

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2002-0178  
FOR  
COUNTY OF KERN  
FOR  
OPERATION AND CONSTRUCTION  
BAKERSFIELD METROPOLITAN (BENA) SANITARY LANDFILL  
KERN COUNTY

Compliance with this Monitoring and Reporting Program, with Title 27, California Code of Regulations, Section 20005, et seq. (hereafter Title 27), and with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Title 27 and/or Subtitle D (27 CCR §20005 et seq. and 40 CFR 258)*, dated April 2000, is ordered by Waste Discharge Requirements Order No. R5-2002-0178.

**A. REQUIRED MONITORING REPORTS**

<u>Report</u>	<u>Due</u>
1. Groundwater Monitoring (Section D.1)	<b>See Table I</b>
2. Annual Monitoring Summary Report (Order No. R5-2002-0178, F.6.)	<b>Annually</b>
3. Unsaturated Zone Monitoring (Section D.2)	<b>See Table II</b>
4. Leachate Monitoring (Section D.3)	<b>See Table III</b>
5. Surface Water Monitoring (Section D.4)	<b>See Table IV</b>
6. Facility Monitoring (Section D.5)	<b>As necessary</b>
7. Response to a Release (Standard Provisions and Reporting Requirements)	<b>As necessary</b>

**B. REPORTING**

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in Order No. R5-2002-0178 and the Standard Provisions and Reporting Requirements. Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in

noncompliance with the waste discharge requirements. 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 discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format acceptable to the Executive Officer.

Each monitoring report shall include a compliance evaluation summary as specified in F. Reporting Requirements, of Order No. R5-2002-0178.

Field and laboratory tests shall be reported in each monitoring report. Monthly, quarterly, semiannual, and annual monitoring reports shall be submitted to the Regional Board in accordance with the following schedule for the calendar period in which samples were taken or observations made.

<u>Sampling Frequency</u>	<u>Reporting Frequency</u>	<u>Reporting Periods End</u>	<u>Report Date Due</u>
Monthly	Quarterly	Last Day of Month	<b>by Semiannual Schedule</b>
Quarterly	Quarterly	31 March	<b>31 August</b>
		30 June	<b>31 August</b>
		30 September	<b>28 February</b>
		31 December	<b>28 February</b>
Semiannually	Semiannually	30 June	<b>31 August</b>
		31 December	<b>28 February</b>
Annually	Annually	31 December	<b>30 April</b>

The Discharger shall submit an **Annual Monitoring Summary Report** to the Regional Board covering the previous monitoring year. The annual report shall contain the information specified in F. Reporting Requirements, of Order No. R5-2002-0178, and a discussion of compliance with the waste discharge requirements and the Water Quality Protection Standard.

The results of **all monitoring** conducted at the site shall reported to the Regional Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

**C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD**

## 1. **Water Quality Protection Standard Report**

For each waste management unit (Unit), the Water Quality Protection Standard shall consist of all constituents of concern, the concentration limit for each constituent of concern, the point of compliance, and all water quality monitoring points. The Executive Officer shall review and approve the Water Quality Protection Standard, or any modification thereto, for each monitored medium.

The report shall:

- a. Identify **all distinct bodies of surface and ground water** that could be affected in the event of a release from a Unit or portion of a Unit. This list shall include at least the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the facility.
- b. Include a map showing the monitoring points and background monitoring points for the surface water monitoring program, groundwater monitoring program, and the unsaturated zone monitoring program. The map shall include the point of compliance in accordance with §20405 of Title 27.
- c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).

If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of the Water Quality Protection Standard.

## 2. **Constituents of Concern**

The constituents of concern include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit. The constituents of concern for all Units at the facility are those listed in Tables I through IV for the specified monitored medium, and Table VI. The Discharger shall monitor all constituents of concern every five years, or more frequently as required in accordance with a Corrective Action Program.

**a. Monitoring Parameters**

Monitoring parameters are constituents of concern that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a Unit. The monitoring parameters for all Units are those listed in Tables I through V for the specified monitored medium.

**3. Concentration Limits**

For a naturally occurring constituent of concern, the concentration limit for each constituent of concern shall be determined as follows:

- a. By calculation in accordance with a statistical method pursuant to §20415 of Title 27; or
- b. By an alternate statistical method acceptable to the Executive Officer in accordance with §20415 of Title 27.
- c. Intra-well comparison methods shall be used at all compliance wells for all monitoring parameters that are subject to data analysis under this order.
- d. Initially, for each given monitoring parameter at a given monitoring well, the proposed background data set shall consist of all validated data from that compliance well for the previous sixteen monitoring events. Every two years, following the adoption of this Monitoring and Reporting Program, as part of the annual monitoring summary report [see 27CCR §20415(e)(14)], the Discharger shall add the newer data to the background data set for each well after validating (via a method approved by the Executive Officer) that the new data does not contain data indicating a statistically significant increase over the existing background data. The Discharger shall validate the proposed intra-well background data set as follows for each well (initially) or, subsequently, at a new well. The Discharger shall report the validated or updated background data set, for each well in the next scheduled monitoring report.
- e. For monitoring wells at Phase 2A, concentration limits shall be established using data collected prior to waste placement. The background data set shall be updated once sixteen monitoring events have occurred in accordance with 3.d above, and every two years subsequently.
- f. The initial background concentrations established for the Phase 1

monitoring wells are contained in Table VII.

**4. Point of Compliance**

The point of compliance for the water standard at each Unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit.

**5. Compliance Period**

The compliance period for each Unit shall be the number of years equal to the active life of the Unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the Unit. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program.

**D. MONITORING**

The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, in accordance with Detection Monitoring Specification E.4 and E.6 of Waste Discharge Requirements, Order No. R5-2002-0178. The detection monitoring system for a new facility or a new Unit shall be installed, operational, and, except for vadose zone monitoring devices, one year of monitoring data collected prior to the discharge of wastes. Vadose zone monitoring devices shall be sampled at least once prior to the discharge of wastes. All monitoring shall be conducted in accordance with a Sample Collection and Analysis Plan, which includes quality assurance/quality control standards, that is acceptable to the Executive Officer.

All point of compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard. All detection monitoring program groundwater monitoring wells, unsaturated zone monitoring devices, leachate, and surface water monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern as indicated and listed in Tables I through IV.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those which cannot be quantified and/or specifically identified. Metals shall be analyzed in accordance with the methods listed in Table VI.

The Discharger may, with the approval of the Executive Officer, use alternative analytical test methods, including new USEPA approved methods, provided the methods

have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program.

## **1. Groundwater**

The Discharger shall install and operate a groundwater detection monitoring system that complies with the applicable provisions of §20415 and §20420 of Title 27 in accordance with a Detection Monitoring Program approved by the Executive Officer. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

The Discharger shall determine the groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional zone of saturation monitored pursuant to this Monitoring and Reporting Program, and report the results semiannually, including the times of highest and lowest elevations of the water levels in the wells.

Hydrographs of each well shall be submitted showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually.

Groundwater samples shall be collected from the point-of-compliance wells, background wells, and any additional wells added as part of the approved groundwater monitoring system. Samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in Table I.

The monitoring parameters shall also be evaluated each reporting period with regards to the cation/anion balance, and the results shall be graphically presented using a Stiff diagram, a Piper graph, or a Schoeller plot. Samples for the constituents of concern specified in Table I shall be collected and analyzed in accordance with the methods listed in Table VI every five years.

## **2. Unsaturated Zone Monitoring**

The Discharger shall install and operate an unsaturated zone detection monitoring system that complies with the applicable provisions of §20415 and §20420 of

Title 27 in accordance with a detection monitoring plan approved by the Executive Officer. The Discharger shall collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in

the approved Sample Collection and Analysis Plan.

Unsaturated zone samples shall be collected from the monitoring devices and background monitoring devices of the approved unsaturated zone monitoring system. The collected samples shall be analyzed for the listed constituents in accordance with the methods and frequency specified in Table II. All monitoring parameters shall be graphed so as to show historical trends at each monitoring point. Samples for the constituents of concern specified in Table II shall be collected and analyzed in accordance with the methods listed in Table VI every five years.

The pan lysimeters shall be checked quarterly for liquid and monitoring shall also include the total volume of liquid removed from the system. Unsaturated zone monitoring reports shall be included with the corresponding semiannual groundwater monitoring and shall include an evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

### **3. Leachate Monitoring**

All Unit leachate collection and removal system sumps shall be inspected monthly for leachate generation. Upon detection of leachate in a previously dry leachate collection and removal system, leachate shall be sampled **within two days** and analyzed for the constituents listed in Table III. Leachate shall then be sampled and analyzed annually during the fourth quarter thereafter, with a retest during the following second quarter if constituents are detected that have not been previously detected. Leachate samples shall be collected and analyzed for the listed constituents in accordance with the methods and frequency specified in Table III. The constituents of concern list shall include all constituents listed in Table VI. The quantity of leachate pumped from each sump shall be measured and reported monthly as Leachate Flow Rate (in gallons).

Leachate which seeps to the surface from the Unit shall be sampled and analyzed for the constituents listed in Table III upon detection. The quantity of leachate shall be *estimated* and reported as Leachate Flow Rate (in gallons/day).

