Tom Dunbar
October 3, 2003

California Regional Water Quality Control Board
North Coast Region

MONITORING AND REPORTING PROGRAM NO. R1-2003-0045

FOR

CITY OF EUREKA
GREATER EUREKA AREA, ELK RIVER WASTEWATER TREATMENT FACILITY

Humboldt County

WASTEWATER MONITORING

Influent Monitoring

Samples shall be collected at a point within the facility headworks, where all waste entering the plant is present and preceding any treatment. 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. Required analyses are outlined below.

Constituent	**Units**	**Sample Type**	**Frequency**
BOD_5	mg/l	24-hr Composite	Weekly
Suspended Solids	mg/l	24-hr Composite	Weekly
Flow	mgd	Continuous	Continuous

Wildlife Management Area Water Quality Monitoring

Representative samples of return flow to the effluent holding pond from the Wildlife Management Area shall be analyzed, whenever wastewater has been discharged to the marsh areas.

Constituent	**Units**	**Sample Type**	**Frequency**
BOD_5	mg/l	24-hr Composite	Weekly
Suspended Solids	mg/l	24-hr Composite	Weekly
Settleable Matter	ml/l	Grab	Daily
pH	std.units	Grab	Daily
Flow[1]	mgd	Continuous	Continuous

[1] Flow shall be monitored at both the discharge point to the marsh area and at the return point to the effluent holding pond.

Effluent Monitoring

Effluent samples shall be collected during discharge pumping cycles and represent final effluent that is being discharged to the outfall.

Constituent	**Units**	**Sample Type**	**Frequency**
BOD_5	mg/l	24-hr Composite	Weekly
Suspended Solids	mg/l	24-hr Composite	Weekly
Settleable Matter	ml/l	Grab	Daily
pH	std.units	Grab	Daily
Chlorine Residual[1]	mg/l	Continuous	Continuous
Chlorine Residual[2]	mg/l	Continuous	Continuous
Fecal Coliform	MPN/100ml	Grab	Twice weekly
Grease and Oil	mg/l	Grab	Monthly
Flow	mgd	Continuous	Continuous
Acute Toxicity[3]	% Survival	Grab	Quarterly
Chronic Toxicity[4]	TUc	Grab	Quarterly
Copper	ug/l	24-hr Composite	Monthly

[1] Immediately prior to dechlorination.
[2] Following dechlorination and representative of final effluent being discharged to the outfall.
[3] The rainbow trout shall be used as the test fish. The test procedure shall be from EPA's "Methods for Measuring the Acute Toxicicty of Effluents and Receiving Waters to Freshwater and Marine Organisms" Fouth Edition.
[4] Chronic toxicity testing shall be conducted in accordance wit the test procedures described below in Effluent Monitoring – Chronic Toxicity.

Effluent Monitoring – Chronic Toxicity

Critical life stage toxicity tests shall be performed to measure chronic toxicity (TUc) on a quarterly basis. A minimum of three test species with approved test protocols, from the following list, shall be used to measure compliance with the toxicity limitation. Other tests may be used, if they have been approved for such testing by the State Water Board. If possible, the test species shall include a fish, an invertebrate, and an aquatic plant. After two quarters or more, and following approval by the Regional Water Board, monitoring can be reduced to the most sensitive species. The Permittee, with approval of the Regional Water Board, has selected the red abalone for monitoring purposes. The Permittee may select an alternative species after comparative testing and approval of the Regional Water Board's Executive Officer. Dilution and control water should be obtained from an unaffected area of the receiving waters. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay test and reported with test results.

