California Regional Water Quality Control Board
North Coast Region

Monitoring And Reporting Program No. R1-2004-0027

For

Forestville Water District
(formerly Forestville County Sanitation District)

Wastewater Treatment, Reclamation, And Disposal Facility

Sonoma County

WASTEWATER MONITORING

Composite samples may be taken by a proportional sampling device approved by the Executive Officer or by grab samples composited in proportion to flow. In compositing grab samples, the sampling interval shall not exceed one hour. The following shall constitute the monitoring program:

INFLUENT MONITORING

Influent samples shall be collected at a representative point preceding primary treatment.

Constituent	Units	Type of Sample	Sampling Frequency
BOD (20°C, 5-day)	mg/l	8-hr composite	monthly
Suspended Solids	mg/l	8-hr composite	monthly
Settleable Solids	ml/l	grab	monthly
Flow (Mean)	mgd	continuous	daily

EFFLUENT MONITORING

Samples shall be taken of treated disinfected effluent to demonstrate compliance with Effluent Limitations B.2 through B.9. Samples shall be collected at a point following treatment and disinfection but prior to discharge to surface waters or the reclamation system. The effluent sampling point is Discharge Serial No. 001, however, the Permittee may elect to sample BOD, suspended solids, settleable solids, and pH immediately following the on-site effluent storage pond if the Permittee determines that additional treatment is provided by that pond. Use of any sampling point other than Discharge Serial No. 001 shall be noted on the Permittee's monthly self-monitoring report.

Constituent	Units	Type of Sample	Frequency
BOD (20°C, 5-day)	mg/l and lb/day	grab	weekly
Suspended Solids	mg/l and lb/day	grab	weekly
Settleable Solids	ml/l	grab	weekly
Hydrogen Ion	pH	grab	daily
Total Coliform Organisms	MPN/100 ml	grab	daily[1]

[1] Total coliform sampling shall be daily when discharging to the recycled water system. Total coliform sampling may be decreased to weekly when discharging to surface waters.

Constituent	Units	Type of Sample	Frequency
Chlorine Residual[2]	mg/l	meter	continuous[3]
Turbidity[4]	NTU	meter	continuous
Disinfection CT[5]	milligram-minutes/liter	calculation	daily
Flow (Mean and Maximum)	mgd	meter	continuous

EFFLUENT DISCHARGE MONITORING

Samples are to be taken of treated disinfected effluent discharged from the Permittee's storage ponds. Sampling stations shall be established where representative samples of the effluent can be obtained. The following shall constitute the monitoring program:

Constituent	Discharge Serial No.	Units	Type of Sample	Sampling Frequency	Analytical Method
Hydrogen Ion	001 002	pH units	grab	daily	Standard Methods[6]
Chlorine Residual[7]	002	mg/l	grab	daily	Standard Methods
Acute Toxicity[8]	002	% survival	grab	monthly	See Section Below
Chronic Toxicity	002	TUc	grab	annually	See Section Below
Nitrate Nitrogen	002, 003	mg/l	grab	monthly	Standard Methods
Dissolved Oxygen	002	mg/l	grab	monthly	Standard Methods
Temperature	002	°F or °C	grab	monthly	Standard Methods
Copper	002	ug/l	grab	monthly	EPA Method 200[9]
Lead	002	ug/l	grab	monthly	EPA Method 200[9]

[2] Chlorine residual monitoring at Discharge Serial No. 001 shall demonstrate that a chlorine residual is present after chlorination. This monitoring shall occur continuously when transferring from the treatment pond to the storage pond.

[3] Report minimum daily chlorine residual

[4] Turbidity requirements are described in detail below in Monitoring and Reporting Program section titled "Filtration Process Monitoring"

[5] Disinfection CT requirements are described in detail below in Monitoring and Reporting Program section titled "Disinfection Process Monitoring"

[6] In accordance with the current edition of Standard Methods for the Examination of Water and Wastewater (American Public Health Administration) or current test procedures specified in 40 CFR Part 136.

