

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2004-0158

WASTE DISCHARGE REQUIREMENTS  
FOR  
STANISLAUS COUNTY DEPARTMENT OF PUBLIC WORKS  
FOR  
OPERATION OF  
FINK ROAD CLASS II AND CLASS III LANDFILLS  
CLASS II SURFACE IMPOUNDMENTS  
STANISLAUS COUNTY

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

1. The County of Stanislaus, Department of Public Works, (hereafter Discharger) owns and operates a municipal solid waste landfill about 3.5 miles west of Crows Landing, in Section 30, T6S, R7E, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order.
2. The facility consists of one inactive unlined waste management Unit (LF-1) covering 18.3 acres, a lined Class III municipal solid waste Unit (LF-2) with seven cells covering 92.3 acres and a lined Class II ash monofill Unit (LF-3) with six cells covering 37 acres. The facility includes 1-acre (SI-1) and 1.4-acre (SI-2) Class II surface impoundment for leachate from LF-3 and LF-2 respectively. The waste units are shown in Attachment B, which is incorporated herein and made part of this Order. The facility is comprised of Assessor's Parcel Numbers (APN) 27-17-40.
3. The waste management units (WMUs) at Fink Road are described in the following table:

<b>Unit</b>	<b>Classification</b>	<b>Description of Liner Components (top to bottom)</b>	<b>Status</b>
LF-1	Class III landfill	Unlined and no LCRS	Filled and closed- final cap constructed in 1997
LF-2	Class III landfill (Cell 1)	1 ft. operations layer, nonwoven fabric, 6 in. LCRS drainage layer, non woven fabric, 1 ft. low permeability soil layer ( $K_s 1 \times 10^{-6}$ cm/sec)	Operating with interim cover
LF-2	Class III landfill (Cell 2)	15 in. operations layer, nonwoven fabric, 6 in. LCRS drainage layer, 60 mil textural HDPE, 2 ft. low permeability soil layer ( $K_s 1 \times 10^{-7}$ cm/sec)	Operating, with interim cover
LF-2	Class III landfill (Cell 3)	18 in. operations layer, nonwoven fabric, 6 in. LCRS drainage layer, 60 mil textural HDPE, GCL	Operating

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Unit	Classification	Description of Liner Components (top to bottom)	Status
LF-3	Class II ash monofill (Cell 1)	12 in. soil operations layer, nonwoven fabric, 8 in. LCRS drainage layer, non woven fabric, 2 ft. low permeability soil layer ( $K_S 1 \times 10^{-6}$ cm/sec)	At capacity
LF-3	Class II ash monofill (Cell 2)	15 in. operations layer, nonwoven fabric, 6 in. LCRS drainage layer, 60 mil textural HDPE, 2 ft. low permeability soil layer ( $K_S 1 \times 10^{-7}$ cm/sec)	Operating
LF-3	Class II ash monofill (Cell3)	15-inch operations layer, nonwoven fabric, 6 in. LCRS, 60-mil textured HDPE, GCL, geocomposite drainage layer LCRS, 60-mil HDPE, GCL, sub-grade.	Operating
SI-1	Class II surface impoundment	1 ft. soil cover, 2 ft. low permeability soil layer ( $K_S 1 \times 10^{-6}$ cm/sec), nonwoven fabric, 8 in. LCRS drainage layer, nonwoven fabric, 2 ft. low permeability soil layer ( $K_S 1 \times 10^{-6}$ cm/sec)	Operating
SI-2	Class II surface impoundment	80 mil HDPE, geonet, 80 mil HDPE, 2 ft. low permeability soil layer ( $K_S 1 \times 10^{-6}$ cm/sec)	Operating

4. Ogden Martin Systems of Stanislaus, Incorporated (OMSS), (formerly Stanislaus Waste-to-Energy Company or SWEC) operates Conanta Energy, a waste-to-energy cogeneration facility (hereafter OMSS plant) at the Fink Road Landfill. The OMSS plant occupies a 16.5-acre area at the southwest corner of the site. The OMSS plant, constructed in 1988, generates electricity from combustion of municipal solid waste. Boiler ash generated as a combustion residue has been discharged to LF-3 since the fall of 1988. The addition of a lime-water mixture to de-acidify contaminated flue gases and the quenching of ashes with water at the OMSS plant results in generation of significant moisture within the boiler ash.
5. The facility was previously regulated under Waste Discharge Requirements (WDRs) Order No.5-01-207 in conformance with Title 27 of the California Code of Regulations.

**SITE DESCRIPTION**

6. The site is within dissected alluvial fans at the western margin of the San Joaquin Valley. The elevation change at this site ranges from 240 to 350 feet above mean sea level (MSL).

7. The measured hydraulic conductivity of the native soils underlying the Unit ranges between  $1 \times 10^{-9}$  and  $1 \times 10^{-2}$  cm/sec.
8. The maximum credible earthquake of moment magnitude (Mw) 6.8 on the Coast Range Central Valley (CRCV) fault at a distance of 10 k would produce a peak acceleration of 0.63 g. The Maximum Probable Earthquake (MPE) of Mw 6.5 also on the CRCV fault would produce a peak acceleration of 0.57 g
9. Land uses within 1,000 feet of the facility are energy generation (the OMSS plant) and agriculture, including grazing, row crops and orchards.
10. The facility receives an average of 11 inches of precipitation per year as measured at the Newman Station. The mean pan evaporation is 108.12 inches per year as measured at the Los Banos Station.
11. The 100-year, 24-hour precipitation event is estimated to be 3.0 inches, based on the U.S. Department of Commerce, NOAA, Atlas 2.
12. The waste management facility is not within a 100-year flood plain based on the Federal Emergency Management Agency's (FEMA) digital Q3 flood maps.
13. There are 18 domestic, industrial, or agricultural groundwater supply wells within one mile of the site.

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

14. The Discharger discharges municipal solid wastes to LF-2, which is defined in Title 27 CCR Section 20164.
15. The 92.3-acre LF-2 is used for the disposal of Class III wastes including municipal solid waste, treated medical waste, and construction debris. These wastes are classified as "nonhazardous solid waste" or "inert waste" using criteria set forth in Title 27. LF-2 began receiving wastes in April 1993.
16. The Discharger discharges wastes containing greater than one percent (>1%) friable asbestos for disposal in LF-2. These wastes are classified as "hazardous" under Title 22 of the CCR. However, because these wastes do not pose a threat to ground water quality, Section 25143.7 of the Health and Safety Code permits their disposal in any landfill which has WDRs that specifically permit the discharge, provided that the wastes are handled and disposed of in accordance with federal statutes and regulations. Asbestos wastes are handled and discharged in compliance with all applicable regulations.

17. The 37-acre LF-3 is used for the disposal of boiler ash from the OMSS waste-to-energy cogeneration facility.
18. The OMSS boiler ash contains soluble cadmium and lead measured by the California Waste Extraction Test and total lead concentrations that exceed Soluble Threshold Limit Concentrations and Total Threshold Limit Concentrations (STLC and TTLC) regulatory thresholds, respectively, for toxic and hazardous waste established by the Department of Toxic Substances Control (DTSC) and specified in Title 22, CCR. On 8 February 1990, DTSC approved a request to manage and classify the boiler ash as 'non-hazardous' because of mitigating characteristics. The boiler ash is a 'designated waste' because it has soluble constituents that exceed applicable water quality objectives.
19. The site characteristics where LF-3, the Class II WMU is located do not meet the siting criteria for a new Class II landfill contained in Title 27, Section 20250(a) and (b)(1). As such, the site is not suitable for operating new Units or lateral expansions of existing Units without the construction of additional waste containment features.

