

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2003-0049
WASTE DISCHARGE REQUIREMENTS
FOR
FORWARD INC. AND ALLIED WASTE INDUSTRIES
FOR
OPERATION OF
FORWARD LANDFILL, A CLASS II FACILITY
SAN JOAQUIN COUNTY

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

1. Forward Inc. (hereafter Discharger) a subsidiary of Allied Waste Industries owns and operates a Class II solid waste landfill about seven miles southeast of Stockton. The landfill is located in Section 3, T1S, R7E, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order.
2. The Discharger operated Forward Landfill since 1973. The adjacent Austin Road Sanitary Landfill was owned by the City of Stockton and operated intermittently from 1954 to the present. In September 2000, the Discharger purchased the Austin Road Landfill. This WDR combines operations at the old Forward Landfill and the Austin Road Landfill under a single permit. The combined landfill (hereafter Forward Landfill) is approximately 567 acres facility and includes both existing and future waste management units, as shown in Attachment B, which is incorporated herein and made part of this Order. The facility is comprised of Assessor's Parcel Numbers (APN) 181-150-07, 181-150-08, 181-150-09, 181-150-10, 201-060-01, 201-060-02, 201-060-03, and 201-060-05.
3. The Discharger proposes to construct new Waste Management Units for the discharge of Class II waste on approximately 121 acres between the old Forward Landfill and the Austin Road Landfill.
4. On 20 June 1997, the Board issued Order No. 97-141 for old Forward Landfill, in which the facility was classified as a Class II waste disposal site. The facility includes one Class I unit (WMU A). On 7 June 2002, the Board issued Order No. R5-2002-0121 for Austin Road Landfill, in which the facility was classified as a Class III municipal solid waste disposal site. This Order classifies the future Unit(s) at the combined landfill as Class II units that accept solid waste in accordance with Title 27, California Code of Regulations, §20005, et seq. (Title 27).

SITE DESCRIPTION

5. The measured hydraulic conductivity of the uppermost aquifer underlying the Unit ranges between 2×10^{-2} and 2×10^{-3} cm/sec.

6. The closest fault, the Tracy-Stockton Fault Zone is approximately 6.5 miles to the northwest. Maximum Credible Earthquake Moment magnitudes for faults within 100 miles of the facility range between 6.7 and 7.9 on the Richter scale. The maximum credible horizontal ground acceleration for the site is 0.13 g.
7. Land uses within 1,000 feet of the facility are agriculture and residential. The Stockton Metropolitan Airport is approximately one mile from the site, Youth and Women's criminal detention facilities are approximately 1,900 feet north of the site, and the BNSF Intermodal Facility is approximately one mile northeast of the site.
8. The facility receives an average of 14.27 inches of precipitation per year as measured at the Stockton Weather Station approximately eight miles northwest of the site. The mean pan evaporation is 78.43 inches per year as measured at the Oakdale Woodward Dam Station, located approximately 13 miles southeast of the site.
9. The 100-year, 24-hour precipitation event is estimated to be 3.25 inches, based on Department of Water Resources' bulletin entitled *Rainfall Depth-Duration-Frequency for California*, 1981.
10. Part of the waste management facility is within a 100-and 500-year flood plain based on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map. Ongoing realignment of the North Branch of Little Johns Creek should eliminate the floodplain areas from the landfill footprint.
11. There are 35 domestic, industrial, or agricultural groundwater supply wells within one mile of the site.

WASTE AND SITE CLASSIFICATION

12. The Discharger discharges designated, nonhazardous, and inert solid wastes to Class II landfill units. Designated and nonhazardous solid wastes include, but are not limited to asbestos, commercial and industrial waste, municipal solid waste, coal and wood ash, contaminated soils, salty wastes, construction and demolition waste, shredder waste and dewatered sewage sludge. Contaminated soils may include, but are not limited to, treated, and untreated petroleum products, metals or other constituents. Designated wastes are defined in §20164 of Title 27. Nonhazardous solid wastes includes municipal solid wastes, as referred to in the Code of Federal Regulations, Title 40, Part 258.2.
13. The Discharger discharges wastes containing greater than one percent friable asbestos in units with single composite liners. These wastes are classified as 'hazardous' under Title 22 of CCR. However, because these do not pose a threat to groundwater quality, Section 25143.7 of the Health and Safety Code permits their disposal in any landfill which has waste

discharge requirements that specifically permit the discharge, provided that the wastes are handled and disposed of in accordance with applicable statutes and regulations.