[7] Chlorine residual monitoring at Discharge Serial No. 002 shall demonstrate that there is no detectable chlorine during periods of discharge to Jones Creek. Samples collected to demonstrate complete dechlorination shall be collected at a point following disinfection and prior to discharge to Jones Creek. All chlorine residual measurements shall be reported as total chlorine residual.

[8] Acute toxicity shall be reported as either TUa or as Percent Survival, in accordance with General Provision J.24 of Waste Discharge Requirements Order No. R1-2004-0027.

[9] In accordance with Section 2.4 of the SIP, the Permittee shall report the ML and MDL for each sample result. The ML shall be selected from Appendix 4 of the SIP. The laboratory's current MDL shall be determined by the procedure found in 40 CFR 136 (revised as of May 14, 1999).

Constituent	Discharge Serial No.	Units	Type of Sample	Sampling Frequency	Analytical Method
Zinc[10]	002	ug/l	grab	monthly	EPA Method 200[9]
Cyanide[10]	002	ug/l	grab	monthly	EPA Method 335[9]
Chloroform	002	ug/l	grab	monthly	EPA Method 624[9]
Dichlorobromo-methane	002	ug/l	grab	monthly	EPA Method 624[9]
CTR Priority Pollutants	002	ug/l	grab	Every 5 years	Not specified[9]
Mean Daily Flow	002, 003[11], 004	mgd	continuous	daily	Not applicable

EFFLUENT ACUTE TOXICITY MONITORING

Effluent acute toxicity monitoring requirements as specified in General Provision J.24 of Waste Discharge Requirements Order No. R1-2004-0027 apply to Discharge Serial No. 002 when there is a discharge to Jones Creek.

1. Acute Toxicity Monitoring Requirements

   a. Sampling: The Permittee shall collect representative grab samples of treated effluent discharged to Discharge Serial Number 002 for acute toxicity testing as indicated below. For the 96-hour static renewal toxicity tests, grab samples collected on consecutive days are required. For the 96-hour static non-renewal test, one grab sample is required.

   b. Test Species: The Permittee shall conduct 96-hour static renewal tests with an invertebrate, the water flea, *Ceriodaphnia dubia*, and a vertebrate, the rainbow trout, *Orncorhychus mykiss*, for the first two suites of tests. After this screening period, monthly monitoring shall be conducted using the most sensitive species. The Permittee shall re-screen once with the two species listed above and continue to monitor with the most sensitive species at least once every five years.

   c. Methodology: Sample collection, handling, and preservation shall be in accordance with EPA protocols. The presence of acute toxicity shall be estimated as specified in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (U.S. EPA Report No. EPA 600/4-90-027F, 4th

[10] Effluent sampling for cyanide and zinc shall be conducted for at least one full discharge season and at the same time as receiving water sampling for cyanide and zinc. If all cyanide sampling results are less than the CTR freshwater aquatic life criterion of 5.2 ug/l, cyanide sampling will no longer be required. If all zinc sampling results are less than the CTR freshwater aquatic life criterion of 105 ug/l, zinc sampling will no longer be required.

[11] During the irrigation season, when there is no discharge to Jones Creek (Discharge Serial No. 002), mean daily influent and effluent flow may be calculated based on a totalizer reading that is not read daily.

edition or subsequent editions), or other methods approved by the Executive Officer. A concurrent reference toxicant test shall be performed for each test.

d. Dilution Series: Where the LC50 is calculated, the Permittee shall conduct tests of effluent at 100 percent, 75 percent, 50 percent, 25 percent, and 12.5 percent of its initial strength. Dilution and control waters shall be obtained from an area unaffected by the discharge in the receiving waters. Standard dilution water may be used if the above sources exhibit toxicity or if approved by the Executive Officer. Where the t-test is used instead of the LC50, the Permittee shall conduct tests using 100 percent effluent and a control.

e. Conditions for Accelerated Monitoring: The Permittee shall conduct accelerated monitoring as described in General Provision J.24(c) of Waste Discharge Requirements Order No. R1-2004-0027 in the event of the following conditions:

