

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2002-0217

WASTE DISCHARGE REQUIREMENTS
FOR
LAKE COUNTY PUBLIC SERVICES DEPARTMENT
EASTLAKE SANITARY LANDFILL
CLASS III LANDFILL
CLASS II SURFACE IMPOUNDMENT
LAKE COUNTY

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

1. The County of Lake, Lake County Public Services Department (hereafter Discharger) owns and operates the Eastlake Sanitary Landfill, a municipal solid waste landfill located on Davis Road at the eastern edge of the City of Clearlake, in Section 26, T13N, R7W, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order.
2. The facility consists of one existing unlined waste management unit (Unit) covering about 22 acres (Area I) and a lined Unit covering about 12 acres (Area II) of which 6 acres was lined during 1999 (Module 1) and 6 acres will be lined during 2003 (Module 2), 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) 41-221-14,15; 41-222-34; 41-223-24; 41-224-39; 41-225-25; 41-226-17,22,23,24,25; 41-233-28; 41-234-01,23,24; 41-235-11,13,14; 41-244-18; 10-006-84, and 10-008-03,39.
3. On 24 July 1998, the Board issued Order No. 98-159, in which the both the unlined and lined landfill Units were classified as a Class III waste disposal site for the discharge of municipal solids waste in accordance with the regulations in effect when the order was issued. This Order classifies the 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).
4. The facility also includes a 600,000 gallon lined Class II surface impoundment for collection of leachate generated from the landfill Units. The surface impoundment liner system consists of an 80-mil high-density polyethylene (HDPE) geomembrane over a Geonet and gravel leachate collection and removal system (LCRS). The secondary liner system consists of a 40-mil HDPE geomembrane and a geosynthetic clay liner (GCL). The surface impoundment discharges the leachate to the sanitary sewer system that drains to the Southeast Regional Wastewater Treatment Plant.

SITE DESCRIPTION

5. The geologic sequence at the site consists predominantly of the Tertiary-age Cache Formation, which is unconformably underlain by bedrock of the Franciscan Formation. The Cache Formation generally consists of a thick sequence of poorly sorted gravel, silt, clay and sand. Locally occurring lenses of silty sand to clayey silts are located throughout the Cache Formation. At the site, the Franciscan bedrock is primarily comprised of a fractured, weathered fine to medium grained sandstone with some occurrences of siltstone.
6. The closest Holocene faults are approximately 2 miles northwest (Cross Springs Fault) and 2 miles west (Clover Valley Fault) of the site. The Maximum Credible Earthquake for these faults range between 6.5 and 6.7 on the Richter scale. The maximum credible acceleration for the site is 0.58g.
7. Land uses within 1-mile radius of the facility are zoned residential, commercial and open space.
8. The facility receives an average of 24 inches of precipitation per year. The mean pan evaporation is 60 inches per year.
9. The 100-year, 24-hour precipitation event is estimated to be 5.9 inches, based on Lakeport gage, 13N/7W-20, Department of Water Resources "Rainfall Analysis for Drainage Design, No. IA", Bulletin No. 195, October 1976.
10. The waste management facility is not within a 100-year flood plain.
11. There are two domestic groundwater supply wells within one mile of the site.

WASTE AND SITE CLASSIFICATION

12. The Discharger discharges municipal solid wastes at the facility, which are defined in §20164 of Title 27. Nonhazardous solid wastes includes municipal solid wastes, as referred to in the Code of Federal Regulations, Title 40, Part 258.2.
13. The site characteristics where the Unit is located 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, 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

14. The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition (hereafter Basin Plan)}, designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
15. Surface water from the facility drains to Molesworth Creek that is tributary to Clear Lake.
16. The landfill is in the Clear Lake basin near the foothills of the Coast Range. The designated beneficial uses of Clear Lake, as specified in the Basin Plan, are municipal and domestic supply, agricultural supply, water contact and non-contact water recreation, warm fresh water habitat, warm water spawning, and wildlife habitat.
17. The first encountered groundwater is about 10 to 30 feet below the native ground surface. The groundwater is unconfined. The depth to groundwater fluctuates seasonally as much as 10 feet.
18. Background monitoring data at MW-3 and MW-9b indicates background groundwater quality has an electrical conductivity (EC) ranging between 115 and 866 $\mu\text{mhos/cm}$, with total dissolved solids (TDS) ranging between 134 and 467 mg/l.
19. The direction of groundwater flow is toward the southwest (toward Molesworth Creek). The average groundwater gradient is approximately 0.07 feet per foot.
20. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal, agricultural, and industrial supply.

