California Regional Water Quality Control Board
North Coast Region

MONITORING AND REPORTING PROGRAM NO. R1-2001-60

FOR

McKINLEYVILLE COMMUNITY SERVICES DISTRICT
WASTEWATER TREATMENT FACILITY

Humboldt County

WASTEWATER MONITORING

Composite samples may be taken by a proportional sampling device approved by the Regional Water Board Executive Officer (Executive Officer) or by grab samples composited in proportion to flow. In compositing samples, the sampling interval shall not exceed one hour.

Daily monitoring for constituents need only be monitored on ordinary workdays when operators are scheduled to report to the treatment facility. Daily monitoring of reliability of the disinfection process must be conducted in the morning on all days that recycled water is being applied at any of the four recycling sites. The following shall constitute the wastewater monitoring program.

Influent Monitoring

Influent samples shall be collected at the treatment facility headworks and analyzed for the following constituents:

Constituent	Unit	Type of Sample	Frequency
BOD_5 (20°C,5-day)	mg/1	8-hour composite	Every two weeks
Suspended Solids	mg/1	8-hour composite	Every two weeks
Waste Flow	gpd	--	Continuous

Effluent Monitoring (SN 001)

Effluent samples shall be collected at the chlorine contact chamber weir and analyzed for the following constituents:

Constituent	Unit	Type of Sample	Frequency
BOD_5(20°C,5-day)	mg/1	grab	Every two weeks
Suspended Solids	mg/1	grab	Every two weeks
Settleable Solids	mg/1	grab	Weekly

Constituent	Unit	Type of Sample	Frequency
pH	Standards units	grab	Daily
Temperature	°C	grab	Daily
Ammonia	mg/1	grab	Daily
Chlorine Residual[1]	mg/1	grab	Daily
Chlorine Residual[2]	mg/1	grab	Daily
Total Coliform Organisms	MPN/100 ml	grab	Daily when recycling water, weekly when not recycling water
Effluent Flow	gpd	--	Continuous
Effluent Flow	gpd	--	Daily Maximum

Grab samples for ammonia, pH, and temperature shall be collected at approximately the same time.

RECEIVING WATER MONITORING

Receiving water monitoring shall be conducted when wastewater is being discharged to the Mad River. Samples shall be collected in an ambient background location upstream of the discharge and downstream in the vicinity of the discharge. Samples shall be collected monthly and shall be analyzed for temperature, pH, and dissolved oxygen.

Visual observations shall be made monthly of the receiving water upstream and downstream of the discharge for evidence of floatables (solids, liquids, foam, scum), visible films (oils, greases, waxes), aquatic growths, and discoloration. Observations shall be recorded and included in quarterly monitoring reports.

Daily flow monitoring (gpd) of receiving waters shall be conducted when wastewater effluent is being discharged to the Mad River. The flow of the receiving water shall be that flow measured at the Highway 299 overpass (USGS Gage No. 11-4810.00). Daily flows of the receiving water shall be reported in monthly monitoring reports.

ACUTE TOXICITY MONITORING

The presence of acute toxicity in the effluent shall be determined by conducting 96-hour static or static renewal tests using rainbow trout (O*ncorhynchus mykiss*) as the test species. An 8-hour composite sample of effluent shall be collected upon commencement of discharge to the Mad River and every other month thenceforth when discharge to the Mad River is occurring.

Testing procedures shall be as specified in Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms (EPA 600/4-90-027F, August 1993 or

[1] Before dechlorination.
[2] After dechlorination.

subsequent editions). The tests shall be conducted with concurrent reference toxicant tests (control samples). Both the reference toxicant and the effluent test must meet all test acceptability criteria as specified in the acute manual. If the test acceptability criteria are not achieved, then the permittee shall resample and retest within 14 days. Toxicity tests shall be conducted such that pH and temperature conditions shall be maintained the same as in the effluent at the time the test sample is collected. Ammonia, pH and temperature shall be recorded at 24-hour intervals during the test and shall be reported with the toxicity test results. If the acute toxicity effluent limitation is exceeded, the permittee shall initiate a Toxicity Reduction Evaluation (TRE) in accordance with **F. GENERAL PROVISIONS**.26. Toxicity Identification and Reduction Evaluation.

CHRONIC TOXICITY MONITORING

The presence of chronic toxicity in the effluent shall be determined by conducting 96-hour static or static renewal tests. The species used in the test shall be the following:

Species	Scientific Name	Effect	Test Duration
fathead minnow	*Pimephales promelas*	larval survival; growth	7 days
water flea	*Ceriodaphnia dubia*	survival; number of young	6 to 8 days
alga	*Selenastrum capricornutum*	growth rate	4 days

After a screening period, the test species may be reduced to the most sensitive. Test procedures are specified in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA/600/4-91-00, Third edition). Appropriate controls and concurrent reference toxicants shall be used. 8-hour composite samples shall be collected annually.

If data from routine monitoring show an exceedence of either a three-sample median[3] value of 1 TUc[4] or a single-sample maximum value of 2 TUc, then the permittee shall conduct accelerated chronic toxicity monitoring. Accelerated monitoring shall consist of monitoring at frequency of twice per year. If data from accelerated monitoring tests are found to be in compliance with the evaluation parameters, then routine monitoring shall be resumed. If data from accelerated monitoring tests are not in compliance with the evaluation parameters, the permittee shall initiate a TRE.