#### **OPERATION OF FACILITIES**

20. Boiler ash is transported by truck to LF-3. Due to quenching of the ash prior to discharge, the Discharger has implemented a load-checking plan to prevent the discharger of free liquid to LF-3.
21. LF-1 has been filled and closed with a final cover in 1997. LF-2 will reach capacity, at the earliest, by the year 2022. The total capacity of LF-1 and LF-2 is 6,632,000 cubic yards. LF-3 will reach its 2,030,000 cubic yard capacity, at the earliest, by the year 2033.
22. Surface impoundment SI-1 was reconstructed in 1999 to increase the storage capacity from 218,000 to 5 million gallons. During reconstruction the two-foot thick low-permeability layer was replaced with an engineered alternative as described in Finding 59.

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

23. The *Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin, Fourth Edition* (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
24. Surface drainage for the northern quarter of the site is to the South Fork of Little Saldo Creek a tributary of the San Joaquin River. The remaining three quarters of the site

drains to the east via a closed conduit under Interstate 5 and the California Aqueduct and thence via an open channel to Crow Creek, a tributary of the San Joaquin River. Both drainages are in the Delta-Mendota Canal Hydrologic Unit (541.10) of the San Joaquin River Basin. The designated beneficial uses of these surface waters, as specified in the Basin Plan, are municipal and domestic supply, agricultural supply, industrial process supply, water contact and non-contact water recreation, warm fresh water habitat, fish migration, fish spawning and wildlife habitat.

25. The first encountered groundwater under most of the site occurs in small perched zones that follow surface topography. Depths to groundwater range from 12 to 85 feet below native ground surface. Individual monitoring well groundwater elevation fluctuates from 15 feet seasonally to little or no seasonal changes. Groundwater elevations range from 200 feet MSL to 265 feet MSL.
26. Monitoring data indicates background groundwater quality has an average total dissolved solids (TDS) content of 332 mg/l.
27. The direction of groundwater flow is toward the northeast in the northern half of the site and to the east in the southern half of the site. The groundwater gradient ranges from 0.01 to 0.033 feet per foot.
28. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal, agricultural, and industrial supply.

### **GROUNDWATER MONITORING**

29. The ground water monitoring system consists of 13 monitoring wells, which monitor the three landfills and two surface impoundments. The vadose monitoring system consists of the following: LF-2 has two functional lysimeters under Cell 1, two lysimeters under Cell 2 and a pan lysimeter under Cell 3; LF-3 has 11 functional lysimeters under Cell 1, three under Cell 2 and a pan lysimeter under Cell 3; and SI-2 has three lysimeters. The vadose zone is not monitored under LF-1 because it predates the vadose zone monitoring requirement and under SI-1 due to close proximity to groundwater.
30. The Discharger's detection monitoring program for groundwater at this Unit does satisfy the requirements contained in Title 27.
31. Volatile organic compounds (VOCs) are often detected in a release from a landfill, and are the primary waste constituents detected in groundwater beneath a municipal solid waste landfill. 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.

32. Title 27 CCR Sections 20415(e)(8) and (9) 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 Title 27 CCR Section 20415(b)(1)(B)2.-4. However, Title 27 CCR does not specify a specific method for non-statistical evaluation of monitoring data.
33. The Regional Board may specify a non-statistical data analysis method pursuant to Title 27 CCR Section 20080(a)(1). Section 13360(a)(1) of the California Water Code allows the Regional Board to specify requirements to protect underground or surface waters from leakage from a solid waste site, which includes a method to provide the best assurance of determining the earliest possible detection of a release.
34. 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.
35. The specified non-statistical method for evaluation of monitoring data provides two criteria (or triggers) for making the determination that there has been a release of non-naturally occurring waste constituents from a Unit. The presence of two non-naturally occurring waste constituents above their respective method detection limit (MDL), or one non-naturally occurring waste constituent detected above its practical quantitation limit (PQL), indicates that a release of waste from a Unit has occurred. Following an indication of a release, verification testing will be conducted to determine whether there has been a release from the Unit, or there is a source of the detected constituents other than the landfill, or the detection was a false detection. Although the detection of one non-naturally occurring waste constituent above its MDL is sufficient to provide for the earliest possible detection of a release, the detection of two non-naturally occurring waste constituents above the MDL as a trigger is appropriate due to the higher risk of false-positive analytical results and the corresponding increase in sampling and analytical expenses from the use of one non-naturally occurring waste constituent above its MDL as a trigger.

### **GROUNDWATER DEGRADATION**

36. There has been a release of wastes from LF-1 to groundwater as indicated by concentrations of various inorganics and volatile organic compounds (VOCs) in MW-9, which exceed background groundwater constituent concentrations and water quality objectives. Several VOCs have been detected in MW-9 since 1991. These VOCs include 1,1-dichloroethane, benzene, chlorobenzene, cis-1,2-dichloroethene, methylene chloride, tetrachloroethene, trichloroethene, 1,1-dichloroethene, 1,4-dichlorobenzene, trichlorofluoromethane, and vinyl chloride. During 2000, methylene chloride and vinyl chloride in MW-9 exceeded maximum contaminant levels for drinking water. Maximum

concentrations of methylene chloride and vinyl chloride detected in MW-9 during 2000 were 11 and 0.70 µg/l, respectively.

37. The Discharger was required to investigate the cause of increasing TDS, Sulfate, Chloride and Nitrate concentrations in MW-16 and -17. Results of this investigation concluded that the source of increasing inorganic constituents in MW-16 is leachate from LF-3, Cells 1 and 2. However, the increasing inorganic constituents in MW-17 are apparently from some undetermined off-site source.
38. The Discharger has implemented the two phases of corrective action for VOCs and inorganic constituents detected in groundwater downgradient of LF-1. The first phase included construction of a final cap over LF-1 and was completed in 1997. The second phase included installation of a landfill gas collection system was completed in 2002. Corrective action monitoring is ongoing to assess the performance of the corrective actions.
39. The Discharger has conducted evaluation monitoring for SI-1, SI-2, LF-2, Cell 2, and LF-3, Cell 1 and 2 due to detections of VOCs and elevated concentrations of inorganics in the lysimeters beneath these waste management units and in monitor well MW-16. The County has completed source control measures for the releases from SI-1 and LF-3. These source control measures included reconstruction of SI-1 in 1998 and reconstruction of the leachate drainage system from LF-3 in 1998. The County has adjusted the level sensor in the SI-2 LCRS sump to prevent more than six inches of liquid collecting in the sump.

#### **LINER PERFORMANCE DEMONSTRATION**

40. On 15 September 2000 the Regional 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 Regional 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.”
41. 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.”

42. The Discharger previously submitted a performance demonstration for discharge of Class II waste at LF-3. The Board approved a double composite liner design for use in all future Class II units in WDRs Order No. 5-01-207. On 27 April 2004, the Discharger submitted the *Proposed Base Liner Design and Demonstration Summary for LF-2, Cell No. 4*, on 14 June the *Response to California Regional Water Quality Control Board Regarding the Base Liner Design and Demonstration Summary* and on 8 July the *Response to California Regional Water Quality Control Board Verbal Comments Regarding the Base Liner Design and Demonstration Summary*. This report with addendums was submitted as the Discharger's demonstration that the proposed liner for LF-2, Cell 4 and all future LF-2 cells will meet the performance standard specified in Title 27 for a Class III WMU. The demonstration modeled impacts to groundwater using a leakage rate of 0.2 gallons per acre-day and leachate concentrations equal to the maximum concentrations (for VOCs double the maximum concentration) measured in leachate from the Class III cells. Model results found expected VOC concentrations in groundwater below detection limits and increases in salt concentrations less than the natural variability in background groundwater.
43. The performance standard for Class III units in Title 27 Section 20310(c) is "*Class III landfills shall have containment structures which are capable of preventing degradation of waters of the state...*". Staff determined that the Dischargers proposed liner design, with improvements to liner construction methods (electronic leak detection) and provision for early removal of landfill gas meets the performance standard for Class III units.