OTHER SITE INFORMATION

21. Prior to 1972, a burn dump operated to the west of the present location of the unlined landfill Unit, as shown on Attachment B. The area of the burn dump covered approximately three acres. During 1990, the burn dump was excavated and the material was placed in the unlined landfill Unit.
22. Previously, the landfill accepted empty pesticide containers for disposal at two separate areas, as shown on Attachment B. The first area was used during the early 1970's. During 1989, numerous pesticide containers and contaminated soil were excavated from the pesticide container area. This material was disposed off-site at the Kettleman Hills disposal facility. Confirmation soil samples were collected during 1989 and during additional excavation performed during 1990 that indicated pesticides were not present in the surrounding soils. The second pesticide container disposal area accepted triple rinsed containers until 1988 at which time the area was capped.

23. Leachate collection was implemented at the landfill in 1975 through the installation of a series of plastic pipes set at the base of the unlined Unit to collect and remove leachate. Leachate and spring water commingled at the site of the collection. A cutoff wall was constructed at the base of the unlined Unit to collect the leachate. The leachate and spring water were discharged to Molesworth Creek. In 1982, the Regional Board advised the Discharger that a non-compliance condition existed at the landfill with respect to the discharge of leachate to Molesworth Creek. In March 1984, the Discharger began spray discharge of the leachate on a hillside. Leachate for spray discharge was collected from the cutoff wall and from an unlined surface impoundment located below the unlined landfill Unit. This practice was discontinued in 1997 with the completion of the Class II lined surface impoundment. Leachate continues to be collected from the cutoff wall and conveyed to the Class II surface impoundment.
24. Surface water monitoring is conducted at the site to comply with the Monitoring and Reporting Program and with the General Industrial Storm Water Permit for the facility.

GROUNDWATER MONITORING

25. The groundwater monitoring system for the landfill Units consists of two background wells (MW-3 and MW-9b), four detection monitoring wells (MW-5 through MW-8 and MW-14), and six evaluation/corrective action monitoring wells (MW-1, MW-2, MW-10, MW-11, MW-12 and MW-13). Former background monitoring well MW-9a is screened in a different geologic unit than the detection monitoring wells; therefore, the data from this well is not used for calculation of concentration limits. Monitoring wells MW-11 and MW-12 were installed to define the extent of an inorganic plume from the facility consisting primarily of sulfate and high TDS. Monitoring well MW-10 was installed to define the extent of low levels of 1,1-dichloroethane and chloroethane present in MW-5. Monitoring well MW-13 was installed to evaluate groundwater quality between the unlined portion of the landfill and the Class II surface impoundment. Monitoring well MW-14 was installed as a detection monitoring wells for the lined portion of the landfill. Groundwater degradation is discussed in more detail in later Findings of the Order.
26. The unsaturated zone monitoring system consists of a pan lysimeter located beneath the sump in the lined Area II landfill Unit.
27. The Discharger's detection monitoring program for groundwater at the landfill satisfies the requirements of Title 27.
28. Volatile organic compounds (VOCs) are often the primary waste constituents detected in groundwater beneath a municipal solid waste landfill in cases of a release. 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 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 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 is an indication of 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 may have occurred. Following an indication of a release, verification testing will be conducted at the same location to determine whether there has been a release from the Unit 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.

GROUNDWATER DEGRADATION

33. Groundwater at the facility has been degraded from landfill activities. Groundwater downgradient from the facility contains concentrations of inorganic constituents that greatly exceed background concentrations and concentration limits established from the background data. Data from monitoring wells MW-1 and MW-2 indicate sulfate concentrations that are typically between 1,000 and 1,500 mg/L and TDS concentrations that are typically between 1,500 and 3,000 mg/L. These concentrations exceed the current background concentration limit of 44 mg/L for sulfate and 672 mg/L for TDS.
34. During 1999, Board staff requested an evaluation monitoring program from the Discharger to evaluate the extent of impacted groundwater downgradient from monitoring wells MW-1 and MW-2. The Discharger subsequently installed monitoring wells MW-11 and MW-12 during