Approved Tests – Chronic Toxicity

Species	**Effect**	**Tier**[1]	**Reference**[2]
giant kelp, *Macrocystis pyrifera1*	Percent germination; germ tube length	1	a, c
red abalone, *Haliotis rufescens*	abnormal shell development	1	a, c
oyster, *Crassostrea gigas*; mussels, *Mytilus spp*.	abnormal shell development; percent survival	1	a, c
urchin, *Strongylocentrotus purpuratus*; sand dollar, D*endraster excentricus*	percent normal development	1	a, c
urchin, *Strongylocentrotus purpuratus*; sand dollar, D*endraster excentricus*	percent fertilization	1	a, c
shrimp, *Homesimysis costata*	percent survival; growth	1	a, c
shrimp, *Mysidopsis bahia*	percent survival; fecundity	2	b, d
topsmelt, *Atherinops affinis*	larval growth rate; percent survival	1	a, c
Silversides, *Menidia beryllina*	larval growth rate; percent survival	2	b, d

[1] First tier methods are preferred for compliance monitoring. If first tier organisms are not available, the Permittee can use a second tier test method following approval by the Regional Water Board.
[2] Protocol References:

a. Chapman, G.A., D.L. Denton, and J.M. Lazorchak. 1995. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms. U.S. EPA Report No. EPA/600/R-95/136.
b. Klemm, D.J., G.E. Morrison, T.J. Norberg-King, W.J. Peltier, and M.A. Heber. 1991. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Marine and Estuarine Organisms. U.S. EPA Report No. EPA-600-4-91-003.
c. SWRCB 1996. Procedures Manual for Conducting Toxicity Tests Developed by the Marine Bioassay Project. 96-1WQ.
d. Weber, C.I., W.B. Horning, I.I., D.J. Klemm, T.W. Nieheisel, P.A. Lewis, E.L. robinson, J. Menkedick and F. Kessler 9eds). 1998. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-87/028. National Information Service, Springfield, VA.

Effluent Monitoring – Priority Pollutants

Unless stated otherwise in this Monitoring and Reporting Program above, the pollutants with effluent limitations presented in Table B of Order No. R1-2003-0045 shall be monitored within one year prior to expiration of the Order. Samples for monitoring of these pollutants shall be 24-hour, flow-proportionate, composite samples collected during the dry season, and results shall be submitted as part of the permit renewal application. Laboratories analyzing these samples shall be certified by the Department of Health Services, in accordance with the provisions of Section 13176 of the California Water

Code, and must include quality assurance/quality control data with their analytical reports.

1. Priority Pollutant Analytical and Reporting Requirements
   Pollutants with effluent limitations presented in Table B of Order No. R1-2003-0045 shall be analyzed by methods specified in 40 CFR 136 or Standard Methods for the Examination of Water and Wastewater. Any other test protocols must be approved by the Executive Officer prior to use. All data must be reported uncensored with the method detection limits and either practical quantitation levels (PQLs) or Limits of quantitation (LOQs). Only data from certified laboratories will be accepted.

   Aquatic Life water quality objectives for cadmium, chromium, copper, lead, nickel, silver and zinc are based on the acid soluble fraction. Compliance with these objectives shall be determined using the total recoverable method or a method approved by the State Board's Executive Officer.

   The Permittee shall use the Minimum Level, corresponding to the method used for analysis, for reporting and compliance determination. Minimum Levels are found in Appendix II of the Ocean Plan (2001).

   Minimum Levels represent the lowest quantifiable concentration in a sample based on the proper application of method specific analytical procedures and the absence of matrix interferences. Minimum Levels also represent the lowest standard concentration in the calibration curve for a specific analytical technique after the application of appropriate method specific factors. Common analytical practices may require different treatment of the sample relative to the calibration standard.

   The Permittee shall instruct its laboratory to establish calibration standards so that the Minimum Level (or its equivalent, if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. The Permittee shall not use analytical data derived from extrapolation beyond the lowest point of the calibration curve. The Permittee's laboratory may employ a calibration standard lower than the Minimum Level appearing herein only in accordance with the discussion above.

2. Priority Pollutant Reporting Protocols (for pollutants with effluent limitations presented in Table B of Order No. R1-2003-0045, unless stated otherwise in the Order or this Monitoring and Reporting Program)

   a. The Permittee must report with each sample result the Minimum Level that corresponds to the analytical method employed, and the laboratory's current MDL.