14. DTSC has granted a shredder waste variance, for the purposes of disposal, from hazardous waste management requirements pursuant to Title 22 of the CCR. Shredder waste is any non-recyclable wastes which results from the shredding of automobile bodies (from which batteries, mufflers, and exhaust pipes have been removed), household appliances, and sheet metal.
15. The Discharger proposes to discharge shredder waste to units with single composite liners.
16. The Discharger proposes to discharge dewatered sewage and water treatment sludges to units with single composite liners. If disposed directly into the landfill sludge is mixed with refuse, the mixed sludge will not exceed the moisture holding capacity of the refuse. Sludges containing excess moisture may be air-dried on a bermed compacted clay pad. When dry the sludge and underlying soil are disposed in the WMU.
17. The Discharger accepts soils contaminated with less than hazardous levels of petroleum hydrocarbons. These soils are either treated in the land treatment unit, or discharged to Class II landfill units. The Discharger has demonstrated that soil contaminated with less than hazardous levels of petroleum hydrocarbons can be transformed to a 'nonhazardous solid waste' in the treatment unit.
18. Leachate from the landfill units and liquid wastes described in Discharge Specification B.3. will be discharged to three Class II surface impoundments that are planned for the site. Class II impoundment WMU F North is located at the southwest corner of the existing Forward Landfill. A second Class II impoundment will be constructed south of South Branch Creek and a third Class II impoundment will be constructed southwest of the old Austin Road Landfill. If leachate production exceeds impoundment capacity, excess leachate will either be contained in temporary on-site above ground tanks or will be transported to Stockton Municipal Utility District wastewater treatment plant for off-site disposal.
19. WMU-A, an 8-acre unit on the northeast corner of the old Forward Landfill is a closed Class I (hazardous waste) landfill unit. Documented hazardous waste discharged to WMU-A include metals, sulfides, hydroxides, kiln waste, hydrocarbons, phosphoric acid and other sludges, acids and bases, filter cake from metal plating operations, pesticides and herbicide residues, wood preserving chemicals, formaldehyde, phenolic resins, and rotary drilling fluids. WMU-A stopped accepting waste in 1984 and was closed in 1989.
20. Waste management units at Forward are described in the following table:

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Unit	Area acres	Class	Description	Status
A	8.0	I	Four trenches with compacted clay liner and dendritic LCRS. Built 1973. Designated and hazardous waste.	Closed in 1989.
B-North	2.8	III	Unlined – construction debris and inert waste. Built 1978.	Inactive since 1986.
B	12.1	III	Unlined – nonhazardous solid waste.	Temporarily inactive.
C	3.9	III	Compacted clay Liner (CCL) base, dendritic LCRS. Built 1984.	Inactive, overlain by subsequent units.
D-87	2.5	III	Two feet CCL base, dendritec LCRS. Built 1987.	Inactive, overlain by subsequent units.
D-88N, -88S	4.6, 1.5	III	Four feet CCL base, dendritic LCRS.	Inactive, overlain by subsequent units.
D-89	3.5	II	Four feet CCL base, blanket LCRS.	Inactive, overlain by subsequent units.
D-93	4.6	II	Single Composite Liner – two feet CCL, 60 mil HDPE, blanket LCRS	Inactive, overlain by subsequent units.
D-94	2.5	II	Single Composite Liner – GCL, 60 mil HDPE, blanket LCRS (geocomposite drain net)	Inactive, overlain by subsequent units.
D-95,-97 -98, -99, -00, -01.	Total – 47.5	II	Single Composite Liner – two feet CCL, 60 mil HDPE, blanket LCRS.	Active

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Unit	Area acres	Class	Description	Status
E	6	II	Two feet CCL, blanket LCRS. For coal ash only.	Closed in 1999
F North	1	II	Double lined surface impoundment for leachate – GCL, 60 mil HDPE, goenet, 60 mil HDPE. Capacity – 3.5 million gallons.	Active
G North G South	78.1 (max.)	II	Area for land treatment unit – treatment of petroleum contaminated soils, includes soil storage and clay lined sludge drying areas.	Inactive
Austin Road Unit 1	123.9	III	Unlined municipal solid waste landfill, built 1954.	Interim Closure in 2002.
Future H (multiple units)	24.9	II	Single composite liners – two feet CCL, 60 mil HDPE, blanket LCRS. Located south of South Branch Littlejohns Creek.	Permitted, to be constructed as needed.
Future F South	2.6	II	Planned Class II surface impoundment located south of South Branch Littlejohns Creek.	Permitted, to be constructed as needed.
Future Austin Road Units	121	II	Single composite liners – two feet CCL, 60 mil HDPE, blanket LCRS. Located between old Austin Road and old Forward landfills.	Permitted by this order, to be constructed as needed.
Future Austin LCRS pond	1 to 2	II	Planned Class II surface impoundment to be located at southwest corner of Austin Road Unit 1.	Permitted by this order, to be constructed as needed.