(1) Single sample bioassay result less than 70 percent survival
(2) Median for any three or more consecutive bioassays less than 90 percent survival

2. Acute Toxicity Reporting Requirements

a. Routine Reporting: Toxicity test results for the current reporting period shall include, at a minimum, for each test:

i. sample date(s) and location
ii. test initiation date
iii. test species
iv. end point values for each dilution, if applicable
v. NOEC value(s) in percent effluent
vi. TUa values (100/NOEC)
vii. Mean percent mortality (± s.d.) after 96 hours in 100 percent effluent, if applicable
viii. NOEC and LOEC values for reference toxicant test(s)
ix. Available water quality measurements for each test (ex. pH, DO, temperature, conductivity, hardness, salinity, ammonia)

b. Compliance Summary: The results of the acute toxicity testing shall be provided in the most recent self-monitoring report and shall include a summary table of acute toxicity data from at least three of the most recent samples. The information in the table shall include the items listed above under 2.a., item numbers (i), (iii), (v), (vi), (vii), and (viii).

EFFLUENT CHRONIC TOXICITY MONITORING

Effluent chronic toxicity monitoring requirements as specified in General Provision J.25 of Waste Discharge Requirements Order No. R1-2004-0027 apply to Discharge Serial No. 002 when there is a discharge to Jones Creek.

1. Chronic Toxicity Monitoring Requirements

   a. Sampling: The Permittee shall collect representative grab samples of treated effluent discharged to Discharge Serial Number 002 for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, grab samples collected on consecutive days are required.

   b. Test Species: Chronic toxicity shall be monitored by using critical life stage test(s) and the most sensitive test specie(s) identified by screening phase testing in General Provision J.25(b) of Waste Discharge Requirements Order No. R1-2004-0027. The use of a different test species, in lieu of conducting tests using the required test species may be considered/approved by the Executive Officer on a case-by-case basis upon submittal of the documentation supporting the Permittee's determination that a different species is more sensitive and appropriate. Two test species may be required if test data indicate that there is alternating sensitivity between the two species.

   c. Frequency: The Permittee shall collect samples of the treated effluent discharged through Discharge Serial No. 002 once during the discharge season, while discharging.

   d. Conditions for Accelerated Monitoring: The Permittee shall conduct accelerated monitoring as described in General Provision J.25 and General Provision J.27 of Waste Discharge Requirements Order No. R1-2004-0027 when either of the following conditions are exceeded:

      1. Three-sample median value of 1.0 TUc, or
      2. Single-sample maximum value of 2.0 TUc.

   e. Methodology: Sample collection, handling, and preservation shall be in accordance with EPA protocols. The test methodology used shall be in accordance with the references cited in Waste Discharge Requirements Order No. R1-2004-0027, or as approved by the Executive Officer. A concurrent reference toxicant test shall be performed for each test.

   f. Dilution Series: The Permittee shall conduct tests of effluent at 100 percent, 75 percent, 50 percent, 25 percent, and 12.5 percent of its initial strength. Dilution and control waters shall be obtained from an area unaffected by the discharge in the receiving waters. Standard dilution water may be used if the above sources exhibit toxicity or if approved by the Executive Officer.

2. Chronic Toxicity Reporting Requirements

   a. Routine Reporting: Toxicity test results for the current reporting period shall include, at a minimum, for each test:

i. sample date(s)
ii. test initiation date
iii. test species
iv. end point values for each dilution (e.g., number of young, growth rate, percent survival)
v. NOEC value(s) in percent effluent
vi. IC_{15}, IC_{25}, IC_{40}, and IC_{50} values (or EC_{15}, EC_{25}…etc.) in percent effluent
vii. TUc values (100/NOEC, 100/IC_{25}, 100/ EC_{25})
viii. Mean percent mortality (±s.d.) after 96 hours in 100 percent effluent (if applicable)
ix. NOEC and LOEC values for reference toxicant test(s)
x. IC_{50} or EC_{50} value(s) for reference toxicant test(s)
xi. Available water quality measurements for each test (ex. pH, DO, temperature, conductivity, hardness, salinity, ammonia)

b. Compliance Summary: The results of the chronic toxicity testing shall be provided in the most recent self–monitoring report and shall include a summary table of chronic toxicity data from at least three of the most recent samples. The information in the table shall include the items listed above under 2.a., item numbers i., iii., v., vi. (IC_{25} or EC_{25}), vii., and viii..