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

i. Sample results greater than or equal to the reported Minimum Level must be reported "as measured" by the laboratory (i.e., the measured chemical concentration in the sample);

ii. Sample results less than the reported Minimum Level, but greater than or equal to the laboratory's MDL, must be reported as "detected, but not quantified" or DNQ. The laboratory must write the estimated chemical concentration of the sample next to DNQ, as well as the words "estimated concentration," which may be shortened to "est. conc."; and

iii. Sample results less than the laboratory's MDL must be reported as "not detected" or ND.

3. Priority Pollutant Compliance Determination (for pollutants with effluent limitations presented in Table B of Order No. R1-2003-0045)

a. Compliance with single constituent effluent limitations

Discharges are out of compliance with the effluent limitation, if the concentration of the pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level.

b. Compliance with effluent limitations expressed as a sum of several constituents

Discharges are out of compliance with an effluent limitation, which applies to the sum of a group of chemicals (e.g., PCBs), if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero, if the constituent is reported as ND or DNQ.

c. Multiple sample data reduction

The concentration of the pollutant in the effluent may be estimated from the result of a single sample analysis or by a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses, when all sample results are quantifiable. (i.e., greater than or equal to the reported Minimum Level). When one or more sample results are reported as ND or DNQ, the central tendency concentration of the pollutant shall be the median (middle) value of the multiple samples. If, in

an even number of samples, one or both of the middle values is ND or DNQ, the median will be the lower of the two middle values.

SLUDGE DISPOSAL

Annually, the Permittee shall submit a report detailing the volume of sludge generated at WWTP during the year, final disposal or reuse volumes and locations, and an estimate of the remaining storage capacity of the lagoons.

Annually, following the completion of sludge disposal for the year, the Permittee shall provide a report to the Regional Water Board to include, but not be limited to, the following information. The report shall be submitted to the Regional Water Board and U.S. EPA as part of the annual report.

a. The quantity of sludge, on a dry and wet basis, transported to the land application site;
b. A description of the quality of the sludge transported to the land application site;
c. A description of the location, including acreage, where the sludge was land applied;
d. Soil pH before annual sludge application;
e. Sludge application rate (in dry tons per acre), nitrogen application rate (in pounds per acre), cover crop grown, and the crop's nitrogen uptake rate.

During the winter season, the unnamed drainages that receive runoff from the land application site shall be samples two times per month and analyzed for total and fecal coliform. One of these monthly samples shall be collected during a (rain) runoff event, and the other shall be collected during a nonrunoff period.

In 2006, and at five-year intervals, a representative soil sample shall be collected from the sludge application area and analyzed for metals listed in Order No. R1-2003-0045 in **E. SOLIDS DISPOSAL AND HANDLING REQUIREMENTS** 4.d.

STORM WATER MONITORING

Visual checks shall be made once each year, prior to the wet season, to confirm that nonstorm water discharges have been eliminated from the storm drainage system. Visual checks shall be performed monthly during the wet season to evaluate the effectiveness of the Storm Water Pollution Prevention Program.

REPORTING

Monthly monitoring reports shall be submitted so that they are received by the Regional Water Board by the first day of the second month following sampling. Monitoring reports shall contain all monitoring results that were obtained during the month for which the report is prepared. Numerical data shall be tabulated and narrative reporting

statements shall be in letter form and signed by the representative of the permittee in accordance with signatory provisions of Order No. R1-2003-0045. The results of any monitoring done more frequently than required by this monitoring and reporting program shall be reported in the monthly monitoring report.

Annual reports shall be submitted prior to February 28 of each year.

A copy of the report shall be sent to the U.S EPA Regional Administrator at the following address.

Regional Administrator
U.S. Environmental Protection Agency
Region IX
Attn: WTR-7, NPDES/DMR
75 Hawthorne Street
San Francisco, CA 94105

Ordered by _____

Catherine E. Kuhlman
Executive Officer

December 3, 2003