

California Regional Water Quality Control Board
North Coast Region

MONITORING AND REPORTING PROGRAM ORDER NO. R1-2002-0061

FOR

INTERIM CLOSURE
OF
CITY OF UKIAH
CLASS III LANDFILL

MENDOCINO COUNTY

The Discharger shall maintain water quality monitoring systems that are appropriate for detection, evaluation and corrective action monitoring and that comply with the provisions of Title 27, California Code of Regulations (CCR), Division 2, Subdivision 1, Chapter 3, Subchapter 3.

Compliance with this Monitoring and Reporting Program is ordered by Waste Discharge Requirements (WDRs) Order No. R1-2002-0061. Failure to comply with this Program constitutes non-compliance with the WDRs and with the California Water Code, which can result in the imposition of civil monetary liability.

A. REPORTING

The Discharger shall report monitoring data and information as required in the Monitoring and Reporting Program. Reports that do not comply with the required format shall be rejected and the Discharger shall be deemed in non-compliance with the WDRs. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernable. The data shall be summarized in a manner so as to illustrate clearly the compliance with waste discharge requirements or lack thereof. Historical and current monitoring data shall be graphed at least once annually. Graphs for the same constituent shall be plotted at the same scale to facilitate visual comparison of monitoring data. A short discussion of the monitoring results, including notations of any water quality violations, shall precede the tabular summaries.

Field and laboratory tests shall be reported in quarterly monitoring reports which shall be submitted to the Regional Water Board so that it is received by the 15th day of the month following the month in which the samples were taken. The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Regional Water Board. An annual report shall be submitted to the Regional Water Board by January 15 of each year, and which contains both tabular and graphical summaries of the monitoring data obtained during the previous sampling events, so as to show historical trends at each well.

Method detection limits and practical quantification limits shall be reported. All peaks shall be reported, including those that cannot be quantified and/or specifically identified.

B. REQUIRED MONITORING REPORTS

1. Detection Monitoring Report

Detection Monitoring Reports (DMRs) shall be prepared and submitted to the Board quarterly by the 15th day of the month following the end of each calendar quarter. The reports shall include the results of all monitoring programs listed herein. The established monitoring and reporting period is as follows:

<u>QUARTER</u>	<u>QUARTER No.</u>	<u>REPORTING DATE</u>
January, February, March	1	April 15
April, May, June	2	July 15
July, August, September	3	October 15
October, November, December	4	January 15 Annual Report date

2. Annual Report

An Annual Report, which summarizes the monitoring results for the prior four quarters, shall be submitted to the Board by January 15, annually. The report shall contain both tabular and graphical summaries of the detection and corrective action monitoring data and a discussion of the progress toward re-establishment of compliance with WDRs and the Water Quality Protection Standard (WQPS). In lieu of submitting a separate report, the Annual Report information may instead be included with the first quarter Detection Monitoring Report. The Annual Report shall also include the results of the landfill gas perimeter monitoring program.

3. Water Quality Protection Standard Report

As noted above, any changes to the Water Quality Protection Standard (WQPS) are to be included in the Annual Report.

4. Constituents-of-Concern (COC)

The results of COC monitoring shall be submitted with, or reported in, the Annual Report for that year.

5. Constituents-of-Concern (COC) 5-Year Report

The Discharger shall submit reports of the results of groundwater and surface water monitoring for the Constituents of Concern every 5 years. The COC Report may be combined with a Detection Monitoring Report or an Annual Summary Report having a Reporting Period that ends at the same time.

Each monitoring report shall include a summary and certification of completion of all Standard Observations for the WMU, for the perimeter of the landfill, and for the receiving waters. The standard observations shall be performed on a monthly basis and shall include erosion control problems, leachate seeps and discharges, impacts on surface waters, condition of cover and vegetation,

condition of drainage facilities, freeboard in leachate holding facilities, condition of sedimentation basins, condition of access roads, or other problems which could affect compliance with the Waste Discharge Requirements. The monitoring reports shall also include copies of the Discharger's inspection reports for the period in which the facility was inspected. A copy of the annual testing of the LCRS for the landfill shall also be submitted in the Annual Report.

