California Regional Water Quality Control Board
North Coast Region

MONITORING AND REPORTING PROGRAM NO. R1-2004-0055

FOR

MENDOCINO CITY COMMUNITY SERVICES DISTRICT
WASTEWATER TREATMENT FACILITY

Mendocino County

INFLUENT MONITORING

Flow shall be measured continuously, and recorded daily. For influent flows, the peak daily flow and the average daily flow shall be reported. Twenty-four-hour composite samples shall be taken weekly at some point prior to discharge to the headworks. Samples may be taken by a time-proportional sampling device approved by the Regional Water Board Executive Officer (Executive Officer) or by grab samples composited in proportion to time. The sampling interval shall not exceed one hour. Samples shall be analyzed as follows:

Constituent	Units	Sample Type	Frequency
BOD_5 (20°C, 5 day)	mg/l	24-hour composite	Weekly
Suspended Solids	mg/l	24-hour composite	Weekly

EFFLUENT MONITORING FOR CONVENTIONAL POLLUTANTS

Flow shall be measured continuously, and recorded daily. For effluent flows, the peak daily flow and the average daily flow shall be reported. Twenty-four-hour composite samples shall be taken weekly at some point prior to discharge to the ocean outfall line. Samples may be taken by a time-proportional sampling device approved by the Executive Officer or by grab samples composited in proportion to time. The sampling interval shall not exceed one hour. Samples shall be analyzed as follows:

Constituent	Units	Sample Type	Frequency
Grease and Oil	mg/l	Grab	Monthly
BOD (20°C, 5 day)	mg/l	24-hour composite	Weekly
Suspended Solids	mg/l	24-hour composite	Weekly
Total Coliform	MPN/ 100 ml	Grab	Weekly
Settleable Solids	ml/l	24-hour composite	Weekly
Turbidity	NTU	24-hour composite	Weekly
pH	pH Units	Grab	Weekly

EFFLUENT MONITORING FOR TOXIC POLLUTANTS

1. Representative samples of the effluent shall be collected and analyzed for the following constituents:

Constituent	Units	Sample Type	Frequency	Analytical Method
Total Chlorine Residual[1]	mg/l	Grab	Weekly	*Standard Methods*
Ammonia (as N)	mg/l	Grab	Weekly	*Standard Methods*
Copper	µg/l	Composite	Monthly	EPA Method 200
TCDD Equivalents[2]	pg/l	Grab	Annually	EPA Method 1613

2. Representative samples of the effluent shall be collected and analyzed for the following constituents at least annually, except for chronic toxicity which shall be monitored at least semi-annually during the first year of the Permit:

Constituent	Units	Sample Type
chronic toxicity[3]	TUc	Grab
antimony	µg/l	24-hour composite
arsenic	µg/l	24-hour composite
beryllium	µg/l	24-hour composite
cadmium	µg/l	24-hour composite
chromium (hexavalent)[4]	µg/l	Grab
chromium III	µg/l	Grab
Cyanide	µg/l	24-hour composite
lead	µg/l	24-hour composite
nickel	µg/l	24-hour composite
selenium	µg/l	24-hour composite
silver	µg/l	24-hour composite
thallium	µg/l	24-hour composite
zinc	µg/l	24-hour composite

[1] Total chlorine residual shall be monitoring daily at a point following dechlorination and prior to discharge to the Pacific Ocean (Discharge Serial No. 001).

[2] TCDD Equivalents shall mean the sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors as shown below:

Isomer Group	Toxicity Factor
2,3,7,8-tetra CDD	1.0
2,3,7,8-penta CDD plus 2,3,4,7,8-penta CDF	0.5
2,3,7,8-hexa CDDs plus 2,3,7,8-tetra CDF plus 2,3,7,8-hexa CDFs	0.1
1,2,3,7,8-penta CDF	0.05
2,3,7,8-hepta CDD plus 2,3,7,8-hepta CDFs	0.01
octa CDD plus octa CDF	0.001

[3] Effluent chronic toxicity shall be monitored and reported in accordance with the Monitoring and Reporting Program.

[4] Permittee may report this constituent as total chromium.

3. The following constituents shall be analyzed at least once every five years. If an effluent sample has not been analyzed for these constituents prior to June 1, 2008, the permittee shall collect a twenty-four-hour composite sample during June 2008 and analyze for the constituents listed. The results of the analysis shall be submitted as part of the permit renewal application to be submitted by September 24, 2008.