SURFACE AND GROUND WATER CONDITIONS

21. The Water Quality Control Plan, Fourth Edition for the Sacramento River Basin and the San Joaquin River Basin (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
22. Surface drainage is toward the west in the Duck-Littlejohns Hydrologic Area (31.40) of the San Joaquin River Basin.

23. The landfill is on the floor of the northern San Joaquin Valley. The designated beneficial uses of Littlejohns Creek, as specified in the Basin Plan, are agricultural supply, industrial service and process supply water, contact and non-contact water, recreation, warm fresh water habitat, preservation of rare, threatened and endangered species, and groundwater recharge.
24. The first encountered groundwater is about 60 to 80 feet below the native ground surface. Groundwater elevations range from -20 feet MSL to -30 feet MSL. The groundwater is unconfined. The depth to groundwater fluctuates seasonally as much as 10 feet.
25. Monitoring data indicates background groundwater quality has an electrical conductivity (EC) ranging between 900 and 1100 micromhos/cm, with total dissolved solids (TDS) ranging between 600 and 800 mg/l.
26. The direction of groundwater flow is toward the north-northeast. The average groundwater gradient is approximately 0.0016 foot per foot. The average groundwater velocity is 195 feet per year.
27. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal supply, agricultural supply, industrial service supply and industrial process supply.

GROUNDWATER MONITORING

28. The Forward/Austin Road Landfills combined currently have a total of 32 monitor wells, divided between background, detection and corrective action wells. Additional corrective action wells to monitor performance of revised corrective actions are planned for the future.
29. The Discharger's detection monitoring program for groundwater at the combined Forward/Austin Road facility satisfies the requirements contained in Title 27.
30. Volatile organic compounds (VOCs) are often detected in a release from a landfill, and are often the primary waste constituents detected in groundwater beneath solid waste landfills (see Findings No. 35 and 36). Since volatile organic compounds are not naturally occurring and thus have no background value, they are not amenable to the statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a Unit.
31. Sections 20415(e)(8) and (9) of Title 27 provide for the non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible detection of a release from a Unit in accordance with §20415(b)(1)(B)2.-4. of Title 27. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.

32. The Board may specify a non-statistical data analysis method pursuant to Section 20080(a)(1) of Title 27. Section 13360(a)(1) of the California Water Code allows the Board to specify requirements to protect underground or surface waters from leakage from a solid waste site, which includes a method to provide the best assurance of determining the earliest possible detection of a release.
33. 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.
34. 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

35. Significant VOC impacts to groundwater including but not limited to dichloroethane, dichloroethylene, tetrachloroethylene, and trichloroethylene are associated with the old Austin Road Landfill, now the north Unit at Forward landfill. Impacts were initially detected in 1989, by 1991 evaluation monitoring determined that chlorinated hydrocarbons impacts extended as far as 1,000 feet down-gradient from the Austin Road landfill. A corrective action was approved in 1991, by 1998 it was apparent that the initial corrective actions had failed to remediate the groundwater impacts. In June 2002 the Board adopted Order No. R5-2002-0121 to implement revised corrective actions and remediate groundwater impacts. All outstanding corrective active provisions adopted in the previous order are continued in this order.
36. The old Forward Landfill has a history of sporadic, low concentration detections of VOCs in groundwater since monitoring began in 1987. VOCs have most commonly been detected in the northeast corner of the old Forward Landfill site. The most frequently detected VOCs are: benzene, cis-1,2-dichloroethene, tetrachloroethene, toluene, 1,1-dichloroethane, and

1,1,1-trichloroethane. An assessment of these detections submitted by the discharger found that the source is likely landfill gas released from waste management units.