### **4. Surface Water Monitoring**

The Discharger shall install and operate a surface water detection monitoring system where appropriate that complies with the applicable provisions of §20415

and §20420 of Title 27 and has been approved by the Executive Officer. For all monitoring points and background monitoring points assigned to surface water detection monitoring, samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in Table IV. All surface water monitoring samples shall be collected and analyzed for the constituents of concern specified in Table IV every five years. All monitoring parameters shall be graphed so as to show historical trends at each sample location.

**5. Facility Monitoring**

**a. Facility Inspection**

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess damage to the drainage control system, groundwater monitoring equipment (including wells, etc.), and shall include the Standard Observations contained in section G.4.f. of Order No. R5-2002-0178. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. By **15 November** of each year, the Discharger shall submit an annual report describing the results of the inspection and the repair measures implemented, including photographs of the problem and the repairs.

**b. Storm Events**

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following *major storm events*. Necessary repairs shall be completed **within 30 days** of the inspection. The Discharger shall report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs.

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



MONITORING AND REPORTING PROGRAM NO. R5-2002-0178  
FOR COUNTY OF KERN  
FOR OPERATION AND CONSTRUCTION  
BAKERSFIELD METROPOLITAN (BENA) SANITARY LANDFILL  
KERN COUNTY

Ordered by: \_\_\_\_\_  
THOMAS R. PINKOS, Acting Executive Officer

\_\_\_\_\_ 18 Octobert 2002  
(Date)

REH:reh/rac

**TABLE I**  
**GROUNDWATER DETECTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>	
		<u>Phase I</u>	<u>Phase II</u>
<b>Field Parameters</b>			
Groundwater Elevation	Ft. & hundredths, M.S.L.	Quarterly	Quarterly
Temperature	OC	Quarterly	Semiannual
Electrical Conductivity	µmhos/cm	Quarterly	Semiannual
PH	pH units	Quarterly	Semiannual
Turbidity	Turbidity units	Quarterly	Semiannual
<b>Monitoring Parameters</b>			
Total Dissolved Solids (TDS)	Mg/L	Quarterly	Semiannual
Chloride	Mg/L	Quarterly	Semiannual
Carbonate	Mg/L	Quarterly	Semiannual
Bicarbonate	Mg/L	Quarterly	Semiannual
Nitrate - Nitrogen	Mg/L	Quarterly	Semiannual
Sulfate	Mg/L	Quarterly	Semiannual
Calcium	Mg/L	Quarterly	Semiannual
Magnesium	Mg/L	Quarterly	Semiannual
Potassium	Mg/L	Quarterly	Semiannual
Sodium	Mg/L	Quarterly	Semiannual
Volatile Organic Compounds (USEPA Method 8260, see Table V)	µg/L	Quarterly	Semiannual
<b>Constituents of Concern (see Table VI)</b>			
Total Organic Carbon	Mg/L	5 years	5 years
Inorganics (dissolved)	Mg/L	5 years	5 years
Volatile Organic Compounds (USEPA Method 8260, extended list)	µg/L	5 years	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270)	µg/L	5 years	5 years
Chlorophenoxy Herbicides (USEPA Method 8150)	µg/L	5 years	5 years
Organophosphorus Compounds (USEPA Method 8141)	µg/L	5 years	5 years

**TABLE II**  
**UNSATURATED ZONE DETECTION MONITORING PROGRAM**

**SOIL-PORE GAS**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Monitoring Parameters</b>		
Volatile Organic Compounds (USEPA Method TO-14)	µg/cm <sup>3</sup>	Semiannual
Methane	%	Semiannual

**PAN LYSIMETERS, SUCTION LYSIMETERS AND OTHER VADOSE ZONE MONITORING DEVICES**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Field Parameters</b>		
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
<b>Monitoring Parameters</b>		
Total Dissolved Solids (TDS)	mg/L	Semiannual
Chloride	mg/L	Semiannual
Carbonate	mg/L	Semiannual
Bicarbonate	mg/L	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual
Sulfate	mg/L	Semiannual
Calcium	mg/L	Semiannual
Magnesium	mg/L	Semiannual
Potassium	mg/L	Semiannual
Sodium	mg/L	Semiannual
Volatile Organic Compounds (USEPA Method 8260, see Table V)	µg/L	Semiannual

**Constituents of Concern (see Table VI)**

Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8150)	µg/L	5 years

**TABLE II**  
**UNSATURATED ZONE DETECTION MONITORING PROGRAM**  
**Continued**

Organophosphorus Compounds (USEPA Method 8141)	µg/L	5 years
---	------	---------

**TABLE III**  
**LEACHATE DETECTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Field Parameters</b>		
Total Flow	Gallons	Monthly
Flow Rate	Gallons/Day	Monthly
Electrical Conductivity	µmhos/cm	Monthly
pH	pH units	Monthly
<b>Monitoring Parameters</b>		
Total Dissolved Solids (TDS)	mg/L	Annually
Chloride	mg/L	Annually
Carbonate	mg/L	Annually
Bicarbonate	mg/L	Annually
Nitrate - Nitrogen	mg/L	Annually
Sulfate	mg/L	Annually
Calcium	mg/L	Annually
Magnesium	mg/L	Annually
Potassium	mg/L	Annually
Sodium	mg/L	Annually
Volatile Organic Compounds (USEPA Method 8260, see Table V)	µg/L	Annually
<b>Constituents of Concern (see Table VI)</b>		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8150)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141)	µg/L	5 years

**TABLE IV**  
**SURFACE WATER DETECTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Field Parameters</b>		
Temperature	°C	Semiannual
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
Turbidity	Turbidity units	Semiannual
<b>Monitoring Parameters</b>		
Total Dissolved Solids (TDS)	mg/L	Semiannual
Carbonate	mg/L	Semiannual
Bicarbonate	mg/L	Semiannual
Chloride	mg/L	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual
Sulfate	mg/L	Semiannual
Calcium	mg/L	Semiannual
Magnesium	mg/L	Semiannual
Potassium	mg/L	Semiannual
Sodium	mg/L	Semiannual
Volatile Organic Compounds (USEPA Method 8260, see Table V)	µg/L	Semiannual
<b>Constituents of Concern (see Table VI)</b>		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8150)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141)	µg/L	5 years

**TABLE V**  
**MONITORING PARAMETERS FOR DETECTION MONITORING**

**Surrogates for Metallic Constituents:**

pH  
Total Dissolved Solids  
Electrical Conductivity  
Chloride  
Sulfate  
Nitrate nitrogen

**Constituents included in VOC:**

**USEPA Method 8260**

Acetone  
Acrylonitrile  
Benzene  
Bromochloromethane  
Bromodichloromethane  
Bromoform (Tribromomethane)  
Carbon disulfide  
Carbon tetrachloride  
Chlorobenzene  
Chloroethane (Ethyl chloride)  
Chloroform (Trichloromethane)  
Dibromochloromethane (Chlorodibromomethane)  
1,2-Dibromo-3-chloropropane (DBCP)  
1,2-Dibromoethane (Ethylene dibromide; EDB)  
o-Dichlorobenzene (1,2-Dichlorobenzene)  
p-Dichlorobenzene (1,4-Dichlorobenzene)  
trans-1,4-Dichloro-2-butene  
Dichlorodifluoromethane (CFC-12)  
1,1-Dichloroethane (Ethylidene chloride)  
1,2-Dichloroethane (Ethylene dichloride)  
1,1 -Dichloroethylene (1,1 -Dichloroethene; Vinylidene chloride)  
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)  
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)  
1,2-Dichloropropane (Propylene dichloride)  
cis- 1,3-Dichloropropene  
trans- 1,3-Dichloropropene  
Ethylbenzene  
2-Hexanone (Methyl butyl ketone)  
Methyl bromide (Bromomethene)

**TABLE V**  
**MONITORING PARAMETERS FOR DETECTION MONITORING**

**Continued**

Methyl chloride (Chloromethane)  
Methylene bromide (Dibromomethane)  
Methylene chloride (Dichloromethane)  
Methyl ethyl ketone (MEK: 2-Butanone)  
Methyl iodide (Iodomethane)  
4-Methyl-2-pentanone (Methyl isobutylketone)  
Styrene  
1,1,1,2-Tetrachloroethane  
1,1,2,2-Tetrachloroethane  
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)  
Toluene  
1,1,1-Trichloroethane (Methylchloroform)  
1,1,2-Trichloroethane  
Trichloroethylene (Trichloroethene)  
Trichlorofluoromethane (CFC- 11)  
1,2,3-Trichloropropane  
Vinyl acetate  
Vinyl chloride  
Xylenes



**TABLE VI**  
**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

<b><u>Inorganics (dissolved):</u></b>	<b><u>USEPA Method</u></b>
Aluminum	6010
Antimony	6010
Barium	6010
Beryllium	6010
Cadmium	6010
Chromium	6010
Cobalt	6010
Copper	6010
Silver	6010
Tin	6010
Vanadium	6010
Zinc	6010
Iron	6010
Manganese	6010
Arsenic	7062
Lead	7421
Mercury	7470
Nickel	7520
Selenium	7742
Thallium	7841
Cyanide	9010
Sulfide	9030