C. REQUIRED MONITORING PROGRAMS

1. Leachate Monitoring Program

If leachate surfaces and is being discharged to surface waters, the discharger shall immediately sample the leachate and analyze the leachate for constituents listed in Table I. Also, leachate from the Leachate Collection and Removal System (LRCS) shall be monitored according to the schedule in Table I.

For COC detection, the leachate holding facility shall be sampled in the fourth quarter of 2002, or as soon thereafter as measurable leachate can be collected, for the parameters and frequencies in Table I. Those COCs that are detected shall be analyzed in leachate in the following quarter. Any COCs detected in the retest shall be included in the COC list for groundwater and surface water.

Thereafter, leachate samples for COC detection shall be collected annually as soon as measurable leachate is collected. If constituents are detected that are not already COCs, leachate shall be resampled for those constituents only in the following quarter. If the COC is detected in the retest sample it shall be added to the list of COCs in the groundwater monitoring program and the surface water monitoring program.

TABLE I ---LEACHATE MONITORING PROGRAM

Parameter	Units	Frequency
<u>Field Parameters</u>		
Total Flow	gallons	Monthly
Flow Rate	gallons/day	Monthly
Specific Conductance	µmhos/cm	Quarterly
pH	pH units	Quarterly
Temperature	degrees F	Quarterly
<u>Monitoring Parameters</u>		
Total Dissolved Solids	mg/L	Quarterly
Chlorides	mg/L	Quarterly
Nitrate-nitrogen	mg/L	Quarterly
Total Ammonia	mg/L	Quarterly
Sulfates	mg/L	Quarterly
Chemical Oxygen Demand	mg/l	Quarterly
Biological Oxygen Demand	mg/l	Quarterly
Mg, Na, Ca, K, Mn, & Bo	mg/L	Quarterly
Carbonate	mg/L	Quarterly
Bicarbonate	mg/L	Quarterly
Total Alkalinity	mg/L	Quarterly

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Volatile Organic Compounds (EPA Method 8260 w/MTBE)	µg/L	Quarterly
Total Purgeable/Extractable Petroleum Hydrocarbons	mg/L	Quarterly
<u>Constituents of Concern</u>		
Semi-Volatile Organic Compounds (EPA Method 8270)	µg/L	Every 5 Years
Organochlorine Pesticides (EPA Method 8081)	µg/L	Every 5 Years
Polychlorinated Biphenyls (PCBs) (EPA Method 8082)	µg/L	Every 5 Years
Organophosphorus Compounds (EPA Method 8141)	µg/L	Every 5 Years
Chlorophenoxy Herbicides (EPA Method 8150)	µg/L	Every 5 Years
Inorganics (Dissolved Metals-Appendix II)	mg/L	Annually
Extractable Oil and Grease	mg/L	Annually

2. Detection Monitoring Program

For each monitoring medium, all Monitoring Points assigned to detection monitoring or corrective action monitoring shall be monitored quarterly for the Monitoring Parameters listed in this program.

Groundwater sampling shall also include an accurate determination of the groundwater surface elevation and field parameters (pH, temperature, electrical conductivity} for that Monitoring Point. Groundwater elevations taken prior to purging the well and sampling for Monitoring Parameters shall be used to fulfill the groundwater gradient/direction analyses as required. For each monitored groundwater body, the Discharger shall measure the water level in each well and determine groundwater gradient and direction at least quarterly, including the times of expected highest and lowest elevations of the water level for the respective groundwater body. Groundwater elevations for monitoring wells for a given groundwater body shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater gradient and direction. This information shall be included in the quarterly monitoring reports.

Statistical or non-statistical analyses shall be performed as soon as the monitoring data are available.

3. Groundwater Monitoring

The groundwater surface elevation (in feet and hundredths, M.S.L) in all wells shall be measured on a quarterly basis and used to determine the direction of groundwater flow. This information shall be displayed on a water table contour map and/or groundwater flow net for the site and submitted with the quarterly monitoring reports.

Locations of monitoring wells are shown on Attachment B. Samples shall be collected from the wells at the frequency and for the parameters specified in Table II.