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

44. 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).
45. 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.
46. Resolution No. 93-62 also allows the Regional Board to consider the approval of engineered alternatives to the prescriptive standard. Section III.A.b. of Resolution No. 93-62 requires that the engineered alternative liner systems be of a composite design similar to the prescriptive standard.



47. Title 27 CCR Section 20080(b) allows the Regional Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with Title 27 CCR Sections 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 Title 27 CCR Section 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 systems are 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 Title 27 CCR Section 20080(b)(2).
48. Section 13360(a)(1) of the California Water Code allows the Regional Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.
49. The Discharger proposes a liner system which will be designed, constructed, and operated in accordance with the criteria set forth in Title 27, and the provisions in State Water Resources Control Board Resolution No. 93-62 for municipal solid wastes.
50. On 30 January 2001, the Discharger submitted a Report of Waste Discharge requesting approval of an engineered alternative to prescriptive standard for liner requirements.
51. The engineered alternative proposed by the Discharger for the base liner of all future Class III landfill units consists of, in ascending order: a prepared sub-grade; a minimum 1-foot thick, compacted soil liner with a hydraulic conductivity of  $10^{-6}$  or less; a Geosynthetic Clay liner (GCL) with a hydraulic conductivity of  $5 \times 10^{-9}$  or less; and a minimum 60-mil thick HDPE geomembrane.
52. The Discharger proposes the side slope liners to be constructed of, in ascending order: a prepared sub-grade, a GCL with hydraulic conductivity of  $5 \times 10^{-9}$  or less, and a minimum 60-mil thick HDPE geomembrane. The sub-grade will be prepared in an appropriate manner using accepted engineering and construction methods so as to provide a surface that is smooth and free from rocks, sticks, and other debris that could damage or otherwise limit the performance of the geosynthetic clay layer and/or geomembrane, and certified in accordance with this Order and the approved CQA Plan.
53. The Discharger proposes a leachate collection and removal system (LCRS) for the base liner which consists of six-inches of clean gravel with a hydraulic conductivity of 0.01 cm/sec or greater. The Discharger proposes a side slope LCRS which consists of 24

inches of on-site sandy soils with less than 15% silt and clay and with a hydraulic conductivity of  $1 \times 10^{-3}$  cm/sec or greater.

54. The Discharger proposes a vadose zone monitoring system which consists of a pan lysimeter beneath the primary collection trench along the length of the WMU cell and under the primary collection sump. The pan lysimeter consists of from top to bottom the following: a geocomposite drainage system composed of a geonet between two non-woven geotextiles; three-inch diameter slotted HDPE pipe in the gravel filled trench; HDPE geomembrane under the primary collection sump and in the two foot wide by one foot deep gravel filled trench; a GCL; and a prepared sub-grade.
55. The Discharger was not required to repeat the demonstration that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in Title 27 Section 80080(b), or would be impractical and would not promote attainment of applicable performance standards since this demonstration has been made for other landfills and there are no significant differences in the characteristics of already approved liners and the engineered alternative liner proposed for the Fink Road Landfill.
56. The Board previously adopted WDR Order No. 5-01-207 which approves a double composite liner design for all future Class II solid waste units. The base liner of all future Class II units will consist of a double composite liner that is separated and overlain by a leachate collection and removal system (LCRS).

### **Class II Surface Impoundments**

57. The Discharger reconstructed surface impoundment SI-1 using an approved engineered alternative to the prescriptive liner requirements of Title 27. The engineered alternative for SI-1 consists of, in ascending order: a GCL; an 80-mil HDPE geomembrane secondary liner; an HDPE geonet; and an 80-mil HDPE geomembrane primary liner. The engineered alternative liner system was approved in Board Order 98-184.
58. The Discharger constructed a subdrain system beneath the base of SI-1 to alleviate future potential liner uplift if the current upward historical trend in groundwater elevations continues. This subdrain system consists of, from top to bottom, a one-foot thick gravel drainage layer and an 8 ounce-per-square geotextile. Groundwater collected in the subdrain flows by gravity to a sump and is removed via a riser pipe. The groundwater will be sampled, prior to discharge, for those constituents listed for groundwater and leachate monitoring in the attached Monitoring and Reporting Program No. R5-2004-0158. If the groundwater is not impacted then it may be discharged to the stormwater retention basin. Discharges of groundwater from the stormwater retention basin offsite may require an NPDES permit. If the groundwater is impacted it will be discharged to surface

impoundment SI-1. The Discharger shall also monitor the subdrain system in accordance with the requirements of vadose zone monitoring. The Discharger shall sample any water collected from the subdrain system for the vadose zone monitoring constituents specified in Table V of the Monitoring and Reporting Program No. R5-2004-0158.

### CERTIFICATION

59. Stanislaus County has indicated that a registered civil engineer or certified engineering geologist will certify that WMUs at this facility meet the prescriptive standards and performance goals of Title 27.

### CEQA AND OTHER CONSIDERATIONS

60. 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 Section 21000, et seq., and the CEQA guidelines, in accordance with Title 14 CCR, Section 15301.

61. 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.

62. Section 13267(b) of California Water Code provides that: "In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of discharging, or who proposed to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. The monitoring and reporting program required by this Order and the

attached "Monitoring and Reporting Program No. R5-2004-0158" are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

### **PROCEDURAL REQUIREMENTS**

63. 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.
64. The Regional Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
65. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.
66. Any person affected by this action of the Regional Board may petition the State Water Resources Control Board to review the action in accordance with Sections 2050 through 2068, Title 23, California Code of Regulations. The petition must be received by the State Water Resources Control Board, Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812, within 30 days of the date of issuance of this Order. Copies of the laws and regulations applicable to the filing of a petition are available on the Internet at [http://www.swrcb.ca.gov/water\\_laws/index.html](http://www.swrcb.ca.gov/water_laws/index.html) and will be provided on request.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 5-01-207 is rescinded and that the Stanislaus County Department of Public Works, 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' at this site is prohibited, except for waste that is hazardous due only to its friable asbestos content. The discharge of 'designated waste' at this site is prohibited, except for the discharge of boiler ash from the OMSS waste-to-energy facility and the discharge of leachate from the LCRS of LF-3 and LF-2 to SI-1 and SI-2, respectively. For the purposes of this Order, the term 'hazardous waste' is as defined in Title 23, California Code of Regulations, Section 2510 et seq., and 'designated waste' is as defined in Title 27.

2. The discharge of boiler ash from the OMSS plant is limited to LF-3, a separate monofill unit which is designed and operated to isolate this waste from other wastes which could produce acidic leachate.
3. The discharge of semi-solid waste (i.e., waste containing less than 50% solids) or liquid waste to the landfill units LF-1, -2, and -3 is prohibited.
4. The discharge of solid waste containing free liquid or which may contain liquid in excess of the moisture holding capacity as result of waste management operations, compaction, or settlement is prohibited.
5. The discharge of wastes outside of a Unit or portions of a Unit specifically designed for their containment is prohibited.
6. The discharge of waste to a closed Unit is prohibited.
7. 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.
8. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.
9. 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.
10. The discharge of waste from surface impoundments is prohibited other than allowed under Prohibitions No. 1.
11. The discharge of waste to ponded water from any source is prohibited.
12. The discharge of waste within 50 feet of surface waters is prohibited.
13. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by products, or reaction products which in turn:

- a. Require a higher level of containment than provided by the unit,
- b. Are 'restricted hazardous wastes', or
- c. Impair the integrity of containment structures, is prohibited.