RECEIVING WATER MONITORING

During the discharge season samples shall be collected upstream and downstream of the point of discharge at locations approved by the Executive Officer. The upstream receiving water sample shall be collected on Jones Creek, upstream of the pedestrian bridge at a location that is not influenced by the discharge. The downstream receiving water sample shall also be collected on Jones Creek downstream of the pedestrian bridge in the area influenced by the discharge. The following shall constitute the receiving water monitoring program:

Constituent	Units	Type of Sample	Sampling Frequency
BOD	mg/l	grab	monthly
Dissolved Oxygen	mg/l	grab	monthly
Hydrogen Ion	pH Units	grab	monthly
Turbidity	NTU	grab	monthly

Hardness ($CACO_3$)	mg/l	grab	monthly
Cyanide[12]	ug/l	grab	monthly
Zinc [12]	ug/l	grab	monthly
Nitrate Nitrogen	mg/l	grab	monthly
Temperature	°F or °C	grab	monthly
Stream Flow [13]	mgd	flow gage reading	daily
Dilution [14]	% of stream flow	calculation	daily
Visual Observations[15]	no units	Visual/written record	monthly

FILTRATION PROCESS MONITORING

Filtration process monitoring shall demonstrate compliance with Section G.1 of Waste Discharge Requirements Order No. R1-2004-0027 and applies to all treated wastewater flows.

1. Filtration Process Monitoring Requirements

   a. Monitoring: The filtered wastewater shall be continuously monitored for turbidity upstream of the chlorine contact chamber. The turbidity of the filter effluent shall be continuously measured and recorded. Should the continuous turbidity meter and recorder fail, grab sampling at a minimum frequency of 1.2 hours may be substituted for a period of up to 24 hours. The recorded data shall be maintained by the Permittees for at least three years. The daily maximum and 95th percentile turbidity results shall be reported on the monthly monitoring reports.

   b. Compliance: Compliance with the 95th percentile effluent turbidity limitation specified in OTHER REQUIREMENT G.1(a)(i) of Waste Discharge Requirements Order No. R1-2004-0027 shall be determined using the levels of recorded turbidity taken at intervals of no more than 1.2 hours over a 24-hour period. Exceedances of the maximum turbidity requirement referenced in OTHER REQUIREMENT G.1(a)(ii)

[12] Receiving water samples for cyanide and zinc shall be collected at the upstream receiving water monitoring station only. Receiving water sampling for cyanide and zinc shall be conducted for a minimum of one full discharge season. At least one receiving water sample for cyanide and zinc shall be collected during a period of low creek flow and at least one sample shall be collected during a period of high creek flow. If all cyanide sampling results are less than the CTR freshwater aquatic life criterion of 5.2 ug/l, cyanide sampling will no longer be required. If all zinc sampling results are less than the CTR freshwater aquatic life criterion of 105 ug/l, zinc sampling will no longer be required.

[13] During periods of discharge, stream flow shall be measured on Green Valley Creek at Iron Horse Bridge.

[14] Discharge dilution rate shall be calculated based on this flow measurement on Green Valley Creek at Iron Horse Bridge.

[15] Visual monitoring shall be conducted at Discharge Serial No. 002 and shall include, but not be limited to observations for floating materials, coloration, objectionable aquatic growths, oil and grease films, and odors. In addition, visual monitoring shall be used to determine whether the upstream receiving water sample is influenced by the discharge.

shall not be considered a violation of these waste discharge requirements if such exceedance does not exceed a duration of one minute.

c. Reporting: If the filter effluent turbidity exceeds 0.2 NTU for more than 15 minutes the Permittees shall report the incident on the monthly self-monitoring report. If the filter effluent turbidity exceeds 0.5 NTU at any time, the Permittees shall report the incident as required by General Provision J.12(g) of Order No. R1-2004-0027. The report submitted in accordance with General Provision J.12(g) shall describe the measures taken to bring the discharge into immediate compliance or to divert wastewater to temporary storage or to an upstream process unit.

