each certified wastewater treatment plant operator working at the facility and a statement about whether the Dischargers are in compliance with California Code of Regulations, title 23, division 3, chapter 26;
11. A forecast of influent flows, as described in Standard Provision No. E.4; and
12. 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 Dischargers have

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 Dischargers or the Dischargers' 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: Original signed by Andrew Altevogt for
PAMELA C. CREEDON, Executive Officer

9 September 2014
(Date)