Constituent	Units	Sample Type
mercury	µg/l	24-hour composite
aldrin	µg/l	24-hour composite
endosulfan[5]	µg/l	24-hour composite
endrin	µg/l	24-hour composite
HCH[6]	µg/l	24-hour composite
chlordane[7]	µg/l	24-hour composite
DDT[8]	µg/l	24-hour composite
dieldrin	µg/l	24-hour composite
heptachlor[9]	µg/l	24-hour composite
heptachlor epoxide	µg/l	24-hour composite
PCBs[10]	µg/l	24-hour composite
toxaphene	µg/l	24-hour composite
fluoranthene	µg/l	Grab
PAHs[11]	µg/l	Grab
acrolein	µg/l	Grab
acrylonitrile	µg/l	Grab
benzene	µg/l	Grab
carbon tetrachloride	µg/l	Grab
chlorobenzene	µg/l	Grab
chlorodibromomethane	µg/l	Grab
chloroform	µg/l	Grab
dichlorobenzenes[12]	µg/l	Grab
ethylbenzene	µg/l	Grab
halomethanes[13]	µg/l	Grab

[5] Endosulfan shall mean the sum of endosulfan-alpha and –beta and endosulfan sulfate

[6] HCH shall mean the sum of the alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane.

[7] Chlordane shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

[8] DDT shall mean the sum of 4,4'DDT, 2,4'DDT, 4,4'DDE, 2,4'DDE, 4,4'DDD, and 2,4'DDD.

[9] Heptachlor shall mean the sum of heptachlor and heptachlor epoxide.

[10] PCBs (polychlorinated biphenyls) shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254 and Aroclor-1260.

[11] PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene and pyrene.

[12] Dichlorobenzenes shall mean the sum of 1,2- and 1,3-dichlorobenzene.

[13] Halomethanes shall mean the sum of bromoform, bromomethane (methyl bromide), and chloromethane (methyl chloride).

Constituent	Units	Sample Type
toluene	µg/l	Grab
1,1,1-trichloroethane	µg/l	Grab
1,4-dichlorobenzene	µg/l	Grab
1,2-dichloroethane	µg/l	Grab
1,1-dichloroethylene	µg/l	Grab
dichlorobromomethane	µg/l	Grab
dichloromethane	µg/l	Grab
1,3-dichloropropene	µg/l	Grab
1,1,2,2-tetrachloroethane	µg/l	Grab
tetrachloroethylene	µg/l	Grab
trichloroethylene	µg/l	Grab
1,1,2-trichloroethane	µg/l	Grab
Vinyl chloride	µg/l	Grab
bis(2-chloroethoxy) methane	µg/l	Grab
bis(2-chloroisopropyl) ether	µg/l	Grab
di-n-butyl phthalate	µg/l	Grab
diethyl phthalate	µg/l	Grab
dimethyl phthalate	µg/l	Grab
4,6-dinitro-2-methyphenol	µg/l	Grab
2,4-dinitrophenol	µg/l	Grab
hexachlorocyclopentadiene	µg/l	Grab
nitrobenzene	µg/l	Grab
tributyltin	µg/l	24-hour composite
benzidine	µg/l	Grab
bis(2-chloroethyl) ether	µg/l	Grab
bis(2-ethylhexyl) phthalate	µg/l	Grab
3,3-dichlorobenzadine	µg/l	Grab
2,4-dinitrotoluene	µg/l	Grab
1,2-diphenylhydrazine	µg/l	Grab
hexachlorobenzene	µg/l	Grab
hexachlorobutadiene	µg/l	Grab
hexachloroethane	µg/l	Grab
isophorone	µg/l	Grab
N-nitrosodimethylamine	µg/l	Grab
N-nitrosodi-N-propylamine	µg/l	Grab
N-nitrosodiphenylamine	µg/l	Grab
2,4,6-trichlorophenol	µg/l	Grab
Phenolic Compounds (non-chlorinated)	µg/l	Grab

Constituent	Units	Sample Type
Chlorinated Phenolics	µg/l	Grab
TCDD equivalents[14]	pg/l	Grab
Radioactivity	PCi/l	24-hour composite

EFFLUENT CHRONIC TOXICITY MONITORING

The Permittee shall monitor the treated effluent discharged to Discharge Serial No. 001 using critical life stage toxicity testing and the most sensitive test species identified by screening phase testing.