2000 and 2001, respectively. Monitoring data from these wells indicated that impacted groundwater is present beyond monitoring well MW-12. During February 2002, Board staff requested that the Discharger locate all supply wells within a one-mile radius of the facility and to prepare a Corrective Action Plan for interim corrective action to prevent impacts to any downgradient supply wells. The Discharger located two domestic supply wells that are approximately 275 yards and 500 yards downgradient from monitoring well MW-12, respectively. The Discharger collected groundwater samples from each of the domestic wells. The sulfate concentrations from these wells were 261 mg/L for the closer well and 112 mg/L for the more distant well. These concentrations exceed the current background concentration limit of 44 mg/L. The Discharger proposed to define the source of the plume with the installation of MW-13 between the surface impoundment and the unlined landfill and then to propose corrective action based on the location of the source. The results of this sampling were not yet available during the authoring of this revised Order. Pursuant to §20430 of Title 27, this Order requires the Discharger to submit a Corrective Action Program to implement corrective action measures that ensure that constituents-of-concern achieve their respective concentration limits at all Monitoring Points and throughout the zone affected by the release, including any portions thereof beyond the facility boundary, by removing the waste constituents or treating them in place.

LINER PERFORMANCE DEMONSTRATION

35. On 15 September 2000 the Board adopted Resolution No. 5-00-213 Request For The State Water Resources Control Board To Review The Adequacy Of The Prescriptive Design Requirements For Landfill Waste Containment Systems To Meet The Performance Standards Of Title 27. The State Board responded, in part, that “a single composite liner system continues to be an adequate minimum standard” however, the Board “should require a more stringent design in a case where it determines that the minimum design will not provide adequate protection to a given body of groundwater.”

In a letter dated 17 April 2001, the Executive Officer notified Owners and Operators of Solid Waste Landfills that “the Board will require a demonstration that any proposed landfill liner system to be constructed after 1 January 2002 will comply with Title 27 performance standards. A thorough evaluation of site-specific factors and cost/benefit analysis of single, double and triple composite liners will likely be necessary. This demonstration will be required regardless of any expansion previously authorized in current waste discharge requirements.”

36. The Discharger proposes to construct Module 2 of Area II during 2003. This expansion is an extension of the Area II liner system up the eastern side slope of Area II. The side slope is inclined at no less than 3H:1V (horizontal to vertical). The liner system design and expansion had been previously approved in Order No. 98-159; however, the Discharger was required to submit a liner performance demonstration for Board approval as described in the previous Finding, above.

37. The Discharger submitted a liner performance demonstration report dated 24 September 2002. The proposed design for Module 2 of Area II is the same as the previously approved liner system design that was used for Module 1, with one exception. The subdrain layer may not be necessary because zones of seepage previously observed occurred in units that have already been lined over during Module 1 construction. The Discharger therefore proposes to evaluate the need for the subdrain layer as part of Module 2 design. Therefore, the proposed liner system for Module 2 consists of (from top to bottom):

- Two-foot thick soil operations layer;
- LCRS drainage geocomposite;
- 60-mil thick HDPE geomembrane (double-sided textured);
- Geosynthetic clay liner;
- Subdrain geocomposite drainage layer (if necessary);
- Prepared subgrade

As part of the liner performance demonstration, the consultant for the Discharger reported having performed detailed evaluations of the performance of single-composite liner systems for slopes ranging from 3H:1V to 2H:1V. These demonstrations were completed for the Class II Altamont Landfill, the Class II Western Regional Landfill and for the Class III Neal Road Landfill. Each of the liner performance evaluations indicated that the leakage potentials on these steep side slopes are very low ranging from 2×10^{-4} gallons per acre per day (gpad) to 2×10^{-5} gpad based on leachate generation rates ranging from 25 gpad to 60 gpad. These estimated leakage rates were reported to be considered negligible. Cost-benefit analysis further demonstrated that additional liner components added significant cost, but provided no significant increase in benefit. Based on the information presented in the liner performance demonstration report submitted by the Discharger, the Board finds that the proposed side-slope single composite liner system meets the Class III performance standard required by Title 27.

CONSTRUCTION AND ENGINEERED ALTERNATIVE

38. 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).
39. 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.
40. Resolution No. 93-62 also allows the 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.