**B. DISCHARGE SPECIFICATIONS**

1. Municipal solid waste (Class III) shall be discharged to LF-2, a unit equipped with a single composite liner containment system which meets the requirements for both liners and leachate collection and removal systems specified in these WDRs for a Class III landfill.
2. Non-hazardous boiler ash from the OMSAS waste-to-energy cogeneration facility shall be discharged to LF-3, a unit equipped with a double composite liner containment system which meets the requirements for both liners and leachate collection and removal systems specified in these WDRs for a Class II landfill.
3. The discharge shall remain within the designated disposal area at all times.
4. The handling and disposal of friable asbestos-containing wastes at this site shall be in accordance with all applicable federal and state laws and regulations.
5. The discharge of liquid waste to SI-1 is limited to leachate from LF-3's LCRS, SI-1's LCRS, and groundwater from the SI-1 subdrain system only.
6. The discharge of liquid waste to SI-2 is limited to leachate from LF-2's LCRS, SI-2's LCRS, and landfill gas condensate only.
7. The discharge of liquid from the subdrain system beneath SI-1 to the stormwater retention basin or the SI-1 must be approved by the executive Officer. The Discharger must submit laboratory analyses of any liquid detected in the subdrain system as required in the attached Monitoring and Reporting Program No. R5-2004-0158.

**C. FACILITY SPECIFICATIONS**

1. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order.

2. The Discharger shall immediately notify the Regional Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
3. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control, and construction.
4. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.
5. Methane and other landfill gases shall be adequately vented, removed from the Unit, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.
6. Surface drainage within the waste management facility shall either be contained on-site or be discharged in accordance with applicable storm water regulations.
7. The Discharger shall maintain a *Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements* in accordance with State Water Resources Control Board Order No. 97-03-DWQ, or retain all storm water on-site.
8. A minimum separation of ten feet shall be maintained between wastes or leachate and the highest anticipated elevation of underlying groundwater including the capillary fringe.
9. All groundwater domestic supply wells within 500 feet of a WMU shall be sealed or abandoned to the satisfaction of the Stanislaus County Department of Environmental Resources prior to the discharge of waste to the unit. A record of the sealing and/or abandonment of such wells shall be sent to the Board.

#### **D. LANDFILL SPECIFICATIONS**

1. Municipal solid waste shall be discharged to either (1) that portion of a cell which received wastes (i.e. that active portion of the cell which is within the boundaries of the existing footprint), or (2) to an area equipped with a containment system which meets the additional requirements for both liners and leachate collection systems specified in Finding 55 and Attachment C of this Order.
2. Boiler ash from the OMSS plant shall be discharged to LF-3, a Class II cell that is equipped with a containment system which meets the additional requirements for both

liners and leachate collection systems specified in Construction Specification 54 and Attachment C of this Order.

3. During the rainy season, the landfill shall be operated and graded to minimize leachate.
4. Landfill leachate shall be discharged to a Class II surface impoundment or a community sewerage treatment facility.
5. Leachate generated by a landfill unit LCRS shall not exceed 85% of the design capacity of the LCRS or the sump pump. If leachate generation exceeds this value and/or if the depth of fluid in the LCRS sump exceeds the minimum needed for pump operation, then the Discharger shall immediately cease the discharge of sludge and other high-moisture wastes to the landfill unit and shall notify the Board in writing within seven days. Notification shall include a timetable for a corrective action necessary to reduce leachate production.

#### **E. SURFACE IMPOUNDMENT SPECIFICATIONS**

1. SI-1 and SI-2 shall be operated to maintain a freeboard of two feet at all times.
2. Any direct-line discharge to a surface impoundment shall have fail-safe equipment or operating procedures that include daily inspection and manual control of pumping systems during the rainy season to prevent overfilling.
3. Leachate removed from a surface impoundment LCRS shall be discharged to the impoundment from which it originated, except as noted in Discharge Specification B.6.
4. 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. 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 determines that the solids qualify for classification as 'nonhazardous solid waste' or 'inert waste'.

#### **F. 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 Title 27 CCR Section 20324; and
  - b. A geotechnical evaluation of the area soils, evaluating their use as the base layer;
  - c. A revised water quality monitoring plan; and
  - d. 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 Title 27 CCR Section 20415(d).
  - e. An Operation Plan meeting the requirements of Title 27 Section 21760(b).
2. The liner of LF-3, Cell 3 and all new LF-3 cells shall be constructed as an engineered alternative with the following composite liner design:
- a. An engineered alternative composite base liner system that is comprised of two composite liners separated by an LCRS. This double composite liner system shall also be overlain by a second LCRS and a 15-inch operations layer.
  - b. An engineered alternative composite side slope liner system that is comprised, in ascending order, of the following: A GCL (maximum hydraulic conductivity  $5 \times 10^{-9}$  cm/sec); a 60-mil high density HDPE geomembrane; a LCRS/operations layer composed of 24 inches of on-site sandy soils with a hydraulic conductivity of  $1 \times 10^{-3}$  cm/sec or greater and less than 15% silt and clay size particles.
3. The bottom liner of all new LF-2, Class III Units and lateral expansion areas of existing Class III Units shall be constructed in accordance with one of the following composite liner designs:
- a. The prescriptive standard design which consists of a lower compacted soil layer that is a minimum of two feet thick with a hydraulic conductivity of  $1 \times 10^{-7}$  cm/sec or less and has a minimum relative compaction of 90%. Immediately above the compacted soil layer, and in direct and uniform contact with the soil layer, shall be a synthetic flexible membrane component that shall be at least 40-mil thick (or at least 60-mil thick if composed of high density polyethylene [HDPE]), which is immediately overlain with a leachate collection and removal system. A minimum 24 inch thick soil operations layer shall be placed above the leachate collection and removal system or;
  - b. An engineered alternative composite liner system that is composed in ascending order, of the following:

- 1) An twelve-inch thick engineered soil foundation layer that shall be constructed of select fine-grained soil materials which shall be compacted in lifts of six inches or less to 90% of maximum dry density and at 0% to 4% wet of optimum moisture content, in accordance with the approved construction quality assurance plan, and compacted to attain a hydraulic conductivity of  $1 \times 10^{-6}$  cm/sec or less.
  - 2) A nonwoven bottom geotextile, which may be part of the geosynthetic clay layer (GCL).
  - 3) A GCL 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.
  - 4) A 60-mil thick synthetic flexible membrane of HDPE.
  - 5) A 6-inch gravel LCRS drainage layer,
  - 6) A soil operations layer no less than 24 inches thick,
  - 7) The liner will pass (no leak detected) a electronic leak test after installation of the operations layer and all leaks detected will be repaired before any waste is discharged to the unit.
4. All future LF-2 Class III units shall be constructed with an engineered alternative composite side slope liner that is comprised, in ascending order, of the following: A GCL (maximum hydraulic conductivity  $5 \times 10^{-9}$  cm/sec); a 60-mil high density HDPE geomembrane; a LCRS/operations layer composed of 24 inches of on-site sandy soils with a hydraulic conductivity of  $1 \times 10^{-3}$  cm/sec or greater and less than 15% silt and clay size particles.
  5. 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 Regional Board.
  6. Liner system in which a GCL is placed on top of a subgrade, the subgrade for the bottom and the side slopes of the Unit shall be prepared in an appropriate manner using accepted engineering and construction methods so as to provide a smooth surface that is free from rocks, sticks, or other debris that could damage or otherwise limit the performance of the GCL.

7. All future LF-2 and LF-3 base liner systems shall pass (no leak detected) an electronic leak detection test, conducted after installation of the operations layer.
8. Construction shall proceed only after all applicable construction quality assurance plans have been approved by Executive Officer.
9. 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 Title 27 CCR Section 20324(d)(1)(C) 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.
10. 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.
11. If monitoring reveals substantial or progressive increases of leachate generation above the design leachate flow volume by the Unit or portion of the Unit, 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 Regional Board in writing within seven days. The notification shall include a timetable for remedial or corrective action necessary to achieve compliance with the leachate depth limitation.
12. Closure shall not proceed in the absence of closure waste discharge requirements.
13. All containment systems shall include a leachate collection and removal system(LCRS) which shall convey all leachate which reaches the liner to an appropriately lined sump or other appropriately lined collection area. The LCRS shall not rely upon unlined or clay-lined areas for such conveyance.
14. LCRSs shall be designed, constructed and maintained to collect twice the anticipated daily volume of leachate generated by the WMU and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of fluid in any LCRS sump shall be kept at or below the minimum depth that can be achieved with the leachate removal pump.