TABLE II--- GROUNDWATER MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<u>Field Parameters</u>		
Temperature	Degrees F	Quarterly
Groundwater Elevation	Feet above MSL	Quarterly
Total Well Depth (as per well construction log)	Feet	Quarterly
Total Well Depth (as per well depth-measurement)	Feet	Quarterly
Specific Conductance	µmhos/cm	Quarterly
pH	pH Units	Quarterly
Turbidity	NTUs	Quarterly
<u>Monitoring Parameters</u>		
Total Dissolved Solids	mg/L	Quarterly
Chloride	mg/L	Quarterly
Sulfates	mg/L	Quarterly
Fluoride	mg/L	Quarterly
Total-Nitrogen	mg/L	Quarterly
Total-Ammonia	mg/L	Quarterly
Mg, Na, Ca, K, Mn, & Bo	mg/L	Quarterly
Total Alkalinity	mg/L	Quarterly
pH	pH units	Quarterly
Carbonate	mg/L	Quarterly
Bicarbonate	mg/L	Quarterly
Volatile Organic Compounds (EPA Method 8260 w/ MTBE)	µg/L	Quarterly
Total Purgeable/Extractable Petroleum Hydrocarbons	mg/L	Quarterly
<u>Constituents of Concern</u>		
Semi-Volatile Organic Compounds (EPA Method 8270)	µg/L	Every 5 Years
Organochlorine Pesticides (EPA Method 8081)	µg/L	Every 5 Years
Polychlorinated Biphenyls (PCBs) (EPA Method 8082)	µg/L	Every 5 Years
Organophosphorus Compounds (EPA Method 8141)	µg/L	Every 5 Years
Chlorophenoxy Herbicides (EPA Method 8150)	µg/L	Every 5 Years
Inorganics (Dissolved Metals –Appendix II)	mg/L	Annually
Extractable Oil and Grease	mg/L	Annually

The groundwater shall be tested before or during the fourth quarter of 2002 for the entire list of COCs listed in Table II. Those COCs that are detected shall be analyzed in the spring of 2003. Any COCs detected in the retest sample shall be included in the COC list for groundwater. Thereafter, the COCs for the groundwater monitoring program shall include those COCs detected under the leachate monitoring program.

4. Surface Water Monitoring

The Discharger shall sample upstream monitoring point SW-1 and downstream at monitoring point SW-2. The Discharger shall collect surface water samples after the first storm of the rainy season that produces significant flow and quarterly thereafter when water is present. The Discharger shall collect samples from all stations and analyze at the frequency specified in Table III - Surface Water Monitoring Program. All monitoring points which are also monitoring stations

for the storm water program monitoring shall be sampled on a quarterly basis as part of the detection monitoring plan to monitor the potential for landfill impacts on surface water.

Surface water monitoring reports shall be submitted with the corresponding quarterly groundwater monitoring reports and shall include evaluation of potential impacts of the facility on surface water quality and compliance with the Water Quality Protection Standards.

TABLE III - SURFACE WATER MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<u>Field Parameters</u>		
Temperature	Degrees F	Quarterly
Specific Conductance	µmhos/cm	Quarterly
pH	pH Units	Quarterly
Dissolved Oxygen	mg/L	Quarterly
Turbidity	NTUs	Quarterly
<u>Monitoring Parameters</u>		
Total Suspended Solids	mg/L	Quarterly
Total Settleable Solids	mg/L	Quarterly
Total Dissolved Solids	mg/L	Quarterly
Turbidity	NTUs	Quarterly
Chloride	mg/L	Quarterly
Total-Nitrogen	mg/L	Quarterly
Total Ammonia	mg/L	Quarterly
Unionized Ammonia (calculated)	mg/L	Quarterly
Sulfate	mg/L	Quarterly
Chemical Oxygen Demand (COD)	mg/L	Quarterly
<u>Constituents of Concern</u>		
Semi-Volatile Organic Compounds (EPA Method 8270)	µg/L	Every 5 Years
Organochlorine Pesticides (EPA Method 8081)	µg/L	Every 5 Years
Polychlorinated Biphenyls (PCBs) (EPA Method 8082)	µg/L	Every 5 Years
Organophosphorus Compounds (EPA Method 8141)	µg/L	Every 5 Years
Chlorophenoxy Herbicides (EPA Method 8150)	µg/L	Every 5 Years
Inorganics (Dissolved Metals –Appendix II)	mg/L	Annually
Extractable Oil and Grease	mg/L	Annually