1. Chronic Toxicity Monitoring Requirements.

   a. Sampling: The Permittee shall collect grab samples of treated and undiluted effluent discharged to Discharge Serial No. 001 for toxicity testing. For toxicity tests requiring renewals, grab samples collected on consecutive days are required. Sampling shall be conducted in accordance with the following tiered requirements:

      i. Routine monitoring;
      ii. Accelerate monitoring after exceeding a single sample maximum of 7.6 TUc;
      iii. Return to routine monitoring if no result from accelerated monitoring exceeds 17.9 TUc;
      iv. Develop and initiate an approved Pollution Minimization Program if monitoring confirms consistent toxicity above the trigger in "iii";
      v. Return to routine monitoring as directed by the Executive Officer.

   b. Test Species: The Permittee shall conduct critical life stage toxicity tests with the red abalone, *Haliotis rufescens* (larval development test), the topsmelt, *Atherinops affinis* (growth and survival test), and the giant kelp, *Macrocyctis pyrifera* (germination and germ-tube length test) for the first two suites of tests. After this screening period, monitoring shall be conducted using the most sensitive species. The Permittee shall re-screen once with the three species listed above and continue to monitor with the most sensitive species at least once every five years.

[14] TCDD Equivalents shall mean the sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors as shown below:

Isomer Group	Toxicity Factor
2,3,7,8-tetra CDD	1.0
2,3,7,8-penta CDD plus 2,3,4,7,8-penta CDF	0.5
2,3,7,8-hexa CDDs plus 2,3,7,8-tetra CDF plus 2,3,7,8-hexa CDFs	0.1
1,2,3,7,8-penta CDF	0.05
2,3,7,8-hepta CDD plus 2,3,7,8-hepta CDFs	0.01
octa CDD plus octa CDF	0.001

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: Routine monitoring shall consist of samples of treated effluent collected annually and analyzed for chronic toxicity. However, during the first year of this Permit, the Permittee shall collect and analyze two effluent where one sample is collected when the effluent is unaffected by storm-related inflow into the WWTF and the other sample is collected from December to April when the daily flow to the WWTF is noticeably affected by storm-related inflow.

d. Accelerated Monitoring: The Permittee shall conduct accelerated monitoring in accordance with the following:

   i. If an initial investigation indicates the source of toxicity (for instance, a temporary plant upset), then only one additional test is necessary. If the result of the additional test exceeds the trigger in 1(a)(ii), then this Section shall apply.

   ii. If the result of a routine toxicity test exceeds the trigger in 1(a)(ii), then the Permittee shall conduct two more tests, one test conducted approximately every two weeks, over a four-week period. Testing shall commence within two weeks of receipt of the sample results of the exceedance of the trigger.

   iii. The Permittee may return to routine monitoring as directed by the Executive Officer.

e. Methodology: Sample collection, handling and preservation shall be in accordance with EPA protocols. The presence of chronic toxicity shall be estimated as specified in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to West Coast Marine and Estuarine Organisms* (EPA-600/R-95/136, or subsequent editions). Results shall be based on representative samples of the treated effluent meeting test acceptability criteria. A concurrent reference toxicant test shall be performed for each test.

f. Dilution Series: The Permittee shall conduct tests of effluent at 16 percent, 8 percent, 4 percent, 2 percent, and 1 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.

g. Quality Assurance

   i. A series of at least five dilutions and a control will be tested. The series shall include consist of an appropriate dilution series.

ii. If organisms are not cultured in-house, concurrent testing with a reference toxicant shall be conducted. Where organisms are cultured in-house, monthly reference toxicant testing is sufficient. Reference toxicant tests also shall be conducted using the same test conditions as the effluent toxicity tests (e.g., same test duration, etc).

iii. If either the reference toxicant test or effluent test does not meet all test acceptability criteria as specified in the manual, then the Permittee must re-sample and re-test within 14 days or as soon as possible.

iv. Control and dilution water should be receiving water or laboratory water, as appropriate, as described in the manual. If the dilution water used is different from the culture water, a second control using culture water shall be used.

2. Chronic Toxicity Reporting Requirements.

a. Results shall be reported in TUc, where TUc = 100/NOEC[15] or 100/ICp[16] or ECp[17] (in percent effluent).

b. Routine Reporting: Test results for chronic tests shall be reported according to the chronic manual chapter on Report Preparation and the Monitoring and Reporting Program and shall be attached to the self-monitoring report. Test results shall include, at a minimum, for each test:

1. sample date(s)
2. test initiation date
3. test species
4. end point values for each dilution (e.g., number of young, growth rate, percent survival)
5. NOEC value(s) in percent effluent
6. IC_{15}, IC_{25}, IC_{40}, and IC_{50} values (or EC_{15}, EC_{25}…etc.) in percent effluent
7. TUc values (100/NOEC, 100/IC_{25}, 100/ EC_{25})

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[15] No Observed Effect Concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

[16] Inhibition Concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a non-lethal, non-quantal biological measurement, such as growth. For example, an IC25 is the estimated concentration of toxicant that would cause a 25 percent reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as U.S. EPA's Bootstrap Procedure.