**Volatile Organic Compounds:**

**USEPA Method 8260**

Acetone  
Acetonitrile (Methyl cyanide)  
Acrolein  
Acrylonitrile  
Allyl chloride (3-Chloropropene)  
Benzene  
Bromochloromethane (Chlorobromomethane)  
Bromodichloromethane (Dibromochloromethane)  
Bromoform (Tribromomethane)  
Carbon disulfide  
Carbon tetrachloride  
Chlorobenzene  
Chloroethane (Ethyl chloride)  
Chloroform (Trichloromethane)  
Chloroprene  
Dibromochloromethane (Chlorodibromomethane)

**TABLE VI**

**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

1,2-Dibromo-3-chloropropane (DBCP)  
1,2-Dibromoethane (Ethylene dibromide; EDB)  
o-Dichlorobenzene (1,2-Dichlorobenzene)  
m-Dichlorobenzene (1,3-Dichlorobenzene)  
p-Dichlorobenzene (1,4-Dichlorobenzene)  
trans- 1,4-Dichloro-2-butene  
Dichlorodifluoromethane (CFC 12)  
1,1 -Dichloroethane (Ethylidene chloride)  
1,2-Dichloroethane (Ethylene dichloride)  
1,1 -Dichloroethylene (1, 1-Dichloroethene; Vinylidene chloride)  
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)  
trans- 1,2-Dichloroethylene (trans- 1,2-Dichloroethene)  
1,2-Dichloropropane (Propylene dichloride)  
1,3-Dichloropropane (Trimethylene dichloride)  
2,2-Dichloropropane (Isopropylidene chloride)  
1,1 -Dichloropropene  
cis- 1,3-Dichloropropene  
trans- 1,3-Dichloropropene  
Ethylbenzene  
Ethyl methacrylate  
Hexachlorobutadiene  
2-Hexanone (Methyl butyl ketone)  
Isobutyl alcohol  
Methacrylonitrile  
Methyl bromide (Bromomethane)  
Methyl chloride (Chloromethane)  
Methyl ethyl ketone (MEK; 2-Butanone)  
Methyl iodide (Iodomethane)  
Methyl methacrylate  
4-Methyl-2-pentanone (Methyl isobutyl ketone)  
Methylene bromide (Dibromomethane)  
Methylene chloride (Dichloromethane)  
Naphthalene  
Propionitrile (Ethyl cyanide)  
Styrene  
1,1,1,2-Tetrachloroethane  
1,1,2,2-Tetrachloroethane  
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)  
Toluene  
1,2,4-Trichlorobenzene  
1,1,1 -Trichloroethane, Methylchloroform  
1,1,2-Trichloroethane  
Trichloroethylene (Trichloroethene; TCE)  
Trichlorofluoromethane (CFC- 11)

**TABLE VI**

**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

1,2,3-Trichloropropane  
Vinyl acetate  
Vinyl chloride (Chloroethene)  
Xylene (total)

**Semi-Volatile Organic Compounds:**

**USEPA Method 8270 - base, neutral, & acid extractables**

Acenaphthene  
Acenaphthylene  
Acetophenone  
2-Acetylaminofluorene (2-AAF)  
Aldrin  
4-Aminobiphenyl  
Anthracene  
Benzo[a]anthracene (Benzanthracene)  
Benzo[b]fluoranthene  
Benzo[k]fluoranthene  
Benzo[g,h,i]perylene  
Benzo[a]pyrene  
Benzyl alcohol  
Bis(2-ethylhexyl) phthalate  
alpha-BHC  
beta-BHC  
delta-BHC  
gamma-BHC (Lindane)  
Bis(2-chloroethoxy)methane  
Bis(2-chloroethyl) ether (Dichloroethyl ether)  
Bis(2-chloro-1-methylethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)  
4-Bromophenyl phenyl ether  
Butyl benzyl phthalate (Benzyl butyl phthalate)  
Chlordane  
p-Chloroaniline  
Chlorobenzilate  
p-Chloro-m-cresol (4-Chloro-3-methylphenol)  
2-Chloronaphthalene  
2-Chlorophenol  
4-Chlorophenyl phenyl ether  
Chrysene  
o-Cresol (2-methylphenol)  
m-Cresol (3-methylphenol)  
p-Cresol (4-methylphenol)  
4,4'-DDD

**TABLE VI**

**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

4,4'-DDE  
4,4'-DDT  
Diallate  
Dibenz[a,h]anthracene  
Dibenzofuran  
Di-n-butyl phthalate  
o-Dichlorobenzene (1,2-Dichlorobenzene)  
m-Dichlorobenzene (1,3-Dichlorobenzene)  
p-Dichlorobenzene (1,4-Dichlorobenzene)  
3,3'-Dichlorobenzidine  
2,4-Dichlorophenol  
2,6-Dichlorophenol  
Dieldrin  
Diethyl phthalate  
p-(Dimethylamino)azobenzene  
7,12-Dimethylbenz[a]anthracene  
3,3'-Dimethylbenzidine  
2,4-Dimethylphenol (m-Xylenol)  
Dimethyl phthalate  
m-Dinitrobenzene  
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)  
2,4-Dinitrophenol  
2,4-Dinitrotoluene  
2,6-Dinitrotoluene  
Di-n-octyl phthalate  
Diphenylamine  
Endosulfan I  
Endosulfan II  
Endosulfan sulfate  
Endrin  
Endrin aldehyde  
Ethyl methanesulfonate  
Famphur  
Fluoranthene  
Fluorene  
Heptachlor  
Heptachlor epoxide  
Hexachlorobenzene  
Hexachlorobutadiene  
Hexachlorocyclopentadiene  
Hexachloroethane  
Hexachloropropene  
Indeno(1,2,3-c,d)pyrene  
Isodrin

**TABLE VI**

**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

Isophorone  
Isosafrole  
Kepone  
Methapyrilene  
Methoxychlor  
3-Methylcholanthrene  
Methyl methanesulfonate  
2-Methylnaphthalene  
Naphthalene  
1,4-Naphthoquinone  
1-Naphthylamine  
2-Naphthylamine  
o-Nitroaniline (2-Nitroaniline)  
m-Nitroaniline (3-Nitroaniline)  
p-Nitroaniline (4-Nitroaniline)  
Nitrobenzene  
o-Nitrophenol (2-Nitrophenol)  
p-Nitrophenol (4-Nitrophenol)  
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)  
N-Nitrosodiethylamine (Diethylnitrosamine)  
N-Nitrosodimethylamine (Dimethylnitrosamine)  
N-Nitrosodiphenylamine (Diphenylnitrosamine)  
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)  
N-Nitrosomethylethylamine (Methylethylnitrosamine)  
N-Nitrosopiperidine  
N-Nitrosopyrrolidine  
5-Nitro-o-toluidine  
Pentachlorobenzene  
Pentachloronitrobenzene (PCNB)  
Pentachlorophenol  
Phenacetin  
Phenanthrene  
Phenol  
p-Phenylenediamine  
Polychlorinated biphenyls (PCBs; Aroclors)  
Pronamide  
Pyrene  
Safrole  
1,2,4,5-Tetrachlorobenzene  
2,3,4,6-Tetrachlorophenol  
o-Toluidine  
Toxaphene  
1,2,4-Trichlorobenzene  
2,4,5-Trichlorophenol

**TABLE VI**

**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

2,4,6-Trichlorophenol  
0,0,0-Triethyl phosphorothioate  
sym-Trinitrobenzene

**Chlorophenoxy Herbicides:**

**USEPA Method 8150**

2,4-D (2,4-Dichlorophenoxyacetic acid)  
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)  
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)  
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)

**Organophosphorus Compounds:**

**USEPA Method 8141**

0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)  
Dimethoate  
Disulfoton  
Methyl parathion (Parathion methyl)  
Parathion  
Phorate

**TABLE VII**

**WATER QUALITY PROTECTION STANDARD INITIAL CONCENTRATION LIMITS  
 WASTE MANAGEMENT UNIT PHASE 1**

<u>Parameter</u>	<u>Units</u>	<u>Concentration Limits</u>	
		<u>BE1-01</u>	<u>BE1-02</u>
Chloride	mg/L	14.0	41.4
Nitrate - Nitrogen	mg/L	0.9	0.9
Sulfate	mg/L	109	1310
Total Dissolved Solids	mg/L	465	5670
Aluminum	µg/L	1000*	1000*
Antimony	µg/L	6*	6*
Arsenic	µg/L	13	3.1
Barium	µg/L	44.4	21.3
Beryllium	µg/L	4*	4*
Cadmium	µg/L	5*	5*
Chromium	µg/L	50*	50*
Cobalt	µg/L	50*	50*
Copper	µg/L	228	56
Hexavalent Chromium	µg/L	6.4	10
Iron	µg/L	1043	2250
Lead	µg/L	15*	15*
Manganese	µg/L	235	1860
Mercury	µg/L	2*	7.9
Nickel	µg/L	100*	100*
Selenium	µg/L	2.3	2.4
Silver	µg/L	13*	13*
Thallium	µg/L	2.8	2.8
Tin	µg/L	PQL	PQL
Vanadium	µg/L	63*	63*
Zinc	µg/L	22	23
Carbonate	mg/L	15.4	4.9
Cyanide	mg/L	10.7	10.7
Potassium	mg/L	7.3	28.4
Sodium	mg/L	42.5	159
Sulfide	mg/L	37.1	159
Volatile Organic Constituents	µg/L	MDL	MDL
Semivolatile Organic Constituents	µg/L	MDL	MDL
Organophosphorous Constituents	µg/L	MDL	MDL
Chlorinated Herbicides	µg/L	MDL	MDL