41. Section 20080(b) of Title 27 allows the 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.
42. Section 13360(a)(1) of the California Water Code allows the 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.
43. The Discharger proposes a liner system which is capable of preventing degradation of waters of the state as a result of waste discharges to the landfill 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.
44. The Discharger submitted a Report of Waste Discharge during 1998 requesting approval of an engineered alternative to liner requirements. The Board approved an engineered alternative liner system design for the Area II lined Unit in previous WDRs Order No. 98-159 using GCL in place of two-feet of compacted clay. Module 1 of Area II was constructed during 1999 and included the entire base liner system for Area II, as well as the side slopes up to the first bench. The Board has routinely approved the substitution of GCLs for the low permeability layer of a landfill liner or cover system. The Discharger was not required to repeat the demonstrations listed in Finding No. 41 because there are no significant differences in the characteristics of already approved GCLs and the low permeability layer substitution proposed for the Area II Unit. Furthermore, GCLs are more suitable for steep side slopes such as the Module 2 side-slope liner extension at the Eastlake Landfill because of the difficulties in compacting a clay liner on a steep side-slope. The issuance of these WDRs constitutes continued Board approval of the GCL engineered alternative.
45. The Discharger adequately demonstrated that construction of a Subtitle D prescriptive standard liner would be unreasonable and unnecessarily burdensome when compared to the proposed engineered alternative design. The Discharger has demonstrated that the proposed engineered alternative is consistent with the performance goals of the prescriptive standard and affords equivalent protection against water quality impairment.

46. Construction will proceed only after all applicable construction quality assurance plans have been approved by Executive Officer.

CEQA AND OTHER CONSIDERATIONS

47. The County of Lake, Community Development Department, Planning Division certified a Notice of Exemption for the Eastlake Landfill on 30 January 1998 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 Notice of Exemption stated that the project consists of a plan for continued operation of an existing facility, and revisions will not result in new significant adverse environmental impacts.
48. The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code §21000, et seq., and the CEQA guidelines, in accordance with Title 14, CCR, §15301.
49. This order implements:
- a. The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth 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

50. 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.
51. The 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 comments and recommendations.
52. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

53. 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 and will be provided on request.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 98-159 is rescinded, and that the County of Lake, Lake County Public Services Department, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of ‘hazardous waste’ is 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.
2. The discharge of ‘designated waste’ anywhere at the facility other than the Class II surface impoundment is prohibited. For the purposes of this Order, the term ‘designated waste’ is as defined in Title 27.
3. The discharge of wastes outside of a Unit or portions of a Unit specifically designed for their containment is prohibited.
4. The discharge of waste to a closed Unit is prohibited.
5. The discharge 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 or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.
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 be discharged to either:
 - a. The Area I unlined Unit; or
 - b. To the Area II lined Unit equipped with a composite liner containment system which 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.

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 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 as needed to prevent 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.

Surface Impoundment Specifications

8. Surface impoundments shall consist of, described from top to bottom, a 80-mil HDPE geomembrane primary liner, a geonet LCRS on the sidewalls of the pond with a one foot layer of drainage gravel on the bottom of the pond, a 40-mil HDPE geomembrane liner with geosynthetic clay liner (GCL) composite secondary liner, and an appropriate bedding layer. The Discharger proposes to drain leachate from the impoundment using a gravity drainage system from the base of the sump.
9. Surface impoundments shall be designed, constructed, and operated to maintain at least two feet of freeboard. At no time shall the freeboard of an impoundment be less than two feet.
10. Surface impoundments shall be designed, constructed, and maintained to prevent scouring and/or erosion of the liners and other containment features at points of discharge to the impoundments and by wave action at the waterline.
11. Leachate removed from a surface impoundment LCRS shall be discharged to the impoundment from which it originated.
12. Solids that accumulate in any surface impoundments shall be periodically removed to maintain minimum freeboard requirements and to maintain sufficient capacity for landfill and surface impoundment leachate and for the discharge of wastes. Prior to removal of these solids, sufficient samples shall be taken for their characterization and classification pursuant to Title 27, Division 2, Subdivision 1, Chapter 3, Article 2. The rationale for the sampling protocol used, the results of this sampling, and a rationale for classification of the solids shall be submitted to Board staff for review. The solids may be discharged to the Class III landfill units only if Board staff determine that the solids qualify for classification as 'nonhazardous solid waste' or 'inert waste'.

D. CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for Executive Officer review and approval **prior to** construction, design plans and specifications for new Units and expansions of existing Units, that include 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 postclosure 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 system for Module 2 of the Area II Unit shall be constructed in accordance with the following composite liner design (from top to bottom):
 - a. a two-foot thick soil operations layer;
 - b. LCRS drainage geocomposite;
 - c. 60-mil thick HDPE geomembrane (double-sided textured);
 - d. a geosynthetic clay liner that shall exhibit appropriate strength characteristics (hydrated) to accommodate stresses associated with specific landfill design parameters, with particular attention to interface, long-term creep shear, and bearing capacity;
 - e. a subdrain geocomposite drainage layer (if necessary);
 - f. prepared subgrade that is 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 limit the performance of the GCL or the HDPE geomembrane.
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 Title 27 and 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 Board.
4. Construction shall proceed only after all applicable construction quality assurance plans have been approved by Executive Officer.
5. Following the completion of construction of a Unit or portion of a Unit, 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.
6. 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.
7. If monitoring reveals substantial or progressive increases of leachate generation above the design leachate flow volume for the Unit or portion of the Unit (landfill or surface impoundment), such that the depth of fluid on any portion of the LCRS (excluding the

leachate removal pump sump) exceeds 30 cm, the Discharger shall immediately notify the 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.

8. Closure shall not proceed without the adoption of closure waste discharge requirements.

E. DETECTION MONITORING SPECIFICATIONS

1. 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. R5-2002-0217.
2. The Discharger shall provide Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation, repair, or abandonment of monitoring devices, and a minimum 48 hour notification prior to the collection of samples associated with a detection monitoring program, evaluation monitoring program, or corrective action program.
3. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, Monitoring and Reporting Program No. R5-2002-0217, and the Standard Provisions and Reporting Requirements, dated April 2000.
4. 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 method 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.
5. 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. R5-2002-0217.
6. 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. R5-2002-0217 and §20415(e) of Title 27.
7. 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.

8. Specific methods of collection and analysis must 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 the approved Sample Collection and Analysis Plan.
9. 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.
10. The **methods of analysis and the detection limits** used must 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.
11. **“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.
12. **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.
13. 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.

14. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, 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.
15. 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.
16. 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 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".
17. 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). Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Board staff.
18. The Discharger shall use the following nonstatistical method for the VOC_{water} and VOC_{spg} (Soil Pore Gas) Monitoring Parameters and for all Constituents of Concern 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). Each qualifying constituent at a monitoring point shall be determined based on either:

- a. The data from a single sample for that constituent, taken during that reporting period from that monitoring point; or
- b. The data from the sample which contains the largest number of qualifying constituents, where several independent samples have been analyzed for that constituent at a given monitoring point.
- c. Background for water samples or soil-pore gas 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.

19. The method shall be implemented as follows:

- a. *For the Volatile Organic Compounds Monitoring Parameter For Water Samples [VOC_{water}]*: For any given monitoring point, the VOC_{water} Monitoring Parameter is a composite parameter addressing all “qualifying VOCs” (in this case, VOCs that are detected in less than 10% of background samples).

The Discharger shall conduct verification testing (see Detection Monitoring Specifications E.21. and E.23 below, as appropriate) to determine whether a release of VOC_{water} Monitoring Parameter has occurred if the data for any monitoring point meets either of the following triggering conditions:

- 1) The data contains two or more qualifying VOCs that equal or exceed their respective MDLs; or
 - 2) The data contains one qualifying VOC that equals or exceeds its PQL.
- b. *For the Volatile Organic Compounds Monitoring Parameter For Soil Pore Gas Samples [VOC_{spg}]*: the VOC_{spg} Monitoring Parameter is a composite parameter for soil pore gas addressing all “qualifying VOCs” detectable using either GC or GC/MS analysis for at least a ten liter sample of soil pore gas (e.g., collected in a vacuum canister). It involves the same scope of VOCs as does the VOC_{water} Monitoring Parameter. For the VOC_{spg} test, “qualifying VOCs” consist of all those VOCs which are detectable in less than 10% of background soil pore gas samples.

The Discharger shall conduct verification testing (see Detection Monitoring Specifications E.21. and E.23 below, as appropriate) to determine whether a release

of VOC_{spg} Monitoring Parameter has occurred if the data for any monitoring point meets either of the following triggering conditions:

- 1) The data contains two or more qualifying VOCs that equal or exceed their respective MDLs; or
 - 2) The data contains one qualifying VOC that equals or exceeds its PQL.
- c. *For Constituents of Concern:* For five-yearly testing of all Constituents of Concern (COCs), the “qualifying constituents” consist of COCs that are detected in less than 10% of applicable background samples.