DISINFECTION PROCESS MONITORING

Disinfection process monitoring shall demonstrate compliance with Section G.2 of Waste Discharge Requirements Order No. R1-2004-0027 and applies to all treated wastewater flows.

1. Disinfection Process Monitoring Requirements.

   a. Monitoring: The chlorine residual of the effluent of the chlorine contact chamber shall be monitored continuously at a point prior to dechlorination, and recorded.

   b. Tracer Study: For purposes of calculating and demonstrating compliance with the CT requirement, the Permittees shall complete tracer studies under four different flow rates (the maximum, the minimum, and two points in between) to determine the respective modal contact time of the chlorine contact chamber. The studies shall follow the protocol outlined in *Tracer Studies in Water Treatment Facilities: A Protocol and Case Studies* published by the American Water Works Association Research Foundation. A curve of flow rate versus modal contact time, based on study results, shall be used for estimating the modal contact time at a given flow rate, which is essential for the CT calculation. A final report on the tracer studies shall be submitted to the Department of Health Services and the Regional Water Board.

      After completion of the tracer studies, compliance with the CT requirements shall be demonstrated in accordance with the following method, or with an alternative, but equivalent, method approved by the Department of Health Services and the Regional Water Board:

   c. Compliance: Compliance with the CT requirement specified in OTHER REQUIREMENT G.2 of Order No. R1-2004-0027 shall be determined as follows:

      Each day, the Permittee shall calculate the CT values for the following conditions:

1. Modal contact time under highest daily flow and corresponding chlorine residual
2. Modal contact time under lowest daily flow and corresponding chlorine residual
3. Lowest chlorine residual and corresponding modal contact time
4. Highest chlorine residual and corresponding modal contact time

The lowest calculated CT value under the aforementioned conditions shall be reported as the daily CT value on the monthly self-monitoring report.

In the interim period before completion of tracer studies, the theoretical retention time based on the volume of the chlorine contact chamber and the design flow rate shall be used as the modal contact time in the calculation of CT.

d. Reporting: If the lowest calculated CT value of the effluent from the disinfection system is less than 450 milligrams-minute per liter, then the Permittees shall report the incident as required by General Provision J.12(g) of Order No. R1-2004-0027. The report shall describe the measures taken to bring the discharge into immediate compliance or to divert wastewater to temporary storage or to an upstream treatment unit.

RECYCLED WATER AND MONITORING WELLS

Prior to completion of the AWT upgrade project, the existing groundwater monitoring wells at the recycled water use sites utilizing secondary treated effluent shall be sampled for analysis of total and fecal coliform and nitrate prior to irrigation commencing, and again at the end of the irrigation season. After completion of the AWT upgrade project and commencement of delivery of tertiary treated effluent, this groundwater monitoring will no longer be required as long as tertiary treated effluent is being delivered to the use sites.

REPORTING FOR WASTEWATER, RECEIVING WATER, CHRONIC TOXICITY MONITORING AND RECYCLED WATER

If the Permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 Code of Federal Regulations (CFR) Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the monthly and annual discharger monitoring reports.

The Permittee shall submit to the Regional Water Board reports necessary to determine compliance with effluent limitations for priority pollutants. The reports shall be prepared in accordance with sections 2.4.1 through 2.4.4 of the SIP. Compliance with effluent limitations for priority pollutants shall be determined in accordance with section 2.4.5 of the SIP.