[3] Three-sample median: A test sample showing chronic toxicity greater than 1 TUc represents an exceedance of this parameter if one of the past two tests also show chronic toxicity greater than 1 TUc.
[4] TUc (chronic toxicity unit) equals 100/NOEL (e.g., If NOEL = 100, then toxicity = 1 TUc). NOEL (No observable effects concentration) is the maximum percent test water that causes no observable effects on a test organism.

WATER RECYCLING MONITORING

Recycled Water Use

The daily quantity of water recycled at each water recycling site shall be recorded. The dates and quantity of Type II irrigation on the upper Fisher parcel shall be recorded. If Type II irrigation is used on the upper Fisher parcel, rationale for use of Type II irrigation shall be stated in the monthly monitoring report. Climatic conditions (cloudy, sunny, foggy, rainy, wind conditions) shall be recorded daily.

During the water recycling season, daily inspection shall be conducted, unannounced, at each site where water is being recycled. Observations shall be made and recorded regarding compliance with section **D**. **WATER RECYCLING REQUIREMENTS** of Order No. R1-2001-60. Observations shall include location of recycled water use, setback distances from specified objects/areas, saturated or ponded conditions, runoff or windblown spray/mist, crop harvesting, leaky or broken pipes/sprinklers, and presence or absence of "wet" (lactating) cows on either wet or dry pastures that receive recycled water.

Daily observations shall be recorded and records maintained pursuant to **F. GENERAL PROVISION.**10. Daily water recycling quantities and a summary of daily recycling observations shall be submitted with monthly monitoring reports. Observed violations and corrective measures shall be noted in the report. Significant violations that impact or threaten to impact public health or water quality are subject to notification requirements contained in **F. GENERAL PROVISION.**12.(f)

Bluff Seepage Monitoring

Weekly observations shall be made of the Mad River bluff along the westerly edge of the upper Fisher parcel for seepage from the bluff. The location along the bluff, vertical distance from the top of the bluff, aerial extent, and estimated quantity of seepage shall be recorded. Locations of seepage along the bluff shall be indicated on a map of the Fisher parcel.

Tailwater Recovery System Monitoring

The quantity of water pumped form the tailwater recovery system shall be recorded daily.

GROUNDWATER MONITORING

Water Quality Monitoring Well Locations

Three groundwater monitoring wells have been established on the Fisher parcel, as follows (see Figure 2):

Upgradient Well (M-2) – Located at the northeasterly corner of the Fisher parcel as near as possible to the intersection of School and Fisher Roads.

Downgradient Well (M-7) – Located in the upper portion of the Fisher parcel near the top of slope (down to the lower portion of the parcel) and half way along the contour between the Lourenco residence and the westerly terminus of School Road.

Downgradient Type I Irrigation Monitoring Well (M-8) – in the flat area approximately 400 feet south west of the intersection of School and Fisher Roads.

Groundwater Quality Monitoring

The three monitoring wells described above shall be sampled one week before commencing water recycling and one month after ceasing water recycling monitoring activities. Prior to collecting a water sample from the monitoring wells, each well shall be adequately purged to remove casing and borehole water. Water samples shall be analyzed for the following constituents:

Constituent	Units
Specific Conductance	umhos/cm
Total Dissolved Solids	mg/l
pH	Standard units
Temperature	°C
Nitrate-N	mg/l
Ammonia-N	mg/l
Total N	mg/l
Total Phosphorus	mg/l
Alkalinity	mg/l
Dominant cations (Ca^{+2}, Na^{+}, K^{+}, Mg^{+2})	mg/l and meq/l
Dominant anions (Cl^{-}, SO_4^{-2}, H	mg/l and meq/l

At the time of sampling the groundwater monitoring wells, the Permittee also shall collect a grab sample of treated wastewater effluent and analyze it for the same constituents listed above. Prior to purging and sampling the groundwater monitoring wells, static groundwater elevations shall be measured in all monitoring/observation wells on the Fisher parcel.

Groundwater Gradient Monitoring

Groundwater monitoring wells or piezometers M-1 through M-13 are established as shown on Figure 2. Depth to free water surface in each well shall be measured from top

of casing on a quarterly frequency during the period that recycled water occurs on the upper Fisher Parcel.

The mean sea level elevation of the free water surface shall be calculated for each monitoring event. Groundwater gradient direction and surface slope shall be computed for each monitoring event. If calculations indicate that the groundwater gradient direction has reversed in the northerly (toward School Road) or easterly (toward Fisher Road) directions, the permittee shall notify the Regional Water Board by telephone as soon a s knowledge of the gradient reversal is known and shall follow the notification with a written report within five days. See reporting requirements in **F. GENERAL PROVISIONS.**12 (f**)** of Order R1-2001-60.

REPORTING

Monthly monitoring reports shall be submitted so that they are received by the Regional Water Board by the 1st day of the second month after the month of sampling (e.g. the report for the month of January is due March 1). 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. R1-2001-60. The results of any monitoring done more frequently than required by this monitoring and reporting program shall be reported in the monthly monitoring report.

Ordered by _____

Lee A. Michlin
Executive Officer

June 28, 2001

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