#### **G. DETECTION MONITORING SPECIFICATIONS**

1. The Discharger shall submit for Executive Officer review and approval a groundwater detection monitoring program demonstrating compliance with Title 27 for any Unit expansion.

2. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, and in accordance with Monitoring and Reporting Program No. R5-2004-0158. A detection monitoring program for a new Unit shall be installed, operational, and one year of monitoring data collected prior to the discharge of wastes [Title 27 CCR Section 20415(e)(6)].
3. The Discharger shall provide Regional Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation, repair, or abandonment of monitoring devices, 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.
4. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, Monitoring and Reporting Program No. R5-2004-0158, and the Standard Provisions and Reporting Requirements, dated April 2000.
5. The Water Quality Protection Standard for organic compounds which are not naturally occurring and not detected in background groundwater samples shall be taken as the detection limit of the analytical method used (i.e., US-EPA methods 8260 and 8270). The repeated detection of one or more 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.
6. The concentrations of the constituents of concern in waters passing the Point of Compliance shall not exceed the concentration limits established pursuant to Monitoring and Reporting Program No. R5-2004-0158.
7. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the Water Quality Protection Standard using procedures specified in Monitoring and Reporting Program No. R5-2004-0158 and Title 27 CCR Section 20415(e).
8. The Discharger shall submit for Executive Officer review and approval a Sample Collection and Analysis Plan. The Sample Collection and Analysis Plan shall at a minimum include:
  - a. Sample collection procedures describing purging techniques, sampling equipment, and decontamination of sampling equipment;
  - b. Sample preservation information and shipment procedures;
  - c. Sample analytical methods and procedures;

- d. Sample quality assurance/quality control (QA/QC) procedures; and
  - e. Chain of Custody control.
9. 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. 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.
  10. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology shall be submitted for review and approval by the Executive Officer prior to use.
  11. The **methods of analysis and the detection limits** used 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.
  12. **“Trace” results** - results falling between the MDL and the practical quantitation limit (PQL) - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
  13. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.
  14. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly

from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with estimates of the detection limit and quantitation limit actually achieved. The **MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.** The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.

15. 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.
16. Unknown chromatographic peaks shall be reported, flagged, and tracked for potential comparison to subsequent unknown peaks that may be observed in future sampling events. Identification of unknown chromatographic peaks that recur in subsequent sampling events may be required.
17. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Title 27 CCR Section 20415(e)(7) 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 Title 27 CCR Section 20415(e)(7), shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, CCR, 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".
18. 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 Title 27 CCR Section 20415(e)(8)(A-D)] in accordance with Title 27 CCR Section 20415(e)(8)(E), for review and approval by the Executive Officer.

19. The Discharger may propose an alternate statistical method [to the methods listed under Title 27 CCR Section 20415(e)(8)(A-D)] in accordance with Title 27 CCR Section 20415(e)(8)(E), 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 Regional Board staff.
20. The Discharger shall use the following non-statistical method for all analytes that are detected in less than 10% of the background samples. The non-statistical method shall be implemented as follows:
  - a. From the constituent of concern or monitoring parameter list, identify each analyte in the **current** sample that exceeds either its respective MDL or PQL. The Discharger shall conclude that the exceedance provides a preliminary indication of a release or a change in the nature or extent of the release, at that monitoring point, if *either*:
    - 1) The data contains two or more analytes that are detected in less than 10% of background samples that equal or exceed their respective MDLs; or
    - 2) The data contains one or more analyte that equals or exceeds its PQL.
  - b. **Discrete Retest** [Title 27 CCR Section 20415(e)(8)(E)]:
    - 1) In the event that the Discharger concludes (pursuant to paragraph 20.a., above) that there is a preliminary indication of a release, then the Discharger shall immediately notify Regional Board staff by phone or e-mail and, within 30 days of such indication, shall collect two new (retest) samples from the monitoring point where the release is preliminarily indicated.
    - 2) For any given retest sample, the Discharger shall include, in the retest analysis, **only the laboratory analytical results for those analytes detected in the original sample**. As soon as the retest data are available, the Discharger shall conclude that there is measurably significant evidence of a release if two or more

analytes equal or exceed their respective MDLs or if one or more analyte equals or exceeds its PQL and shall:

- a) **Immediately** notify the Regional Board about any constituent or constituents verified to be present at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of validation; and
  - b) Comply with ¶21, below if any constituent or constituents were verified to be present.
- 3) Any analyte that triggers a discrete retest per this method shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event.
21. If the Discharger determines that there is measurably significant evidence of a release from the Unit at any monitoring point, 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.

## H. REPORTING REQUIREMENTS

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Regional Board office by telephone **as soon as** it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.
2. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the facility including the 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;
  - f) Weather conditions - wind direction and estimated velocity, total precipitation during recent days and on the day of observation; and
  - g) The quantity and types of wastes discharged and the locations in the Unit where waste has been placed since submittal of the last such report.
5. The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Regional Board **within seven days**, containing at least the following information:
- a. A map showing the location(s) of seepage;
  - b. An estimate of the flow rate;
  - c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);
  - d. Verification that samples have been submitted for analyses of the Constituents of Concern and Monitoring Parameters, and an estimated date that the results will be submitted to the Regional Board; and
  - e. Corrective measures underway or proposed, and corresponding time schedule.
6. The Discharger shall submit an **Annual Monitoring Summary Report** to the Regional Board covering the reporting period of the previous monitoring year. This report shall contain:
- a. All monitoring parameters and constituents of concern shall be graphed so as to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than

- plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
- b. Unless otherwise exempted by the Executive Officer, all monitoring analytical data obtained during the previous two six-month reporting periods, shall be submitted in tabular form as well as in a digital file format acceptable to the Executive Officer. The Regional Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Title 27 CCR Section 20420(h)], in that this facilitates periodic review by the Regional Board.
  - c. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with 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.

## **I. 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. R5-2004-0158, 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 (Title 27 CCR Section 20005 et seq. and 40 CFR 258 et seq.), dated April 2000, which are hereby incorporated into this Order.
5. All reports and transmittal letters shall be signed by persons identified below:

- a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
- b. For a partnership or sole proprietorship: by a general partner or the proprietor.
- c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.
- d. A duly authorized representative of a person designated in a, b or c above if;
  - 1) The authorization is made in writing by a person described in a, b, or c of this provision;
  - 2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
  - 3) The written authorization is submitted to the Regional Board.
- e. Any person signing a document under this Section shall make the following certification:

“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”
6. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.
7. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and 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 Regional Board requesting transfer of the Order within 14 days of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Board, and a statement. The statement shall comply with the signatory requirements contained in Provision 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 Regional Board.
10. The Discharger shall establish cost estimates for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill, and submit these estimates to the Executive Officer for review and approval.
11. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill in an amount approved by the Executive Officer, and shall submit the financial assurance mechanism to the Financial Assurances Section of the California Integrated Waste Management Board.
12. The Discharger is required to maintain financial assurance mechanisms for closure and post-closure maintenance costs as specified in Chapter 6 of Title 27. The Discharger is required to submit the financial assurance mechanism to the Financial Assurances Section of the California Integrated Waste Management Board, which determines if the mechanism meets the requirements of Chapter 6, Title 27, and if the amount of coverage is adequate.
13. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule:

<u>Task</u>	<u>Compliance Date</u>
<b>A. Construction Plans</b>	
Submit construction and design plans for Executive Officer review and approval. (see Construction Specification D.1)	<b>Prior to construction</b>

**B. 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.6)

**Prior to discharge**

**C. Water Quality Protection Standard**

Submit a Water Quality Protection Standard report that compares interwell and intrawell concentration limits for each monitored medium at each monitoring point.