CORRECTIVE ACTION

37. At Austin Road Landfill significant VOC impacts to groundwater downgradient of the facility were detected in 1989. By 1991 evaluation monitoring determined that chlorinated hydrocarbon impacts extended as far as 1,000 feet downgradient of the landfill. A corrective action plan was approved for implementation in August 1991. The plan consists of a load checking program; extraction and treatment of impacted groundwater from two wells; and continued monitoring of the effectiveness of corrective action.
38. In 1998 corrective action monitoring determined that the initial corrective actions had failed to contain groundwater contamination or remediate groundwater impacts. In April 1999, the City of Stockton (previous discharger) submitted a Draft Engineering Feasibility Study (EFS) for an improved corrective action plan. Staff determined that the Draft EFS was inadequate and requested changes. On 3 September 2000, ownership of Austin Road landfill was transferred to Forward Inc. A revised EFS was submitted 11 June 2001 and then revised in response to comments on 30 August 2001; a Time Schedule for Corrective Action was submitted 13 December 2001; and an Evaluation Procedures for Proposed Corrective Action was submitted 26 February 2002. The resulting corrective action plan, includes the following activities:
- a. enhance landfill gas control system to prevent further release of VOCs from the landfill;
 - b. continued groundwater extraction and treatment with existing extraction wells;
 - c. implementation of a groundwater artificial recharge system using treated water;
 - d. additional groundwater monitoring wells to monitor the effectiveness of the corrective action and determination of the need for modifications; and
 - e. closure of Austin Road Landfill Unit 1 with an interim cover.
39. The groundwater extraction system consists of two ground water extraction wells with a combined design capacity of 305 gallons per minute (gpm). VOCs are stripped from the extracted water and the treated water will be used to artificially recharge the shallow aquifer.

LINER PERFORMANCE DEMONSTRATION

40. On 15 September 2000 the Board adopted Resolution No. 5-00-213, "Request For The State Water Resources Control Board To Review The Adequacy Of The Prescriptive Design Requirements For Landfill Waste Containment Systems To Meet The Performance Standards Of Title 27." The State Board responded, in part, that "a single composite liner system continues to be an adequate minimum standard" however, the Board "should require a more stringent design in a case where it determines that the minimum design will not provide adequate protection to a given body of groundwater."
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. On 21 February 2002, the Discharger submitted "*Leachate Attenuation Analyses Prescriptive Clay Liner, Forward Landfill*", and on 21 March staff provided comments for that document. On 10 July 2002 the discharger submitted "*Performance Demonstration for a Single Composite Liner*", and on 14 August 2002 staff provided comments for that document. On 25 September 2002 the discharger submitted a revised performance demonstration and on 24 October 2002 staff responded indicating concurrence with the revised demonstration. The proposed liner system consists of a single composite base liner from bottom to top composed of: a prepared subgrade, two feet of compacted clay, 60 mil HDPE, one-foot gravel drainage layer, filter fabric, one-foot operations layer, and a first waste layer composed of selected waste. Sideslope liners to be composed of: a prepared subgrade, two-feet of compacted clay or GCL, 60 mil HDPE, geocomposite drainage net, and one-foot operations layer. Forward proposes to install a double composite liner under landfill sumps, conduct an electric leak test over the sump, conduct CQA inspections during placement of the operations layer and first lift of refuse, conduct an electric leak test over the entire base liner after installation of the operations layer; and use selected material in the operations layer. The report demonstrated that the proposed liner system would effectively prevent the migration of wastes from the unit.

CONSTRUCTION AND ENGINEERED ALTERNATIVE

43. 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).
44. 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.