\* Concentration limits that could not be determined statistically. Concentrations listed in “A Compilation of Water Quality Goals” have been used in these cases.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2002-0178

WASTE DISCHARGE REQUIREMENTS  
FOR  
COUNTY OF KERN  
FOR  
OPERATION AND CONSTRUCTION  
BAKERSFIELD METROPOLITAN (BENA) SANITARY LANDFILL  
KERN COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. The County of Kern (hereafter Discharger) owns and operates a municipal solid waste landfill about 17 miles east of Bakersfield and one-half mile northwest of Bena, in portions of Sections 3, 4, 9, and 10, T30S, R30E; and Section 33 and a portion of Section 34, T29S, R30E, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order
2. The 2,285-acre facility contains one existing 54-acre lined waste management unit (Phase 1) as shown in Attachment B, which is incorporated herein and made part of this Order. The facility is comprised of Assessor's Parcel Numbers (APN) 179-010-16 and 17; 179-020-02, 03, 04, 05, 38, 58, and 61; 397-050-10, 11, 12, 14, 25, 26, 27; and 397-060-07.
3. Phase 1 is comprised of four subunits referred to as Networks 1 through 4.
4. The Discharger proposes to construct a new 175-acre waste management unit (Phase 2A) for the discharge of municipal solid waste northwest of the existing unit.
5. On 22 June 1990, the Regional Board issued Order No. 90-171, in which the facility was classified as a Class III waste disposal site for the discharge of nonhazardous solid wastes in accordance with the regulations in effect when the order was issued. This Order classifies the waste management units as a Class III landfill that accepts municipal solid waste in accordance with Title 27, California Code of Regulations, §20005, et seq. (Title 27).
6. On 17 September 1993, the Regional Board adopted Order No. 93-200, amending Order No. 90-171 and implementing State Water Resources Control Board Resolution No. 93-62, Policy for Regulation of Discharges of Municipal Solid Waste.



7. On 23 June 1995, the Regional Board adopted Special Order No. 95-181 amending Order Nos. 90-171 and 93-200 and establishing a specific engineered alternative liner system for Network 4 of Phase 1.
8. The Waste Discharge Requirements need to be updated to implement the requirements of Title 27 and to provide for the construction and operation of Phase 2A.

### **SITE DESCRIPTION**

9. The landfill is located near the boundary of the San Joaquin Valley and the Sierra Nevada geomorphic provinces. The rocks beneath the facility range in age from Jurassic to Holocene and are comprised of granite, schist, and sediments that were deposited in both nonmarine and marine environments. The sedimentary deposits form a homocline that dips to the southwest. The major stratigraphic units that underlie the landfill are the Walker Formation, the Ilmon Basalt, and the Bena Gravels.
10. The measured hydraulic conductivity of the native soils underlying Phase 1 range between  $7.4 \times 10^{-6}$  and  $3.5 \times 10^{-7}$  cm/sec to a depth of 30 feet. The measured hydraulic conductivity of the native soils underlying the proposed Phase 2A range between  $1.4 \times 10^{-5}$  and  $3.5 \times 10^{-8}$  cm/sec to a depth of 35 feet.
11. The facility is in an area of known seismic activity in which active and potentially active faults exist. The Maximum Probable Earthquake is derived from an historic event of magnitude 7.7 that occurred in 1952 along the White Wolf Fault. The epicenter was located approximately 7.2 miles southeast of the site. The expected peak ground acceleration produced from this type of event is 0.35g. An aftershock of the 1952 event occurred on a fault closer to the facility with a magnitude of 6.1 and a bedrock peak horizontal ground acceleration of 0.81g. The Discharger has investigated seven faults located within the waste management facility. Two were found to be active during the Holocene, four were found to be inactive, and one was not designated as active or inactive due to insufficient information. Neither Unit is located on an active Holocene fault.
12. Land within 1,000 feet of the facility is used for livestock grazing and agriculture.
13. The facility receives an average of 7.5 inches of precipitation per year as measured at the California Department of Water Resources' Bakersfield Station. The mean evaporation is 57.48 inches per year as measured at the California Irrigation Management Information System (CIMIS) weather station #93 located near Lamont.

14. The 100-year, 24-hour precipitation event is estimated to be 3.5 inches, based on the *Kern County Hydrology Manual, 1992*.
15. The facility is not within a 100-year flood plain based on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, Community-Panel Number 060075 1045B.
16. There are 21 domestic, industrial, or agricultural groundwater supply wells within one mile of the site. No surface springs or other sources of groundwater supply have been observed.

#### **WASTE AND SITE CLASSIFICATION**

17. The Discharger proposes to continue discharging municipal solid wastes, which are defined in §20164 of Title 27.
18. The site characteristics (see Finding No. 10) do not meet the siting criteria for a new Class III landfill contained in §20260(a) and (b)(1) of Title 27. As such, the site is not suitable for operating new Units or lateral expansions of existing Units for the discharge and containment of Class III wastes as described in Finding No. 17, without the construction of additional waste containment features in accordance with §20260(b)(2) of Title 27 and State Water Resources Control Board Resolution No. 93-62.

#### **SURFACE AND GROUND WATER CONDITIONS**

19. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
20. Surface drainage flows from the northern portion of the waste management facility is toward an unnamed tributary to Caliente Creek in the Arvin-Wheeler Ridge Hydrologic Area (557.30) of the Tulare Lake Basin.
21. The surface waters in this area are referred to in the Basin Plan as part of the Valley Floor Waters. The designated beneficial uses of Valley Floor Waters, as specified in the Basin Plan, are agricultural supply, industrial service and process supply, contact and noncontact water recreation, warm fresh water habitat, wildlife habitat, preservation of rare, threatened and endangered species, and groundwater recharge.
22. The first encountered groundwater occurs in an unconfined aquifer and is about 325 to 450 feet below the native ground surface in the vicinity of Phase 1 and about 520 to

570 feet beneath the lowest proposed elevation of Phase 2A. Groundwater elevations range from 570 feet MSL to 605 feet MSL. The depth to groundwater fluctuates seasonally as much as five feet.

23. Monitoring data indicates groundwater quality has an electrical conductivity (EC) ranging between 660 and 3,600 micromhos/cm, with total dissolved solids (TDS) ranging between 500 and 2,300 mg/l.
24. The direction of groundwater flow is toward the southwest. The average groundwater gradient is approximately 0.03 feet per foot and the average groundwater velocity is 4 feet per day in the portion of the aquifer that occurs in the Bena Gravels Formation.
25. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal, agricultural, and industrial supply.

#### **DETECTION MONITORING PROGRAM**

26. The Phase 1 vadose zone detection monitoring system consists of two gas probes (BE1-16 and BE1-17); seven moisture blocks; four pan lysimeter networks, and seven suction lysimeters (BE1-08, BE1-09, BE1-11, BE1-13, BE1-14, BE1-15, BE1-18).
27. The groundwater detection monitoring system consists of four monitoring wells (BE1-01, BE1-02, BE1-04, and BE1-20). Each well has a dedicated pump for purging and sampling. BE1-04 was completed in coarse-grained alluvial deposits that overlie finer-grained sediments. From the time of its installation until 1998, BE1-04 did not contain any measurable water. Eleven feet of water was measured in the well in October 1998. By January 1999, less than one foot of water remained in BE1-04. Background groundwater data was gathered from each well using the intrawell analysis method.
28. Volatile organic compounds (VOCs) are often detected in a release from a landfill, and are the primary waste constituents detected in groundwater beneath a municipal solid waste landfill (see Finding No. 36). Since volatile organic compounds are not naturally occurring and thus have no background value, they are not amenable to the statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a Unit.
29. Sections 20415(e)(8) and (9) of Title 27 provide for the non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible detection of a release from a Unit in accordance with §20415(b)(1)(B)2.-4. of Title 27. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.