**90 days after adoption  
of these WDRs**

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 15 October 2004.

RDA: 10/15/2004

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THOMAS R. PINKOS, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2004-0158  
FOR  
STANISLAUS COUNTY DEPARTMENT OF PUBLIC WORKS  
FOR  
OPERATION OF  
FINK ROAD CLASS II AND CLASS III LANDFILLS  
STANISLAUS 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. R5-2004-0158.

**A. REQUIRED MONITORING REPORTS**

<u>Report</u>	<u>Due</u>
1. Groundwater Monitoring (Section D.1)	<b>See Table I</b>
2. Annual Monitoring Summary Report (Order No. R5-2004-0158, F.6.)	<b>Annually</b>
3. Unsaturated Zone Monitoring (Section D.2)	<b>See Table II</b>
4. Leachate Monitoring (Section D.3)	<b>See Table III</b>
5. Surface Water Monitoring (Section D.4)	<b>See Table IV</b>
6. Facility Monitoring (Section D.5)	<b>As necessary</b>
7. Response to a Release (Standard Provisions and Reporting Requirements)	<b>As necessary</b>

**B. REPORTING**

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in Order No. R5-2004-0158 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. R5-2004-0158.

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	<b>by Quarterly Schedule</b>
Quarterly	Quarterly	31 March	<b>30 April</b>
		30 June	<b>31 July</b>
		30 September	<b>31 October</b>
		31 December	<b>31 January</b>
Semiannually	Semiannually	30 June	<b>31 July</b>
		31 December	<b>31 January</b>
Annually	Annually	31 December	<b>31 January</b>

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. R5-2004-0158, 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. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD**

**1. Water Quality Protection Standard Report**

For each waste management unit (Unit), the Water Quality Protection Standard shall consist of all constituents of concern, the concentration limit for each constituent of concern, the point of compliance, and all water quality monitoring points.

The Water Quality Protection Standard for naturally occurring waste constituents consists of the constituents of concern, the concentration limits, and the point of compliance and all monitoring points. The Executive Officer shall review and approve the Water Quality Protection Standard, or any modification thereto, for each monitored medium.

The report shall:

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

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

## **2. Constituents of Concern**

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

### **a. Monitoring Parameters**

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

### 3. Concentration Limits

The Discharger shall submit a revised Water Quality Protection Standard Report proposing intrawell concentration limits for naturally occurring constituents of concern. The report will compare intrawell and interwell concentration limits and consider if adoption of intrawell limits will significantly delay identification of any future releases from the facility. Based on the results of this study new concentration limits for naturally occurring constituents of concern will be adopted by the executive officer.

### 4. Current Water Quality Protection Standards

The existing concentration limits for naturally occurring constituents of concern are as follows:

<u>Constituent</u>	<u>Concentration Limit</u>	<u>units</u>
TDS	374	mg/L
Sulfate	12	mg/L
Nitrate as N	11	mg/L
Chloride	28	mg/L

New concentration limits will be adopted when an acceptable Water Quality Protection Standard Report is submitted.

### 5. 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. The following are the points of compliance:

- LF-1: MW-9, -10, and -11.
- LF-2, Cell 1: DL-20A, -21A, and -22A; MW-18, and -19.
- LF-2, Cell 2: DL-26, and -27; MW-14, and -18.
- LF-2, Cell 3: Pan lysimeter beneath Cell 3; MW-14, and -18.
- LF-3, Cell 1: DL-1 through DL-13 inclusive, and MW-16.

LF-3, Cell 2: DL-28, -29, and -30; MW-16.  
LF-3, Cell 3: Pan lysimeter beneath Cell 3; MW-16, and -19.  
SI-1: Subdrain system beneath SI-1; and MW-19.  
SI-2: DL-23, -24, and -25; and MW-18.

The points of compliance for future LF-2 and LF-3 Cells will be the cell pan lysimeter and downgradient monitor wells.

## 6. Monitoring Points

A monitoring point is a well, device, or location specified in the waste discharge requirements at which monitoring is conducted and at which the water quality protection standard applies. The monitoring points for detection monitoring shall be the following:

Surface Water:	S-1, S-2, S-3
Ground Water	MW-10, -11, -12, -13, -14, -16, -17, -18, and -19 (and other monitoring wells when constructed).
Vadose Zone	BL-1, -2, -3, -4, -5; DL-1 through -33 inclusive; the pan lysimeters beneath LF-2, Cell 3 and LF-3, Cell 3; and the subdrain beneath SI-1 (and other lysimeters when constructed).

The monitoring points for corrective action monitoring shall be the following:

Ground Water	MW-09, -18, -19, -20, -21 and -22
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## 7. 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. If the Discharger's Corrective Action Program (CAP) has not achieved compliance with the Standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the facility has been in continuous compliance for at least three consecutive years.

## **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.2 and E.4 of Waste Discharge Requirements, Order No. R5-2004-0158. 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 a groundwater detection monitoring system that complies with the applicable provisions of §20415 and §20420 of Title 27 in accordance with a Detection Monitoring Program approved by the Executive Officer. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

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

Hydrographs of each well shall be submitted showing the elevation of

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

Groundwater samples shall be collected from the detection wells, corrective action 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 groundwater monitoring network shall consist of:

<u>Well</u>	<u>Status</u>	<u>Function</u>
MW-9	Corrective Action	LF-1
MW-10	Detection	LF-1
MW-11	Detection	LF-1
MW-12	Background	LF-1 & LF-2
MW-13	Detection	LF-2 Cells 5 & 6
MW-14	Detection	LF-2 Cells 3 & 4
MW-16	Corrective Action	LF-3 Cells 1 & 2
MW-17	Background	LF-3
MW-18	Correction Action	LF-2 Cells 1 & 2
MW-19	Corrective Action	SI-1
MW-20	Corrective Action	Up-gradient sources
MW-21	Corrective Action	Up-gradient sources
MW-22	Corrective Action	LF-2

Downgradient monitoring wells shall constitute the “points of compliance; with respect to groundwater. Additional monitoring wells may be required as the landfill expands. Locations of these wells are shown on Attachment B.

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

The unsaturated zone monitoring network shall consist of 'background' monitoring devices BL-1, -2, -3, -4, and -5. Downgradient monitoring devices DL-1 through DL-29, the pan lysimeters beneath LF-2, Cells 3 and 4; LF-3 Cell 3; and the subdrain beneath SI-1 shall constitute the "points of compliance" with respect to soil-pore liquid. Unsaturated zone monitoring devices shall be checked monthly for fluid and monitoring shall include the volume of fluid recovered. All future waste management units shall also have vadose zone monitoring which meets the requirements of this Section.

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 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).

All LCRSs shall be tested annually to demonstrate operation in conformance with waste discharge requirements. The results of these tests shall be reported to the Board and shall include comparison with earlier tests made under comparable conditions. All visible portions of synthetic liners shall be inspected on a quarterly bases and their condition reported quarterly to the Board.

The Discharger shall monitor leachate discharged to the Class II surface impoundments (SI-1 and SI-2) and LCRS sumps on a daily basis and report to the Board the parameters and frequencies in Table III. Separate grab samples shall be collected from the LCRS outfall pipes of LF-3 (Cells 1 and 2 combined, Cell 3); LF-2, (Cells 1, 2, and 3); all new cells and from the SI-1 and SI-2 LCRS sumps. These samples shall be analyzed for the parameters and constituents and at the frequencies indicated in Table III below. Leachate monitoring shall be incorporated into all future expansions at the landfill.

#### **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.

Surface water flows from on and around WMUs shall be monitored during significant storm events and sampled where they leave the facility boundary at locations S-1, S-2, and S-3 as shown in Attachment B. For all surface water monitoring points 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.

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

#### **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. R5-2004-0158. 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.