Copies of each monthly, quarterly and annual monitoring report shall be mailed to:

North Coast Regional Water Quality Control Board
5550 Skylane Boulevard, Suite A
Santa Rosa, CA 95403

Monthly Reports

The purpose of the monthly report is to document treatment performance, effluent quality, and compliance with waste discharge requirements prescribed by Order R1-2004-0027. For each calendar month, a self-monitoring report shall be submitted to the Regional Water Board in accordance with the following:

1. The report shall be submitted by the first day of the second month following sampling.

2. *Letter of Transmittal*: Each self-monitoring report shall be submitted with a letter of transmittal. This letter shall include the following:

    a. Identification of facility: Name, address, WDID number;
    b. Date of report and monitoring period;
    c. Identification of all violations of discharge prohibitions, effluent limitations or other discharge requirements found during the monitoring period;
    d. Details of the violations: parameters, magnitude, test results, frequency, and dates;
    e. The cause of the violation;
    f. Discussion of corrective actions taken or planned to resolve violations and prevent recurrence, and dates or time schedule of action implementation.
    g. Authorized signature and certification statement

3. *Compliance Evaluation Summary*: Each report shall include a compliance evaluation summary. The summary shall illustrate clearly the facility's compliance with all effluent limitations and other waste discharge and recycled water use requirements, as required. During periods of no discharge, the reports shall certify "no discharge."

4. *Results of Analyses and Observations*

    a. Tabulations of all required analyses, including parameter, sample date and time, sample station, and test result;
    b. If the Permittee monitors any pollutant more frequently than required by this Permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and report of the data submitted in the Permittee's self-monitoring report.
    c. Calculation of all effluent limitations that require averaging, taking of a median, or other calculation.

Recycled Water Reports

Quarterly. The Permittee shall submit a quarterly recycled water users' summary report, containing information required by Section 13523.1 (b)(4)-(6) of the California Water Code. For each quarter, a self-monitoring report shall be submitted to the Regional Water Board in accordance with the following:

1. The recycled water quarterly reports shall be submitted on March 1 (for November through January), June 1 (for February through April), September 1 (for May through July), and December 1 (for August through October). The reports shall identify all recycled water uses including irrigation and other uses (e.g., dust control). During quarters of no recycled water use, the reports shall certify "no recycled water use."

2. The quarterly recycled water reports shall contain the following information:

    a. Total volume of recycled water supplied to all recycled water users and transferred to the Graton Community Services District storage ponds for each month of the reporting period;

    b. Total number of recycled water use sites;

    c. Locations of recycled water use sites;

    d. A summary of user inspections conducted by the Permittee, including a summary of all observations of misuse of recycled water.

    e. A summary of cross-connection tests performed.

Annually: No later than May 1 of each year and prior to the commencement of the normal irrigation season, the Permittees shall submit to the Regional Water Board, a report that includes a map and tabular summary that clearly identify where recycled water will be used, the name of the recycled water user(s), and the acreage involved.

Periodically: When new users are added to the system, the Permittee shall notify the Regional Water Board of the new users in accordance with Water Recycling Provision F.5. The notice shall include the following: site location, acreage involved, County Assessor Parcel number(s), name of property owner and/or user, estimated volume of recycled water to be used, and a description of the recycled water management facilities and operations plan. If the recycled water management plan has been previously described in the Title 22 engineering report or other official document, it is appropriate to include the recycled water management facilities and operations plan by reference.

Annual Report

The Permittee shall submit an annual report to the Regional Water Board for each calendar year. The report shall be submitted by March 1st of the following year. The report shall include, at a minimum, the following:

1. Both tabular and, where appropriate, graphical summaries of the monitoring data and disposal and recycled water use records from the previous year. If the Permittee monitors any pollutant more frequently than required by this Permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and report of the data submitted in the discharger monitoring report.

2. Source control activities as required by Section I of Waste Discharge Requirements Order No. R1-2004-0027.

3. Collection system activities as required by General Provision J.16(c) of Waste Discharge Requirements Order No. R1-2004-0027.

4. A comprehensive discussion of the facility's compliance with all effluent limitations and other waste discharge and reclamation requirements, and the corrective actions taken or planned, which may be needed to bring the discharge into full compliance with the Permit.

5. Identification of contractors used for operation and maintenance of wastewater collection, treatment, reclamation, and disposal system.

Ordered by _____
Catherine E. Kuhlman
Executive Officer

October 6, 2004

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