30. The Regional Board may specify a non-statistical data analysis method pursuant to Section 20080(a)(1) of Title 27. Section 13360(a)(1) of the California Water Code allows the Regional Board to specify requirements to protect underground or surface waters from leakage from a solid waste site, which includes a method to provide the best assurance of determining the earliest possible detection of a release.
31. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a Unit, this Order specifies a non-statistical method for the evaluation of monitoring data.
32. The specified non-statistical method for evaluation of monitoring data provides two criteria (or triggers) for making the determination that there has been a release of non-naturally occurring waste constituents from a Unit. The presence of two non-naturally occurring waste constituents above their respective method detection limit (MDL), or one non-naturally occurring waste constituent detected above its practical quantitation limit (PQL), indicates that a release of waste from a Unit has occurred. Following an indication of a release, verification testing will be conducted to determine whether there has been a release from the Unit, or there is a source of the detected constituents other than the landfill, or the detection was a false detection. Although the detection of one non-naturally occurring waste constituent above its MDL is sufficient to provide for the earliest possible detection of a release, the detection of two non-naturally occurring waste constituents above the MDL as a trigger is appropriate due to the higher risk of false-positive analytical results and the corresponding increase in sampling and analytical expenses from the use of one non-naturally occurring waste constituent above its MDL as a trigger.
33. The Discharger requests an opportunity to propose an alternate non-statistical method for the evaluation of monitoring data of non-naturally occurring waste constituents, and what level of detection of non-naturally occurring waste constituents would trigger an Evaluation Monitoring Program. After the proposal has been reviewed by Regional Board staff, the Regional Board will consider inclusion of the proposal, or a modification thereof, in a revision of Waste Discharge Requirements.

#### **EVALUATION MONITORING PROGRAM**

34. Groundwater monitoring conducted at Phase 1 has sporadically detected non-naturally occurring volatile organic compounds (VOCs) in samples collected from downgradient monitoring wells since 1992. The following waste constituents have been detected in trace concentrations: dichlorodifluoromethane; 1,4-dichlorobenzene; 2,6-bis (1,1-dimethylethyl)-2,5-cyclohexane; 2-fluoro-6-nitrophenol; 4,4-(methylethylidene) bisphenol; benzene; methylene chloride; bis (2-ethylhexyl) phthalate; toluene; and total

xylenes. Each of the abovementioned detections occurred as a single trace concentration detection and, therefore, did not qualify for retesting or for being considered as measurably significant evidence of a release (see Finding No. 32).

35. Measurably significant evidence of a release to groundwater consisting of trace concentrations of benzene and toluene in monitoring well BE1-02 was confirmed in June 1999.
36. Since June 1999, sporadic detections of single trace concentrations of VOCs in samples from monitoring wells BE1-01 and BE1-02 have occurred during each monitoring event. No further measurably significant evidence of a release has occurred.
37. The Discharger submitted a report contending that a source other than the waste management unit may have caused the evidence of the release. The report stated that the low detection limits used by the analytical laboratory have resulted in false positives and that some of the VOCs being detected at this time were detected before waste was placed in the Unit. The report concluded that a release to groundwater had not occurred.
38. Based on testing to date, a groundwater evaluation monitoring program is not needed in response to the release confirmed in June 1999. However, the Discharger must conduct groundwater monitoring for Phase 1 on a quarterly basis to ensure the earliest possible detection of a verifiable release of waste constituents.
39. Measurably significant evidence of a release of waste constituents from Phase 1 to the vadose zone was confirmed July 1998. Thirty volatile organic compounds were discovered in a pore water sample from lysimeter BE1-18. The compounds that were present in the sample in the greatest concentrations were 1,1-dichloroethane, acetone, methyl ethyl ketone, and toluene.
40. A vadose zone Evaluation Monitoring Program Final Report has been submitted by the Discharger and is being reviewed.
41. Section 13304(a) of the California Water Code states in part  
  
“Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board, clean up the

waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action....”

42. The release of waste constituents to the vadose zone reduces the capacity of the vadose zone to attenuate any further release and threatens to degrade the groundwater.
43. Section 13267(b)(1) of the California Water Code states:

“In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region ...shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.” The reports required pursuant to Section 13267 are necessary for the Regional Board to ascertain whether the Discharger is in compliance with this order.
44. An evaluation monitoring program is used to assess the nature and extent of a release from a Unit and to design a corrective action program in accordance with §20430 of Title 27 [Title 27, §20425(a)(2)]. In assessing the nature and extent of a release from a Unit, the Discharger is obligated to include a determination of the spatial distribution and concentration of each constituent of concern throughout the zone affected by the release [Title 27, §20425(b)]. The goals of evaluation monitoring are to determine where concentrations of constituents of concern cease to exceed their respective water quality protection standards (the zero-impact line) and to gather information for the selection of an appropriate corrective action.
45. Evaluation monitoring is required to be implemented when the detection monitoring program determines that waste constituents have been released from the Unit (see Finding No. 39) to the vadose zone or to groundwater. In the case of organic compounds which are not naturally occurring, their presence in samples from detection monitoring wells is evidence of a release from the Unit. For naturally occurring compounds and constituents, evidence of a release is based on a measurably significant increase in their concentration(s) above the upper tolerance limit established in the water quality protection standard.
46. Section 20420(k)(5) of Title 27 requires that within 90 days of determining a measurably

significant evidence of a release, a discharger shall submit to the Regional Board an amended report of waste discharge, including information specified in §20420(k)(5) of Title 27, to establish an evaluation monitoring program meeting the provisions of §20425 of Title 27.

47. Section 20420(k)(6) of Title 27 requires that within 180 days of determining a measurably significant evidence of a release, a discharger shall submit an engineering feasibility study for a corrective action program necessary to meet the requirements of §20430 of Title 27. At a minimum, the feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern.
48. Section 20425(b) of Title 27 requires a discharger to complete an evaluation of the nature and extent of a release from the Unit and to submit the assessment to the Regional Board within 90 days of establishing an evaluation monitoring program.
49. Section 20425(c) of Title 27 requires a discharger to submit an updated engineering feasibility study for corrective action pursuant to §20420(k)(6) of Title 27 based on the results of the data collected pursuant to §20425(b) and (e) of Title 27. A discharger is required to submit the updated engineering feasibility study to the Regional Board within 90 days of establishing an evaluation monitoring program.
50. Section 20425(d) of Title 27 requires a discharger to submit an amended report of waste discharge to establish a corrective action program meeting the requirements of §20430 of Title 27 to the Regional Board within 90 days of establishing an evaluation monitoring program. The proposed corrective action program is to be based on the data collected pursuant to §20425(b) of Title 27, and on the engineering feasibility study for corrective action submitted pursuant to §20425(c) of Title 27.
51. The Discharger has submitted a report of completion of an evaluation monitoring program of the vadose zone, an engineering feasibility study of corrective action options, and a proposed corrective action program, all of which are pending review by Regional Board staff. If the submitted documents are found to be inadequate, the evaluation monitoring program will be administered under a separate Order.
52. Pursuant to §13307.1 of the California Water Code, the Regional Board shall not consider cleanup or site closure proposals from the primary or active discharger, issue a closure letter, or make a determination that no further action is required with respect to a site subject to a cleanup and abatement order pursuant to Section 13304, unless all current record owners of fee title to the site of the proposed action have been notified.

53. Pursuant to §13268 of the California Water Code, if the Regional Board determines there is a failure or refusal to furnish technical or monitoring program report as required by subdivision (b) of Section 13267, or a falsification of any information provided therein, the Discharger will be guilty of a misdemeanor and may be liable civilly in accordance with subdivision §13268(b) of the California Water Code. Civil liability may be administratively imposed by the Regional Board in accordance with Article 2.5 (commencing with Section 13323) of Chapter 5 of the California Water Code for a violation of subdivision (a) in an amount which shall not exceed one thousand dollars (\$1,000) for each day in which the violation occurs.
54. Any person who fails to achieve compliance in accordance with the schedule established in an order issued pursuant to §13304 of the California Water Code may be subject to injunctive relief or may be liable civilly in an amount not to exceed the amount prescribed by law.

#### **CONSTRUCTION AND ENGINEERED ALTERNATIVE**

55. On 17 June 1993, the State Water Resources Control Board adopted Resolution No. 93-62 implementing a State Policy for the construction, monitoring, and operation of municipal solid waste landfills that is consistent with the federal municipal solid waste regulations promulgated under Title 40, Code of Federal Regulations, Part 258 (Subtitle D).
56. Resolution No. 93-62 requires the construction of a specified composite liner system at new municipal solid waste landfills, or expansion areas of existing municipal solid waste landfills, that receive wastes after 9 October 1993.
57. Resolution No. 93-62 also allows the Regional Board to consider the approval of engineered alternatives to the prescriptive standard. Section III.A.b. of Resolution No. 93-62 requires that the engineered alternative liner systems be of a composite design similar to the prescriptive standard.
58. Section 20080(b) of Title 27 allows the Regional Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with §20080(c)(1) and (2), the Discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in §20080(b), or would be impractical and would not promote attainment of applicable performance standards. The Discharger must also demonstrate that the proposed engineered alternative liner system is consistent with the performance goal addressed by



the

particular prescriptive standard, and provides protection against water quality impairment equivalent to the prescriptive standard in accordance with §20080(b)(2) of Title 27.