**6. Corrective Action Monitoring**

The Discharger shall collect and analyze all data necessary to assess the success of correction actions. This assessment shall include a determination of the spatial distribution and concentration of each COC throughout the zone affected by the release. In conjunction with the assessment the Discharger shall monitor groundwater, surface water, and the unsaturated zone to evaluate changes in water quality resulting from the corrective action. Based on the data collected the corrective action may be revised, or discontinued.

For each monitored medium, all Monitoring Points assigned to corrective action monitoring, and all Background Monitoring points shall be monitored once each calendar quarter for the monitoring Parameters listed in this Program.

For any given monitored medium, a sufficient number of samples shall be taken from all Monitoring Points and Background Monitoring Points to satisfy the data analysis requirements for a given Reporting Period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

Groundwater sampling shall also include an accurate determination of the groundwater surface elevation and field parameters (pH, temperature, electrical conductivity, turbidity) for that Monitoring Point or Background Monitoring Point. Groundwater elevations taken prior to purging the well and sampling for

Monitoring Parameters shall be used to fulfill the groundwater gradient/direction analyses required. For each monitored groundwater body, the Discharger shall measure the water level in each well and determine groundwater gradient and direction at least quarterly, including the times of expected highest and lowest elevations of the water level for the respective groundwater body. Groundwater elevations for all background and downgradient wells for a given groundwater body shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater gradient and direction. This information shall be included in the quarterly monitoring reports.

Statistical or non-statistical analysis should be performed as soon as the monitoring data are available.

The Discharger is conducting corrective action monitoring for corrective actions initiated in response to releases from LF-1; from SI-1 and -2; and from LF-3 Cells 1 & 2. At LF-1, VOCs were released to groundwater via escaping landfill gases. As corrective action, the County completed source control measures including installation of a final landfill cover and a landfill gas extraction system. Corrective action monitoring is ongoing at LFG-1S, -1D, -2S, -2M, -2D, -3S, -3M, -3D and MW-9 to evaluate the effectiveness of these source control measures as a corrective action.

At SI-1 and -2, VOCs and several inorganic constituents were detected in lysimeters and in groundwater at MW-15 (this well is now abandoned). In response to the releases the County implemented source control measures including reconstruction of SI-1 in 1999, reconstruction of the leachate drainage system from LF-3 in 1998, adjustment the SI-2 LCRS sump to prevent more than six inches of fluid collecting in the sump. Corrective action monitoring is ongoing at DL-20A, -21A, -22A, -23, -24, -25, MW-18 and -19 to evaluate the effectiveness of these source control measures as a corrective action.

At LF-3 Cells 1 & 2 several inorganic constituents were detected in lysimeters and in groundwater at MW-16. The County has completed source control measures for releases from LF-3. These source control measures include reconstruction of the leachate drainage system from LF-3 in 1998. Corrective action monitoring is ongoing at DL-28, -29, -30, MW-16, -17, -20, -21, and -22 to evaluate the effectiveness of the source control measures as corrective action and to evaluate possible upgradient sources of inorganic constituents.

## **7. Nonhazardous Solid Waste Monitoring**

The Discharger shall monitor all wastes discharged to the Class III landfill waste management units (WMUs) on a monthly basis and report to the Board as follows:

<u>Parameter</u>	<u>Units</u>	<u>Report Frequency</u>
Quantity discharged	Cubic yards	Quarterly
Type of material discharged	–	Quarterly
Source of material	–	Quarterly
Minimum elevation of discharge	Feet (MSL)	Quarterly
Remaining Capacity of Cell	%	Annually

**8. Designated Solid Waste Monitoring**

All designated solid waste ash (boiler ash) generated from the Ogden Martin Systems of Stanislaus, Incorporated (OMSS), (formerly Stanislaus Waste Energy Company), discharged to LF-3 shall be monitored on a daily basis and reported to the Board as follows:

<u>Parameter</u>	<u>Units</u>	<u>Report Frequency</u>
Quantity discharged	Tons & yds <sup>3</sup>	Quarterly
Minimum elevation of discharge	Feet (MSL)	Quarterly
Remaining capacity of Cell	%	Annually

The ash monitoring program shall include appropriate sampling protocol, quality assurance/quality control (QA/QC), and statistical evaluation. Ash monitoring shall include, at a minimum, the parameters and constituents analyzed and reported at the frequencies specified in Table V.

**9. Designated Solid Waste Moisture Content Monitoring**

A combustion ash moisture monitoring plan for the OMSS facility boiler ash was developed and implemented in order to exclude wastes containing free liquid and free moisture potentially generated from compaction due to the landfilling process. The summer load checking procedure shall be followed between **1 May** and **1 October** of each year and the winter load checking procedure shall be followed between **1 October** and **1 May** of each year pursuant to the Combustion Ash Moisture Monitoring Plan effective **1 May 1991**. The ash moisture content shall not exceed **18 percent**. Moisture content analyses shall be in accordance with ASTM D2216.

MONITORING AND REPORTING PROGRAM NO. R5-2004-0158  
STANISLAUS COUNTY DEPARTMENT OF PUBLIC WORKS  
FOR OPERATION  
FINK ROAD CLASS II AND CLASS III LANDFILLS  
STANISLAUS COUNTY

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A technical report shall be submitted by **15 January** on an annual basis summarizing the testing results and sampling and analysis methods. These reports may be submitted with annual monitoring reports and should include an evaluation of the effectiveness of the previous year's monitoring and compliance program.

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

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

\_\_\_\_\_ 15 October 2004  
(Date)

RDA:10/15/04

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

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Field Parameters</b>		
Groundwater Elevation	Ft. & hundredths, M.S.L.	Quarterly
Temperature	°C	Quarterly
Electrical Conductivity	µmhos/cm	Quarterly
pH	pH units	Quarterly
Turbidity	Turbidity units	Quarterly
<b>Monitoring Parameters</b>		
Total Dissolved Solids (TDS)	mg/L	Quarterly
Chloride	mg/L	Quarterly
Carbonate	mg/L	Quarterly
Bicarbonate	mg/L	Quarterly
Nitrate - Nitrogen	mg/L	Quarterly
Sulfate	mg/L	Quarterly
Calcium	mg/L	Quarterly
Magnesium	mg/L	Quarterly
Potassium	mg/L	Quarterly
Sodium	mg/L	Quarterly
Volatile Organic Compounds (USEPA Method 8260, see Table V)	µg/L	Semiannual
<b>Constituents of Concern (see Table VI)</b>		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 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 DETECTION MONITORING PROGRAM**

**PAN LYSIMETERS (or other vadose zone monitoring device)**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Field Parameters</b>		
Electrical Conductivity	µmhos/cm	Quarterly
pH	pH units	Quarterly
<b>Monitoring Parameters</b>		
Total Dissolved Solids (TDS)	mg/L	Quarterly
Chloride	mg/L	Quarterly
Carbonate	mg/L	Quarterly
Bicarbonate	mg/L	Quarterly
Nitrate - Nitrogen	mg/L	Quarterly
Sulfate	mg/L	Quarterly
Calcium	mg/L	Quarterly
Magnesium	mg/L	Quarterly
Potassium	mg/L	Quarterly
Sodium	mg/L	Quarterly
Volatile Organic Compounds (USEPA Method 8260B, see Table V)	µg/L	Quarterly
<b>Constituents of Concern (see Table VI)</b>		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 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 DETECTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Field Parameters</b>		
Total Flow	Gallons	Monthly
Flow Rate	Gallons/Day	Monthly
Electrical Conductivity	µmhos/cm	Monthly
pH	pH units	Monthly
<b>Monitoring Parameters</b>		
Total Dissolved Solids (TDS)	mg/L	Quarterly
Chloride	mg/L	Quarterly
Carbonate	mg/L	Quarterly
Bicarbonate	mg/L	Quarterly
Nitrate - Nitrogen	mg/L	Quarterly
Sulfate	mg/L	Quarterly
Calcium	mg/L	Quarterly
Magnesium	mg/L	Quarterly
Potassium	mg/L	Quarterly
Sodium	mg/L	Quarterly
Volatile Organic Compounds (USEPA Method 8260B, see Table V)	µg/L	Semi-annually
<b>Constituents of Concern (see Table VI)</b>		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 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 DETECTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Field Parameters</b>		
Temperature	°C	Quarterly
Electrical Conductivity	µmhos/cm	Quarterly
pH	pH units	Quarterly
Turbidity	Turbidity units	Quarterly
<b>Monitoring Parameters</b>		
Total Dissolved Solids (TDS)	mg/L	Quarterly
Carbonate	mg/L	Quarterly
Bicarbonate	mg/L	Quarterly
Chloride	mg/L	Quarterly
Nitrate - Nitrogen	mg/L	Quarterly
Sulfate	mg/L	Quarterly
Calcium	mg/L	Quarterly
Magnesium	mg/L	Quarterly
Potassium	mg/L	Quarterly
Sodium	mg/L	Quarterly
Volatile Organic Compounds (USEPA Method 8260B, see Table V)	µg/L	Semiannual
<b>Constituents of Concern (see Table VI)</b>		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 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 – ASH MONITORING PROGRAM**