The surface water shall be tested in the fourth quarter of 2002 for the entire list of COCs listed in Table III. Those COCs that are detected shall be analyzed in the spring of 2003. Any COCs detected in the retest sample shall be included in the COC list for surface water. Thereafter the COCs for the surface water monitoring program shall include those COCs detected and any COCs detected under the leachate monitoring program.

D. WATER QUALITY PROTECTION STANDARD

The Water Quality Protection Standard consists of the following elements:

Constituents of Concern
Concentration Limits
Monitoring Points
Points of Compliance
Compliance Period

Each of these is described as follows:

1. Constituents of Concern

The Constituents of Concern (COCs) required under Section 20395 Title 27, CCR shall include all constituents listed in Tables I, II, and III (above), the Waste Discharge Requirements Order No. R1-2002-0061 and all constituents specifically listed in Appendix II, Subtitle D, 40 CFR. The Discharger shall monitor all COCs every five years, or more frequently as required under the corrective action monitoring program.

2. Concentration Limits

The Concentration Limit for any given Constituent of Concern or Monitoring Parameter in a given monitored medium (i.e., groundwater and surface water) at a landfill shall be as follows, and shall be used as the basis of comparison with data from the Monitoring Points in that monitored medium:

- a. Concentration limits for man made chemicals shall be set at method detection limits;
- b. Concentration limits for naturally occurring compounds are determined from individual well data using the statistical method listing in Groundwater Monitoring above.
- c. A concentration limit greater than background, as approved by the Regional Water Board for use during or after corrective action.

3. Monitoring Points

a. Unsaturated Zone-

The Discharger shall conduct quarterly landfill gas monitoring and submit quarterly monitoring reports for all landfill gas probes (GAS-1 through GAS-10) monitored in accordance with the Solid Waste Facilities Permit issued by the CIWMB.

b. Groundwater-

The groundwater detection monitoring points for detection monitoring shall be as follows (shown on Attachment B):

- i. Detection Monitoring Wells: MW 87-1, MW 90-1, MW 90-2, MW 90-5, MW 90-6, MW 90-7, MW 90-8, MW 92-2, MW 92-3, MW 94-1, MW 94-2, MW 96-1, MW 96-2, and MW 96-3.
 - ii. Corrective Action Monitoring Wells: MW 90-3, MW 90-4, MW 92-1, and MW 92-4.
 - iii. Points of Compliance Wells: MW87-1, MW 90-2, MW 90-3, MW 90-4, MW90-5, MW 90-7, and MW 90-8.
- c. Surface Water: SW-1 and SW-2.

Upon confirmation of an exceedence from an existing release, the Discharger shall transfer the impacted monitoring point(s) from the Detection Monitoring Program (DMP) to the Corrective Action Monitoring Program (CAMP). Upon confirmation that levels in a previously impacted monitoring point has been reduced below concentration limits, the Discharger may, with Regional Water Board staff approval, transfer that monitoring point from the CAMP to the DMP.

4. Points of Compliance

The point(s) of compliance at each groundwater monitoring point is the vertical surface located at the downgradient limit of the WMU that extends through the uppermost aquifer underlying the WMU.

5. Compliance Period

The Compliance Period is the number of years equal to the active life of the landfill and the closure and post closure maintenance period. Each time the Water Quality Protection Standard is exceeded (i.e., a release is discovered), the landfill begins a Compliance Period on the date the Regional Water Board directs the Discharger to begin an Evaluation Monitoring Program. If the Discharger's Corrective Action Program (CAP) has not achieved compliance with the Standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the landfill has been in continuous compliance for at least three consecutive years.

The Discharger shall implement the above monitoring program on the effective date of this Order.

Ordered by: _____
Susan A. Warner
Executive Officer

June 27, 2002