59. Section 13360(a)(1) of the California Water Code allows the Regional Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.
60. The liner for Networks 1-3 of Phase 1 was constructed in accordance with the Chapter 15 prescriptive standard liner design contained in the regulations that were in effect at the time of its construction (two feet of compacted clay at  $1 \times 10^{-6}$  centimeters per second); prior to the Subtitle D effective date.
61. The Discharger constructed an engineered alternative liner system for Network 4 of Phase 1 in lieu of the Subtitle D prescriptive composite liner design in accordance with Special Order No. 95-181.
62. The engineered alternative liner of Network 4 of Phase 1 consists of, in ascending order: prepared subgrade; a two-foot thick clay layer compacted to a hydraulic conductivity of  $1 \times 10^{-6}$  centimeters per second; a 80-mil thick synthetic flexible membrane of high density polyethylene (HDPE); a geotextile cushion; a geonet drainage layer; a non-woven geotextile filter layer; and a two-foot thick soil operations layer.
63. Side slope liners for Network 4 of Phase 1 were constructed of the same materials and in the same sequence and manner as the bottom liner system, with the exception of an additional non-woven geotextile below the geonet and above the 60-mil thick HDPE. The subgrade for side slopes was prepared in an appropriate manner using accepted engineering and construction methods so as to provide a surface that is smooth and free from rocks, sticks, and other debris that could damage or otherwise limit the performance of the compacted clay layer and the HDPE layer.
64. The Discharger adequately demonstrated that construction of a Subtitle D prescriptive standard liner for Network 4 of Phase 1 would be unreasonable and unnecessarily burdensome when compared to the proposed engineered alternative design. There is not an adequate clay source on-site or nearby and the cost of importing clay from off-site or mixing on-site soils with bentonite would have cost substantially more than the alternative design.
65. The leachate collection and removal system for Phase 1 contains three sumps for

monitoring and removing leachate from the waste management unit. Leachate that collects in the leachate collection and removal system is pumped into holding tanks and then transported to a wastewater treatment plant for disposal. The average leachate production for Phase 1 is 591 gallons per day.

66. Pan lysimeters were installed beneath the Phase 1 leachate collection and removal system sumps for the purposes of vadose zone monitoring. The pan lysimeters consist of: 1) an underlying 60-mil HDPE liner on a prepared subgrade below the leachate sumps and the leachate collection and removal system troughs; 2) a perforated or slotted 4-inch diameter HDPE piping encased in drainage rock; and 3) surrounded by recompacted native soils.
67. The Discharger submitted a Report of Waste Discharge requesting approval of an engineered alternative liner design for Phase 2A which will be designed, constructed, and operated to prevent migration of wastes from the Unit to adjacent natural geologic materials, groundwater, or surface water during disposal operations, closure, and the postclosure maintenance period in accordance with the criteria set forth in Title 27 for a Class III landfill, and the provisions in State Water Resources Control Board Resolution No. 93-62 for municipal solid wastes.
68. The Discharger has demonstrated that construction of a prescriptive standard liner system for Phase 2A is not feasible in accordance with Section 20080(b) of Title 27.
69. The Phase 2A engineered alternative proposed by the Discharger for the bottom liner of the Unit consists of, in ascending order: prepared subgrade, a 30-mil HDPE geomembrane liner; a geosynthetic clay liner; and a 60-mil thick HDPE geomembrane.
70. The side slope liners for Phase 2A will not include the base 30-mil HDPE layer, but otherwise are proposed to be constructed of the same materials and in the same sequence and manner as the bottom liner system, with the exception of the subgrade and the 30-mil HDPE geomembrane. The subgrade will be prepared in an appropriate manner using accepted engineering and construction methods so as to provide a surface that is smooth and free from rocks, sticks, and other debris that could damage or otherwise limit the performance of the geosynthetic clay layer and/or geomembrane, and certified in accordance with this Order and the approved CQA Plan.
71. The leachate collection and removal system proposed for Phase 2A is a dendritic system composed of six-inch diameter perforated HDPE pipes placed within a one-foot thick granular drainage layer. The Discharger's anticipated leachate production for the proposed Phase 2A leachate collection and removal system is 1,750 gallons per day.
72. A pan lysimeter will be installed beneath the liner system of Phase 2A for the purposes of

vadose zone monitoring. The pan lysimeter will consist of: 1) an underlying GCL/60-mil HDPE liner on a prepared subgrade below the leachate sump(s) and the leachate collection and removal system troughs; 2) perforated or slotted 6-inch diameter HDPE piping wrapped with a filter fabric and encased in drainage rock; and 3) an overlying geonet.

73. Construction of Phase 2A will proceed only after all applicable construction quality assurance plans have been approved by the Executive Officer.
74. Title 27 Section 20310(c) requires that a Class III landfill shall have containment structures that are capable of preventing degradation of waters of the state as a result of waste discharges to the landfill.
75. The Discharger has demonstrated that the proposed liner system meets the performance goal contained in Section 20310 of Title 27. The demonstration utilized a model to predict the performance of the proposed liner design and the fate and transport of a release of waste constituents from Phase 2A. The results of the model coupled with the favorable site conditions and the past performance of the containment systems at Phase 1, show that the proposed liner design for Phase 2A will be protective of water quality.

#### **CEQA AND OTHER CONSIDERATIONS**

76. The Kern County Board of Supervisors certified the final supplemental environmental impact report for the facility on 25 April 2000. The Kern County Waste Management Department filed a Notice of Determination on 28 April 2000 in accordance with the California Environmental Quality Act (Public Resources Code Section 21000 et seq.) and CEQA guidelines (14 CCR Section 15000 et seq.). The Regional Board considered the environmental impact report and incorporated mitigation measures from the environmental impact report into these waste discharge requirements designed to prevent potentially significant impacts to design facilities and to water quality.
77. The potential significant impacts to water quality were listed in the supplemental environmental impact report as degradation by leachate generation, landfill gas migration to groundwater, and release of waste constituents to surface waters. Potential impacts to water quality will be mitigated as the project is implemented in accordance with applicable state and federal regulations.
78. This order implements:
  - a. *The Water Quality Control Plan for the Tulare Lake Basin, Second Edition*

- b. The prescriptive standards and performance goals of Chapters 1 through 7, Subdivision 1, Division 2, Title 27, of the California Code of Regulations, effective 18 July 1997, and subsequent revisions;
- c. The prescriptive standards and performance criteria of RCRA Subtitle D, Part 258; and
- d. State Water Resources Control Board Resolution No. 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993.

### PROCEDURAL REQUIREMENTS

- 78. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.
- 79. The Regional Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
- 80. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.
- 81. Any person affected by this action of the Regional Board may petition the State Water Resources Control Board to review the action in accordance with Sections 2050 through 2068, Title 23, California Code of Regulations. The petition must be received by the State Water Resources Control Board, Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812, within 30 days of the date of issuance of this Order. Copies of the laws and regulations applicable to the filing of a petition are available on the Internet at [http://www.swrcb.ca.gov/water\\_laws/index.html](http://www.swrcb.ca.gov/water_laws/index.html) and will be provided on request.

IT IS HEREBY ORDERED that Order Nos. 90-171 and 95-181 are rescinded and Attachment 1 of Order No. 93-200 is amended to delete the Bakersfield Metropolitan Municipal Landfill (Bena), which is on line No. 56, and that the Discharger, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted hereunder, shall comply with the following:

## A. PROHIBITIONS

1. The discharge of 'hazardous waste' at this facility, except for waste that is hazardous due only to its friable asbestos content, is prohibited. The discharge of 'designated waste' at this facility is prohibited. The discharge of septage, chemical toilet waste, truck wash-down liquids and other liquid wastes for disposal at this facility are prohibited. For the purposes of this Order, the term 'hazardous waste' is as defined in Title 23, California Code of Regulations, Section 2510 et seq., and 'designated waste' is as defined in Title 27.
2. The discharge of wastes outside of a Unit or portions of a Unit specifically designed for their containment is prohibited.
3. The discharge of waste to a closed Unit is prohibited.
4. Expansion of Phase 1 is prohibited.
5. The discharged wastes shall not cause the release of pollutants, or waste constituents in a manner which could cause a condition of nuisance, degradation, contamination, or pollution of groundwater to occur, as indicated by the most appropriate statistical or nonstatistical data analysis method and retest method listed in this Order, the Monitoring and Reporting Program, or the Standard Provisions and Reporting Requirements.
6. The discharge of solid waste, liquid waste, leachate, or waste constituents shall neither cause nor contribute to any degradation, contamination, pollution, or nuisance to surface waters, ponded water, or surface water drainage courses, including, but not limited to:
  - a. floating, suspended, or deposited macroscopic particulate matter or foam;
  - b. increases in bottom deposits or aquatic growth;
  - c. an adverse change in temperature, turbidity, or apparent color beyond natural background levels;
  - d. the creation or contribution of visible, floating, suspended, or deposited oil or other products of petroleum origin; and
  - e. the introduction or increase in concentration of toxic or other contaminants/pollutants resulting in unreasonable impairment of beneficial uses of waters of the State.

7. The discharge shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the Unit if such waste constituents could migrate to waters of the State — in either the liquid or the gaseous phase — and cause a condition of nuisance, degradation, contamination, or pollution.

## **B. DISCHARGE SPECIFICATIONS**

1. Nonhazardous wastes shall only be discharged to Phase 1 or to a new Unit equipped with a composite liner containment system that meets the requirements for both liners and leachate collection and removal systems specified under D. Construction Specifications.
2. The discharge shall remain within the designated disposal area at all times.
3. The handling and disposal of friable asbestos containing wastes at this facility shall be in accordance with all applicable federal and state statutes and regulations.