The Discharger shall conduct verification testing (see Detection Monitoring Specifications E.21. and E.23 below, as appropriate) to determine whether a release of COCs has occurred if the data for any monitoring point meets either of the following triggering conditions:

- 1) The data contains two or more qualifying constituents that equal or exceed their respective MDLs; or
 - 2) The data contains one qualifying constituent that equals or exceeds its PQL.
20. **Non-Statistical Method Retest.** A non-statistical test method may be used by the Discharger to analyze the monitoring data for which it is impractical to conduct a statistical analysis. A non-statistical test method shall include a procedure to verify that there is “measurably significant” evidence of a release from the Unit. For the VOC_{water}, VOC_{spg}, and nonstatistical COC test, the Discharger shall use a discrete retest consisting of two new samples from each indicating monitoring point. The Discharger shall conduct the retest for the standard non-statistical method as follows:
- a. **For VOC_{water} and VOC_{spg}.** Because the VOC composite Monitoring Parameter (for water or soil pore gas) is a single parameter which addresses an entire family of constituents likely to be present in any landfill release, **the scope of the laboratory analysis for each of the two retest samples shall include all VOCs detectable in that retest sample.** Therefore, a confirming retest, in accordance with Detection Monitoring Specification E.20.a. and b., above, for either triggering condition in either of the two retest samples, shall have validated the original indication even if the detected constituents in the confirming retest sample(s) differs from those detected in the sample which initiated the retest.
 - b. **For Constituents of Concern.** Because all Constituents of Concern that are jointly addressed in the non-statistical test above, remain as individual Constituents of Concern, **the scope of the laboratory analysis for the non-statistical retest of Constituents of Concern shall address only those constituents detected in the**

sample which initiated the retest. Therefore, the list of “qualifying constituents” for use in the retest, under Detection Monitoring Specification E.20.c., shall consist of those constituents which provided the original indication at that monitoring point. If the retest meets either triggering condition in either of the two retest samples, the retest shall have validated the original indication.

21. **Response to Detection in Background of VOCs** (or any other constituent which is not naturally in the background and thus is not amenable to statistical analysis):

- a. Any time the laboratory analysis of a sample from a background monitoring point, sampled for VOCs, shows either:
 - 1) Two or more VOCs at or above their respective MDL; or
 - 2) One VOC at or above its respective PQL.

Then the Discharger shall:

- a) **Immediately** notify the Board by phone;
 - b) Follow up with written notification by certified mail **within seven days**;
 - c) Obtain **two** new independent VOC samples from that background monitoring point; and
 - d) Send such samples for laboratory analysis of all detectable VOCs **within thirty days**.
- b. If either or both the new samples validates the presence of VOC(s), using the above criteria, the Discharger shall:
 - 1) **Immediately** notify the Board about the VOC(s) verified to be present at that background monitoring point, and follow up with written notification submitted by certified mail **within seven days** of validation; and
 - 2) If the Discharger believes that the VOC(s) in background is from a source other than the Unit, then:
 - a) **Within seven days** of determining “measurably significant” evidence of a release, submit to the Board by certified mail a Notification of Intent to make such a demonstration pursuant to §20420(k)(7) of Title 27; and
 - b) **Within 90 days** of determining “measurably significant” evidence of a release, submit a report to the Board that demonstrates that a source other than

the Unit caused the evidence, or that the evidence resulted from error in sampling, analysis or evaluation, or from natural variation in groundwater, surface water, or the unsaturated zone.

c. If the Executive Officer determines, after reviewing the submitted report(s), that the VOC(s) detected originated from a source other than the Unit(s), the Executive Officer will make appropriate changes to the monitoring program.

22. If the Executive Officer determines, after reviewing the submitted report, that the detected VOC(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 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 postclosure 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 approved Sampling and Analysis Plan.
 - 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, and the groundwater flow rate, 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 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 Board; and
 - e. Corrective measures underway or proposed, and corresponding time schedule.
6. The Discharger shall submit an **Annual Monitoring Summary Report** to the 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 submitted in tabular form as well as in a digital file format acceptable to the Executive Officer. The 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 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 the waste discharge requirements.

- d. A map showing the area and elevations in which filling has been completed during the previous calendar year and a comparison to final closure design contours.
- 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

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. R5-2002-0217, 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 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 postclosure 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 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 Board, and a statement. The statement shall comply with the signatory requirements contained in Provision F.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 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.