<u>Parameter/Constituent</u> <sup>1</sup>	<u>Sampling/Testing Frequency</u>	<u>Reporting Frequency</u>
Corrosivity (pH) <sup>2</sup>	Bimonthly	Bimonthly
Moisture Content	Bimonthly	Bimonthly
TCLP Metals (Cd, Pb) <sup>3</sup>	Bimonthly	Bimonthly
WET Metals (Cd, Cu, Pb, Ni, Zn) <sup>3</sup>	Bimonthly	Bimonthly
Total Metals (Cd, Cu, Pb, ni, Zn) <sup>3</sup>	Bimonthly	Bimonthly
Dioxins/Furans	Annually	Annually
Acute Aquatic Bioassay <sup>4</sup>	Annually	Annually

- 1 Four discrete shall be collected and analyzed in accordance with the Ash Sampling and analysis Monitoring Plan (as agreed to by the Department of Toxic Substances Control on September 24, 1990).
- 2 Bimonthly analysis of corrosivity (pH) shall be in accordance with Section 66261.22, Title 22, California Code of Regulations (22 CCR).
- 3 Bimonthly analyses of total metals (Cd, Cu, Pb, Ni, and Zn), TCLP metals (Cd, Pb), and WET metals (Cd, Cu, Pb, Ni, and Zn) shall be in accordance with those procedures outlined in 22 CCR Section 66261.24.
- 4 Annual analysis of acute aquatic bioassay shall be in accordance with 22 CCR Section 66261.24(a)(6).

**TABLE VI**  
**MONITORING PARAMETERS FOR DETECTION MONITORING**

**Surrogates for Metallic Constituents:**

pH  
Total Dissolved Solids  
Electrical Conductivity  
Chloride  
Sulfate  
Nitrate nitrogen

**Constituents included in VOC:**

**USEPA Method 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 VI**  
**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 VII**  
**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

<b><u>Inorganics (dissolved):</u></b>	<b><u>USEPA Method</u></b>
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 VII**

**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

**TABLE VII**

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

**Continued**

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

**TABLE VII**

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

**Continued**

2-Chloronaphthalene  
2-Chlorophenol  
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

**TABLE VI**

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

**Continued**

Hexachloropropene  
Indeno(1,2,3-c,d)pyrene  
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



**TABLE VI**

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

**Continued**

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

## INFORMATION SHEET

ORDER NO. R5-2004-0158  
STANISLAUS COUNTY DEPARTMENT OF PUBLIC WORKS  
FOR OPERATION OF  
FINK ROAD CLASS II AND CLASS III LANDFILLS  
STANISLAUS COUNTY

The Fink Road Landfill is in western Stanislaus County, about 20 miles southwest of the city of Modesto. The site is 3.5 miles west of Crows Landing, near the intersection of Fink Road and Interstate 5. The Fink Road Landfill facility is owned and operated by Stanislaus County.

The Fink Road Landfill facility consists of five waste management units (WMUs):

- LF-1: a closed 18.3-acre Class III municipal solid waste landfill, final cap constructed in 1997
- LF-2: an active 92.3-acre Class III municipal solid waste landfill, consisting of seven cells
- LF-3: an active 37-acre Class II ash monofill
- SI-1: a 1-acre Class II surface impoundment for leachate from the leachate collection and removal system (LCRS) of LF-3
- SI-2: a 1.4-acre Class II surface impoundment for leachate from the LCRS of LF-2

A waste-to-energy (WTE) cogeneration facility, operated by Ogden Martin Systems of Stanislaus, Incorporated, occupies a 16.5-acre area at the southwest corner of the site.

The closed 18.3-acre LF-1 was permitted for the disposal of municipal solid waste, infectious waste, and construction debris. These wastes are classified as “nonhazardous solid waste” or “inert waste”. Landfill operations in LF-1 ceased in June 1993 following construction and commencement of operations of LF-2, Cell 1. Detection of volatile organic compounds in the groundwater downgradient of the LF-1 indicated a release from this WMU. The Discharger implemented the first phase of corrective action in 1997. The first phase consisted of final grading, final drainage, and placement of a final cap over LF-1. The second phase is to include installation of a landfill gas collection system in 1998. The Discharger has also proposed corrective action monitoring to determine the effectiveness of the corrective actions.

LF-2 is a Class III Municipal Solid Waste Landfill. Cell 3 is currently active, and Cells 1 and 2 have reached capacity. Municipal solid wastes are currently being disposed of in LF-2, Cell 3. On 27 April the Discharger submitted a performance demonstration for a proposed single composite liner design to be used for future Cells III at LF-2. The liner design consists of from bottom to top: a prepared sub-grade, a pan lysimeter under the leachate sump and the LCRS troughs, 1-foot of compacted soil with a hydraulic conductivity of  $10^{-6}$  cm/sec or less, a GCL with a hydraulic conductivity of  $5 \times 10^{-9}$  cm/sec or less, a 60-mil thick HDPE geomembrane, 0.5 feet thick blanket LCRS, and a minimum 24 inch thick operations layer. The liner shall pass an electronic leak detection test prior to the discharge of waste. The liner demonstration projected VOC concentrations in groundwater less than detection limits and increases in salt concentrations less than the natural variability in background groundwater. These WDRs find that the proposed liner design will be installed at least 10 feet above groundwater level, which meets the performance standard for Class III landfill units

LF-3, a Class II ash monofill accepts only ash from the adjacent waste to energy plant. The plant and LF-3 have been in operation since 1988. LF-3 has a total capacity of 3.13 million cubic yards. Double composite base liner was previously approved for use in LF-3. Previous Waste Discharge Requirements

INFORMATION SHEET  
STANISLAUS COUNTY DEPARTMENT OF PUBLIC WORKS  
FOR OPERATION OF  
FINK ROAD CLASS II AND CLASS III LANDFILLS  
STANISLAUS COUNTY

approved the use of a double composite liner design that consists of two composite liners separated by an LCRS and also overlain by a second LCRS for use in Class II cells at LF-3.

The Discharger reconstructed SI-1 in 1999 to increase the impoundment storage capacity from approximately 218,000 gallons to 5 million gallons and replaced the existing two-foot thick low-permeability layer with an engineered alternative. This alternative consists of, from bottom to top: a GCL; an 80-mil HDPE geomembrane secondary liner; an HDPE geonet; and an 80-mil HDPE geomembrane primary liner. The Board approved this engineered alternative in Waste Discharge Requirements Order No. 98-184.

Surface drainage for the northern quarter of the site is to the South Fork of Little Salado Creek, a tributary of the San Joaquin River. The remaining three quarters of the site drains to the east via a closed conduit under Interstate 5 and the California Aqueduct and thence via an open channel to Crow Creek, a tributary of the San Joaquin River.