## **C. FACILITY SPECIFICATIONS**

1. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order.
2. The Discharger shall immediately notify the Regional Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
3. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control, and construction.
4. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.
5. Methane and other landfill gases shall be adequately vented, removed from the Units, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.

6. Surface drainage within the waste management facility shall either be contained on-site or be discharged in accordance with applicable storm water regulations.
7. The Discharger shall maintain a *Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements* in accordance with State Water Resources Control Board Order No. 97-03-DWQ, or retain all storm water on-site.

#### **D. CONSTRUCTION SPECIFICATIONS**

1. The Discharger shall submit for Executive Officer review and approval **prior to** construction, design plans and specifications for Phase 2A that includes the following:
  - a. A Construction Quality Assurance Plan meeting the requirements of §20324 of Title 27; and
  - b. A geotechnical evaluation of the area soils, evaluating their use as the base layer; and
  - c. An unsaturated zone monitoring system, which is demonstrated to remain effective throughout the active life, closure, and post-closure maintenance periods of the Unit, which shall be installed beneath the composite liner system in accordance with §20415(d) of Title 27.
2. The liner of Phase 2A shall be constructed in accordance with the following composite liner design that has been demonstrated by the Discharger to meet the performance standards of Title 27:
  - a. An engineered alternative composite liner system that is comprised, in ascending order, of the following:
    - 1) On the side slopes:
      - a) A subgrade prepared in an appropriate manner using accepted engineering and construction methods that provides a surface that is smooth and free from rocks, sticks, and other debris that could damage or otherwise limit the performance of the liner system.
      - b) A non-woven fabric cushion layer of appropriate weight.
      - c) A nonwoven bottom geotextile, which may be part of the geosynthetic clay layer (GCL).

- d) A reinforced GCL that shall exhibit appropriate strength characteristics to accommodate stresses associated with specific landfill design parameters, with particular attention to interface and long-term creep shear.
  - e) A 60-mil thick synthetic flexible membrane of HDPE.
  - f) A geotextile cushion.
- 2) On the base:
- a) A minimum 6-inch thick engineered soil foundation layer that shall be constructed of select soil materials, in accordance with the approved construction quality assurance plan, that meet the following criteria:
    - 1. A maximum size of 1/2-inch, subrounded or rounded clasts;
    - 2. A gradation series (i.e., well-graded) that is amenable to compaction; and
    - 3. Recompact and rolled smooth to at least 90% of maximum dry density and within 2% of optimum moisture content.
  - b) A minimum 30-mil synthetic flexible membrane of HDPE, which may be part of the GCL, to serve as a redundant bentonite retention and GCL placement cushion layer.
  - c) A GCL that shall exhibit appropriate strength characteristics to accommodate stresses associated with specific landfill design parameters, with particular attention to interface and long-term creep shear.
  - d) A 60-mil thick synthetic flexible membrane of HDPE.
  - e) A geotextile cushion.
3. The Discharger may propose changes to the liner system design prior to construction, provided that approved components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed liner system results in the protection of water quality equal to or greater than the design prescribed by this Order. The proposed changes may be made following approval by the Executive Officer. Substantive changes to the design require reevaluation as an engineered alternative and approval by the Regional Board.



4. If the Discharger proposes to construct a liner system in which a GCL is placed on top of a subgrade, the subgrade for the bottom and the side slopes of the Unit shall be prepared in an appropriate manner using accepted engineering and construction methods so as to provide a smooth surface that is free from rocks, sticks, or other debris that could damage or otherwise impair the performance of the GCL.
5. The leachate collection and removal system shall be designed and operated so that there is no buildup of hydraulic head on the base or sideslope liners.
6. Construction shall proceed only after all applicable construction quality assurance plans have been approved by Executive Officer.
7. Following the completion of construction of Phase 2A, and prior to discharge onto the newly constructed liner system, the final documentation required in §20324(d)(1)(C) of Title 27 shall be submitted to the Executive Officer for review and approval. The report shall be certified by a registered civil engineer or a certified engineering geologist. It shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, and with the prescriptive standards and performance goals of Title 27.
8. A third party independent of both the Discharger and the construction contractor shall perform all of the construction quality assurance monitoring and testing during the construction of a liner system.
9. If monitoring reveals substantial or progressive increases of leachate generation above the design leachate flow volume (see Finding Nos. 66 and 72) of a Unit or portion of a Unit, such that the depth of fluid on any portion of the leachate collection and removal system (excluding the leachate removal pump sump) exceeds 30 cm, the Discharger shall immediately notify the Regional Board in writing within seven days. The notification shall include a timetable for remedial or corrective action necessary to achieve compliance with the leachate depth limitation.
10. Closure shall not proceed in the absence of closure waste discharge requirements.

#### **E. DETECTION MONITORING SPECIFICATIONS**

1. The Discharger shall submit for Executive Officer review and approval a groundwater detection monitoring program demonstrating compliance with Title 27 for Phase 2A.
2. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, and in accordance with

Monitoring and Reporting Program No. R5-2002-0178. All components of a detection monitoring system for Phase 2A, except the pan lysimeters that will be used for vadose zone monitoring, shall be installed, operated, and one year of monitoring data collected **prior to** the discharge of wastes [27 CCR §20415(e)(6)].

3. The Discharger shall provide Regional Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation, repair, or abandonment of monitoring devices. At the beginning of each sampling period, in accordance with B. Reporting in Monitoring and Reporting Program No. R5-2002-0178, a schedule shall be submitted listing anticipated sampling dates for the reporting period. The Regional Board staff will make a reasonable attempt to schedule sampling inspections to coordinate with the Discharger's anticipated schedule. The schedule is requested to allow Regional Board staff the opportunity to observe and collect samples in order to verify water quality data.
4. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, Monitoring and Reporting Program No. R5-2002-0178, and the Standard Provisions and Reporting Requirements, dated April 2000.
5. The Water Quality Protection Standard for organic compounds which are not naturally occurring and not detected in background groundwater samples, shall be taken as the detection limit of the analytical method used (i.e., US-EPA methods 8260 and 8270). The presence of non-naturally occurring organic compounds in samples above the Water Quality Protection Standard from detection monitoring wells is evidence of a release from the Unit unless the Discharger can demonstrate that the Unit is not the cause per §20420(k)(7) of Title 27.
6. The concentrations of the constituents of concern in waters passing the Point of Compliance shall not exceed the concentration limits established pursuant to Monitoring and Reporting Program No. R5-2002-0178.
7. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the Water Quality Protection Standard using procedures specified in Monitoring and Reporting Program No. R5-2002-0178 and §20415(e) of Title 27.
8. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given Reporting Period shall all be taken **within a span not to exceed 30 days**, unless the Executive Officer approves a longer time period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

9. Specific methods of collection and analysis shall be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) *Methods for the Analysis of Organics in Water and Wastewater* (USEPA 600 Series), (2) *Test Methods for Evaluating Solid Waste* (SW 846-latest edition), and (3) *Methods for Chemical Analysis of Water and Wastes* (USEPA 600/4-79-020), and in accordance with an approved Sample Collection and Analysis Plan.
10. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology shall be submitted for review and approval by the Executive Officer prior to use.
11. The **methods of analysis and the detection limits** used shall be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., “trace” or “ND”) in data from Background Monitoring Points for that medium, the analytical method having the lowest method detection limit (MDL) shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.
12. **“Trace” results** - results falling between the MDL and the practical quantitation limit (PQL) - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
13. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.
14. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with estimates of the detection limit and quantitation limit actually achieved. The **MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result**. The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent’s actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.

15. The **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, and analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.
16. **Unknown chromatographic** peaks shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.
17. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to §20415(e)(7) of Title 27 that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs for routine laboratory operating conditions that are available to the facility. The Discharger's technical report, pursuant to §20415(e)(7) of Title 27, shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, California Code of Regulations, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the method detection limit (MDL) and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or nonstatistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".
18. The Discharger may propose an alternate statistical method [to the methods listed under 27 CCR §20415(e)(8)(A-D)] in accordance with §20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer. Upon receiving written approval from the Executive Officer, alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate). The analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Regional Board staff.

19. The Discharger shall use the following nonstatistical method specified in Section E.21 for all constituents which are not amenable to the statistical tests above (i.e., less than 10% of the data from background samples that equal or exceed their respective MDL). This includes all constituents in the Monitoring Parameters and for all Constituents of Concern (COC) found in groundwater and unsaturated zone (in soil-pore liquid or -gas). Each constituent at a monitoring point shall be determined to meet this criterion based on either:
- a. The results from a single sample for that constituent, taken during that reporting period from that monitoring point; or
  - b. If more than one sample has been taken during a reporting period from a monitoring point, the results from the sample which contains the largest number of qualifying constituents shall be used.

Background for water samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point). The Discharger may propose an alternate statistical method [to the methods listed under 27 CCR §20415(e)(8)(A-D)] in accordance with §20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer.