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>
A. Construction Plans	
Submit construction and design plans for Executive Officer review and approval. (see Construction Specification D.1)	Prior to construction
B. Construction Report	
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.5)	Prior to discharge
C. Establish a Corrective Action Program	
Submit a Corrective Action Program pursuant to §20430 of Title 27 that is designed to ensure that constituents-of-concern achieve their respective concentration limits at all Monitoring Points and throughout the zone affected by the release, including any portions thereof that extend beyond the facility boundary, by removing the waste constituents or treating them in place.	1 February 2003
D. Initiate approved Corrective Action Program	

Initiate the approved Corrective Action Program pursuant to §20430(e) of Title 27 by beginning the approved measures of an approved corrective action program.

1 July 2003

E. Complete approved Corrective Action Program

Complete the approved Corrective Action Program pursuant to §20430(e) of Title 27 by completing the approved measures of an approved corrective action program and/or beginning the operation of a corrective action program system.

1 November 2003

I, THOMAS R. PINKOS, 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 6 December 2002.

THOMAS R. PINKOS, Executive Officer

WLB: 12/6/2002

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2002-0217
FOR
LAKE COUNTY PUBLIC SERVICES DEPARTMENT
EASTLAKE SANITARY LANDFILL
CLASS III LANDFILL
CLASS II SURFACE IMPOUNDMENT
LAKE 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. R5-2002-0217.

A. REQUIRED MONITORING REPORTS

<u>Report</u>	<u>Due</u>
1. Groundwater Monitoring (Section D.1)	See Table I
2. Annual Monitoring Summary Report (Order No. R5-2002-0217, F.6.)	Annually
3. Unsaturated Zone Monitoring (Section D.2)	See Table II
4. Leachate Monitoring (Section D.3)	See Table III
5. Surface Water Monitoring (Section D.4)	See Table IV
6. Facility Monitoring (Section D.5)	As necessary
7. Response to a Release (Standard Provisions and Reporting Requirements)	As necessary

B. REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in Order No. R5-2002-0217 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. R5-2002-0217.

Field and laboratory tests shall be reported in each monitoring report. Monthly, quarterly, semiannual, and annual monitoring reports shall be submitted to the 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	by Semiannual Schedule
Quarterly	Quarterly	31 March	30 April
		30 June	31 July
		30 September	31 October
		31 December	31 January
Semiannually	Semiannually	30 June	31 July
		31 December	31 January
Annually	Annually	31 December	31 January

The Discharger shall submit an **Annual Monitoring Summary Report** to the Board covering the previous monitoring year. The annual report shall contain the information specified in F. Reporting Requirements, of Order No. R5-2002-0217, 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 Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

C. CONSTITUENTS OF CONCERN, MONITORING POINTS, CONCENTRATION

LIMITS, POINT OF COMPLIANCE AND COMPLIANCE PERIOD

1. 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.

2. Monitoring Points

Groundwater:

The **background** Monitoring Points for groundwater shall be monitoring wells MW-3 and MW-9b as shown on Attachment B, and any other background wells installed after the adoption of this Order.

The **detection** Monitoring Points for groundwater shall be monitoring wells MW-5, MW-6, MW-7, MW-8 and MW-14 as shown on Attachment B, and any other detection monitoring wells installed after the adoption of this Order.

The **evaluation/corrective action** Monitoring Points for groundwater shall be monitoring wells MW-1, MW-2, MW-10, MW-11, MW-12 and MW-13 as shown on Attachment B, and any other evaluation or corrective action monitoring wells installed after the adoption of this Order.

Surface Water:

The **background** surface water Monitoring Point shall be SWMS-3 shown on Attachment B.

The **detection** surface water Monitoring Point shall be SWMS-1 shown on Attachment B.

Unsaturated Zone:

The **detection** unsaturated zone Monitoring Point shall be the pan lysimeter located beneath the sump for the Area II lined landfill Unit.

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.

Concentration limits shall be updated semi-annually as new background data becomes available for each COC and shall be listed in each semi-annual monitoring report.

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.1 and E.3 of Waste Discharge Requirements, Order No. R5-2002-0217. 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 operate and maintain groundwater detection, evaluation and corrective action monitoring systems that complies with the applicable provisions of §20415, §20420, §20425 and §20430 of Title 27. 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 Schueller 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 operate and maintain 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 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 monthly 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 landfill and surface impoundment 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 **immediately** 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 F.4.f. of Order No. R5-2002-0217. 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.