[17] Effective Concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Karber. EC25 is the concentration of toxicant (in percent effluent) that causes a response in 25 percent of the test organisms.

8. Mean percent mortality (±s.d.) after 96 hours in 100 percent effluent (if applicable)
9. NOEC and LOEC[18] values for reference toxicant test(s)
10. IC_{50} or EC_{50} value(s) for reference toxicant test(s)
11. Available water quality measurements for each test (e.g., pH, DO, temperature, conductivity, hardness, salinity, ammonia)
12. Conclusions regarding compliance with Ocean Plan Water Quality Objectives for toxicity based on test results

c. 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 and 2.a., item numbers 1, 3, 5, 6(IC_{25} or EC_{25}), 7, and 8.

d. Notification: The Permittee shall notify the Regional Water Board in writing 15 days after the receipt of test results exceeding a trigger in 1(a)(ii) or 1(a)(iii). The notification will describe actions the Permittee have taken or will take to investigate and correct the cause(s) of toxicity. It may also include a status report on any actions required by the Permit, with a schedule for actions not yet completed. If no actions have been taken, the reasons shall be given.

RECEIVING WATER MONITORING

The Permittee shall submit a receiving water monitoring plan by March 1, 2005. The Executive officer may revise this Monitoring and Reporting Program after receipt of the plan to require monitoring for compliance with the 2001 Ocean Plan receiving water objectives and, if appropriate, to reduce monitoring for any constituents where data indicates no reasonable potential to exceed effluent or receiving water limitations.

OUTFALL INSPECTION

1. Outfall Inspection: Divers shall visually inspect the outfall structure, including the diffuser ports, at least once during the life of this permit to verify operational status of the outfall. A report documenting outfall condition and maintenance, including any observed cracks, breaks, malfunctions, and appropriate repairs, shall be submitted within 90 days of completing the inspection.

2. At least once every five years, the Permittee shall conduct a comparative evaluation of indigenous biota in the vicinity of the outfall using a qualified aquatic biologist. The biologist shall prepare a report of observations, including objectionable aquatic growths, floating particulates or grease and oil, aesthetically undesirable discoloration of the ocean

[18] Lowest Observed Effect Concentration (LOEC) is the lowest concentration of toxicant to which organisms are exposed in a test, which causes statistically significant adverse effects on the test organisms (i.e., where the values for the observed endpoints are statistically significant different from the control).

surface, color of fish or shellfish, and any evidence of degradation of indigenous biota attributable to the rate of deposition of inert solids, settleable material, nutrient materials, increased concentrations of organic materials, or increased concentrations of Ocean Plan Table B substances.

SOLIDS DISPOSAL

See **F. SOLIDS DISPOSAL AND HANDLING REQUIREMENTS** in the permit for reporting requirements.

ANALYTICAL METHODS

Suitable analytical methods are those specified in 40 CFR 136 and the current edition of *Standard Methods for the Examination of Water and Wastewater*, unless otherwise stated. Any other protocols shall be approved by the Regional Water Board prior to use.

SAMPLE REPORTING PROTOCOLS

1. The Permittee shall report with each sample result the reported Minimum Level (ML) and the Laboratory's Method Detection Limit (MDL).

2. The Permittee shall also report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

    a. Sample results greater than of equal to the reported ML shall be reported "as measured" by the laboratory (i.e., the measured chemical concentration in the sample).

    b. Sample results less than the reported ML, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified", or DNQ. The laboratory shall write the estimated chemical concentration of the sample next to DNQ as well as the words "Estimated Concentration" (may be shortened to Est. Conc.).

    c. Sample results less than the laboratory's MDL must be reported as "Not Detected", or ND.

MONTHLY REPORT

The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by Order No. R1-2004-0055. 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 so that it is received by the Regional Water Board no later than the first day of the second month following sampling.

2. *Letter of Transmittal*: Each 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 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 reclamation 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 monitor 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.

   c. Calculation of all effluent limitations that require averaging, taking of a median, or other calculation.

5. *Report Submittal*: Copies of each monitoring report shall be mailed to:

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

ANNUAL REPORT

The Permittee shall submit an annual report to the Regional Water Board for each calendar year. The report shall be submitted so that it is received by the Regional Water Board 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 reclamation records from the previous year.

2. Source control activities as required by ***G.*** **SOURCE CONTROL PROVISIONS** of Waste Discharge Requirements Order No. R1-2004-0055.

3. Collection system activities as required by General Provision H.16(d) of Waste Discharge Requirements Order No. R1-2004-0055.

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.

Ordered by _____
Catherine E. Kuhlman
Executive Officer

August 25, 2004

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