20. The nonstatistical method shall be implemented as follows:
- a. For every compliance well, regardless of the monitoring program, the Discharger shall use this data analysis method, jointly, for all monitoring parameters and COCs that are detected in less than 10% of background samples. Any COC that triggers a discrete retest per this method shall be added to the monitoring parameter list:

Triggers — From the monitoring parameters and COC list identify each constituent in the current sample that exceeds either its respective MDL or PQL. The Discharger shall conclude that the exceedance provides a preliminary indication [or, for a retest, provide a measurably significant indication] of a change in the nature or extent of the release, at that well, if either:

- 1) The data contains two or more qualifying monitoring parameters and/or COCs that are detected in less than 10% of background samples that equal or exceed their respective MDLs; or
- 2) The data contains one qualifying monitoring parameter and/or COC that equals or exceeds its PQL.

b. Discrete Retest [27CCR §20415(e)(8)(E)]:

- 1) In the event that the Discharger concludes (pursuant to paragraph 20.a., above) that there is a preliminary indication, then the Discharger shall immediately notify Regional Board staff by phone or e-mail and, within 30 days of such indication, shall collect two new (retest) samples from the indicating compliance well.
  - 2) For any given compliance well retest sample, the Discharger shall include, in the retest analysis, only the laboratory analytical results for those constituents indicated in that well's original test. As soon as the retest data are available, the Discharger shall apply the same test [under 20.a.], to separately analyze each of the two suites of retest data at that compliance well.
  - 3) If either (or both) of the retest samples meets either (or both) of the triggers under ¶20.a., then the Discharger shall conclude that there is a measurably significant increase at that well for the constituent(s) indicated in the validating retest sample(s).
21. If the Executive Officer determines, after reviewing the submitted report, that the detected constituent(s) most likely originated from the Unit(s), the Discharger shall **immediately** implement the requirements of XI. Response To A Release, C. Release Has Been Verified, contained in the Standard Provisions and Reporting Requirements.

**F. REPORTING REQUIREMENTS**

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Regional Board office by telephone **as soon as** it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.
2. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the facility including the post closure period.

Such legible records shall show the following for each sample:

- a. Sample identification and the Monitoring point or Background Monitoring Point from which it was taken, along with the identity of the individual who obtained the sample;
  - b. Date, time, and manner of sampling;
  - c. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
  - d. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
  - e. Calculation of results; and
  - f. Results of analyses, and the MDL and PQL for each analysis.
3. A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report.
4. Each monitoring report shall include a compliance evaluation summary. The summary shall contain at least:
- a. For each Monitoring Point and Background Monitoring Point addressed by the report, a description of:
    - 1) the time of water level measurement;
    - 2) the type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;
    - 3) the method of purging (the pumping rate, the equipment and methods used to monitor field pH, temperature, and conductivity during purging, the calibration of

- the field equipment, results of the pH, temperature, conductivity, and turbidity testing, and the method of disposing of the purge water) to remove all portions of the water that was in the well bore while the sample was being taken;
- 4) the type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
  - 5) a statement that the sampling procedure was conducted in accordance with the Sampling and Analysis Plan approved by the Executive Officer.
- b. A map or aerial photograph showing the locations of observation stations, Monitoring Points, and Background Monitoring Points.
  - c. For each groundwater body, a description and graphical presentation of the gradient and direction of groundwater flow under/around the Unit, based upon water level elevations taken prior to the collection of the water quality data submitted in the report.
  - d. Laboratory statements of results of all analyses evaluating compliance with requirements.
  - e. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.
  - f. A summary and certification of completion of all **Standard Observations** for the Unit(s), for the perimeter of the Unit, and for the receiving waters. The Standard Observations shall include:
    - 1) For the Unit:
      - a) Evidence of ponded water at any point on the facility (show affected area on map);
      - b) Evidence of odors: presence or absence, characterization, source, and distance of travel from source; and
      - c) Evidence of erosion and/or of day-lighted refuse.
    - 2) Along the perimeter of the Unit:



- a) Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map);
  - b) Evidence of odors: presence or absence, characterization, source, and distance of travel from source; and
  - c) Evidence of erosion and/or of day-lighted refuse.
- 3) For receiving waters:
- a) Floating and suspended materials of waste origin: presence or absence, source, and size of affected area;
  - b) Discoloration and turbidity: description of color, source, and size of affected area;
  - c) Evidence of odors: presence or absence, characterization, source, and distance of travel from source;
  - d) Evidence of water uses: presence of water-associated wildlife;
  - e) Flow rate; and
  - f) Weather conditions: wind direction and estimated velocity, total precipitation during recent days and on the day of observation.
- g. The quantity and types of wastes discharged and the locations in the Unit where waste has been placed since submittal of the last such report.
5. The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Regional Board **within seven days**, containing at least the following information:
- a. A map showing the location(s) of seepage;
  - b. An estimate of the flow rate;
  - c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);

- d. Verification that samples have been submitted for analyses of the Constituents of Concern and Monitoring Parameters, and an estimated date that the results will be submitted to the Regional Board; and
  - e. Corrective measures underway or proposed, and corresponding time schedule.
6. The Discharger shall submit an **Annual Monitoring Summary Report** to the Regional Board covering the reporting period of the previous monitoring year. This report shall contain:
- a. All monitoring parameters and constituents of concern shall be graphed so as to show historical trends at each Monitoring Point and Background Monitoring Point, for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of record for a given Monitoring Point or Background Monitoring Point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
  - b. Unless otherwise exempted by the Executive Officer, all monitoring analytical data obtained during the previous two six-month reporting periods, shall be presented in tabular form as well as in a digital file format acceptable to the Executive Officer. The Regional Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [§20420(h)], in that this facilitates periodic review by the Regional Board.
  - c. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with these waste discharge requirements.
  - d. A map showing the area and elevations in which filling has been completed during the previous calendar year.
  - e. A written summary of the monitoring results, indicating any changes made or observed since the previous annual report.
  - f. An evaluation of the effectiveness of the leachate monitoring/control facilities.

## G. PROVISIONS

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2002-0178  
FOR COUNTY OF KERN  
FOR OPERATION AND CONSTRUCTION  
BAKERSFIELD METROPOLITAN (BENA) SANITARY LANDFILL  
KERN COUNTY

-28-

1. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
2. The Discharger shall comply with all applicable provisions of Title 27 and 40 Code of Federal Regulations Part 258 (Subtitle D) that are not specifically referred to in this Order.
3. The Discharger shall comply with Monitoring and Reporting Program No. R5-2002-0178, which is incorporated into and made part of this Order.
4. The Discharger shall comply with the applicable portions of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Title 27 and/or Subtitle D (27 CCR §20005 et seq. and 40 CFR 258 et seq.)*, dated April 2000, which are hereby incorporated into this Order.
5. All reports and transmittal letters shall be signed by persons identified below:
  - a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
  - b. For a partnership or sole proprietorship: by a general partner or the proprietor.
  - c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.
  - d. A duly authorized representative of a person designated in a, b or c above if;
    - 1) the authorization is made in writing by a person described in a, b, or c of this provision;
    - 2) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
    - 3) the written authorization is submitted to the Regional Board.
  - e. Any person signing a document under this Section shall make the following certification:

“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”

6. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.
7. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and post-closure maintenance period of the Unit(s) and during subsequent use of the property for other purposes.
8. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of the Order.
9. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Regional Board requesting transfer of the Order within 14 days of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Board, and a statement. The statement shall comply with the signatory requirements contained in Provision H.5. and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer of this Order shall be approved or disapproved by the Regional Board.
10. The Discharger shall establish cost estimates for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill, and submit these estimates to the Executive Officer for review and approval. The Discharger shall conduct an annual review of the estimates and submit a report for Executive Officer review and approval **by 30 April of each year**. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.

11. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill in an amount approved by the Executive Officer, and shall submit the financial assurance mechanism to the Financial Assurances Section of the California Integrated Waste Management Board.
12. The Discharger is required to maintain financial assurance mechanisms for closure and post-closure maintenance costs as specified in Chapter 6 of Title 27. The Discharger is required to submit the financial assurance mechanism to the Financial Assurances Section of the California Integrated Waste Management Board, which determines if the mechanism meets the requirements of Chapter 6, Title 27, and if the amount of coverage is adequate.
13. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule:

<u>Task</u>	<u>Compliance Date</u>
<b>a. Construction Plans</b>	
Submit construction and design plans for Executive Officer review and approval. (see Construction Specification D.1)	<b>Prior to construction</b>
<b>b. Construction Report</b>	
Submit a construction report upon completion demonstrating construction was in accordance with approved construction plans for Executive Officer review and approval. (see Construction Specification D.6)	<b>Prior to discharge</b>
<b>c. Detection Monitoring Report for Existing Waste Management Unit</b>	
Submit a groundwater detection monitoring report that demonstrates compliance with Title 27 for the existing waste management unit. (see Detection Monitoring Specification E.2)	<b>31 December 2002</b>

<u>Task</u>	<u>Compliance Date</u>
<b>d. Financial Assurance Review</b>	
1. Annual Review of Financial Assurance for initiating and completing corrective action (see Provision H.10.)	<b>30 April each year</b>

I, THOMAS R. PINKOS, Acting Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 18 October 2002.

\_\_\_\_\_  
THOMAS R. PINKOS, Acting Executive Officer

REH: reh/rac