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

_____ 6 December 2002
(Date)

WLB

TABLE I
GROUNDWATER MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Groundwater Elevation	Ft. & hundredths, M.S.L.	Quarterly
Temperature	°C	Semiannual
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
Turbidity	Turbidity units	Semiannual
Monitoring Parameters		
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 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

TABLE II
UNSATURATED ZONE MONITORING PROGRAM

SOIL-PORE GAS

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

PAN LYSIMETERS (or other vadose zone monitoring device)

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual

Monitoring Parameters

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 8260B, 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 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

TABLE III
LEACHATE MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Total Flow	Gallons	Monthly
Flow Rate	Gallons/Day	Monthly
Electrical Conductivity	µmhos/cm	Monthly
pH	pH units	Monthly
Monitoring Parameters		
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 8260B, see Table V)	µg/L	Annually
Constituents of Concern (see Table VI)		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

TABLE IV
SURFACE WATER MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Temperature	°C	Semiannual
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
Turbidity	Turbidity units	Semiannual
Monitoring Parameters		
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 8260B, 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 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	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 analysis:

USEPA Method 8260B

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)
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)
cis- 1,3-Dichloropropene
trans- 1,3-Dichloropropene
Di-isopropylether (DIPE)
Ethanol
Ethyltertiary butyl ether
Ethylbenzene
2-Hexanone (Methyl butyl ketone)
Hexachlorobutadiene

TABLE V
MONITORING PARAMETERS FOR DETECTION MONITORING
Continued

Hexachloroethane
Methyl bromide (Bromomethene)
Methyl chloride (Chloromethane)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl ethyl ketone (MEK: 2-Butanone)
Methyl iodide (Iodomethane)
Methyl t-butyl ether
4-Methyl-2-pentanone (Methyl isobutylketone)
Naphthalene
Styrene
Tertiary amyl methyl ether
Tertiary butyl alcohol
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene
1,2,4-Trichlorobenzene
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

<u>Inorganics (dissolved):</u>	<u>USEPA Method</u>
Aluminum	6010
Antimony	7041
Barium	6010
Beryllium	6010
Cadmium	7131A
Chromium	6010
Cobalt	6010
Copper	6010
Silver	6010
Tin	6010
Vanadium	6010
Zinc	6010
Iron	6010
Manganese	6010
Arsenic	7062
Lead	7421
Mercury	7470A
Nickel	7521
Selenium	7742
Thallium	7841
Cyanide	9010B
Sulfide	9030B

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
Di-isopropylether (DIPE)
Ethanol
Ethyltertiary butyl ether
Ethylbenzene
Ethyl methacrylate
Hexachlorobutadiene
Hexachloroethane
2-Hexanone (Methyl butyl ketone)
Isobutyl alcohol
Methacrylonitrile
Methyl bromide (Bromomethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK; 2-Butanone)
Methyl iodide (Iodomethane)
Methyl t-butyl ether
Methyl methacrylate
4-Methyl-2-pentanone (Methyl isobutyl ketone)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Naphthalene
Propionitrile (Ethyl cyanide)
Styrene
Tertiary amyl methyl ether
Tertiary butyl alcohol
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane

TABLE VI

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)
Toluene
1,2,4-Trichlorobenzene
1,1,1 -Trichloroethane, Methylchloroform
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene; TCE)
Trichlorofluoromethane (CFC- 11)
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

TABLE VI

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

4-Chlorophenyl phenyl ether
Chrysene
o-Cresol (2-methylphenol)
m-Cresol (3-methylphenol)
p-Cresol (4-methylphenol)
4,4'-DDD
4,4'-DDE
4,4'-DDT
Diallate
Dibenz[a,h]anthracene
Dibenzofuran
Di-n-butyl phthalate
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
Hexachlorocyclopentadiene
Hexachloropropene
Indeno(1,2,3-c,d)pyrene

TABLE VI

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

Isodrin
Isophorone
Isosafrole
Kepone
Methapyrilene
Methoxychlor
3-Methylcholanthrene
Methyl methanesulfonate
2-Methylnaphthalene
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
2,4,5-Trichlorophenol
0,0,0-Triethyl phosphorothioate

sym-Trinitrobenzene

Chlorophenoxy Herbicides:

USEPA Method 8151A

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 8141A

Atrazine
Chlorpyrifos
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)
Diazinon
Dimethoate
Disulfoton
Ethion
Methyl parathion (Parathion methyl)
Parathion
Phorate
Simazine