45. Resolution No. 93-62 also allows the Board to consider the approval of engineered alternatives to the prescriptive standard. Section III.A.b. of Resolution No. 93-62 requires that the engineered alternative liner systems be of a composite design similar to the prescriptive standard.
46. Section 13360(a)(1) of the California Water Code allows the Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.
47. The Discharger proposes a liner system which will be designed, constructed, and operated to prevent migration of wastes from the Unit to adjacent natural geologic materials, groundwater, or surface water during disposal operations, closure, and the post-closure maintenance period in accordance with the criteria set forth in Title 27 for a Class II landfill, and the provisions in State Water Resources Control Board Resolution No. 93-62 for municipal solid wastes.
48. The Discharger submitted a Report of Waste Discharge and a Liner Performance Demonstration requesting approval of a single composite liner.
49. The single composite liner design proposed by the Discharger for the bottom liner of the Unit consists of, in ascending order: a prepared subgrade; a 24-inch thick, low-permeability soil layer (minimum permeability of 1×10^{-7} cm/sec); a 60-mil high density polyethylene (HDPE) geomembrane; a 12-ounce/square yard cushion geotextile (may be omitted if the LCRS gravel is sub-angular to rounded); a 12-inch LCRS gravel drainage layer; an 8-ounce/square yard separator geotextile; and a 12-inch thick protective cover soil operations layer.
50. The single composite liner design proposed by the Discharger for the side slope liner is to be constructed of, in ascending order: a prepared subgrade; a GCL or a 24-inch thick low permeability soil layer (minimum permeability of the soil 1×10^{-7} cm/sec); a geocomposite drainage net; and a 12-inch thick protective cover soil operations layer.
51. The Discharger adequately demonstrated that construction of a Subtitle D prescriptive standard liner on the side slopes would be unreasonable and unnecessarily burdensome when compared to the proposed engineered alternative design. The installation of 24-inches of compacted low permeability soil and gravel drainage material on side slopes will be technically difficult and would cost substantially more than the use of GCL and geocomposite drainage net respectively (the alternative design). The Discharger has demonstrated that the proposed engineered alternative is consistent with the performance goals of the prescriptive standard and affords equivalent protection against water quality impairment.

52. The leachate collection and removal system (LCRS) will consist of a 12-inch gravel layer with six-inch PVC lateral pipe and headers. The drainage layer will be installed at a minimum 2% grade with collection pipes placed on approximately 200-foot centers. Calculated peak daily leachate generation was 4,073 gallons/acre or approximately 0.0045 cubic feet per second. Daily peak head on the liner system was calculated to be approximately 1.6 inches.
53. A pan lysimeters will be installed beneath the landfill leachate sumps for the purpose of vadose zone monitoring. The proposed design for the pan lysimeters consists of, in ascending order: a prepared subgrade; a 24-inch thick, low-permeability soil layer (minimum permeability of 1×10^{-7} cm/sec) or a GCL liner; a 60-mil high density polyethylene (HDPE) geomembrane; a gravel filled pan lysimeter with access pipe; a GCL liner; a 60-mil high density polyethylene (HDPE) geomembrane; a gravel filled LCRS sump with access pipe; an 8-ounce/square yard separator geotextile; and a 12-inch thick protective cover soil operations layer.
54. Forward landfill has a vadose-zone monitoring network of twelve suction lysimeters and two pan lysimeters; the Austin Road landfill is an unlined facility and has no active vadose-zone monitoring.
55. The Discharger proposes the following construction quality assurance protocols for liner construction:
 - a. monitor placement of drainage layer gravel with a dedicated CQA technician;
 - b. a liner leak test over the entire base liner to be performed after installation of the gravel drainage layer and the operations layer; and
 - c. during placement of the first layer of waste in a new unit, site personnel will monitor waste placement and will exclude materials that could threaten the liner.
56. Construction will proceed only after all applicable construction quality assurance plans have been approved by Executive Officer.
57. The discharger proposed to construct two Class II surface impoundments to contain and evaporate leachate from solid waste management units. An engineered alternative to the prescriptive liner requirements of Title 27 is proposed for the Class II Surface Impoundments. The engineered alternative consists of from the top down:
 - a. A primary 60-mil-thick High Density Polyethylene (HDPE) geomembrane
 - b. A geonet drainage layer, as a Leachate Collection and Removal System (LCRS)
 - c. A secondary 60-mil-thick HDPE geomembrane and
 - d. A GCL in place of the compacted clay liner.

58. The surface impoundment will have a geonet LCRS blanket across the entire area of the pond. The LCRS sump will be constructed of a gravel collection area and will have the capacity to store a minimum of twice the maximum anticipated daily volume of leachate. Liquids removed from the LCRS will be returned to the surface impoundment. The sump includes with a high level alarm, if liquids trigger the level alarm the sump will be pumped out.
59. The Discharger proposes a pan lysimeter under the LCRS sump as an unsaturated zone monitoring system per the requirements of Title 27 Section 20415(d). The pan lysimeters will include a sump area that is accessed with a pipe. Any liquids that are detected in the VZMS sump will be removed and returned to the surface impoundment. The sump will include a high-level alarm, if liquids trigger the level alarm the sump will be pumped out.
60. The existing landfill gas extraction system at Austin Road landfill consists of 30 vertical gas extraction wells, a horizontal gas collection trench, a gas collection pipe system with condensate collection, and a gas-to energy electrical power plant. The existing system did not capture all landfill gas generated by the landfill and the system is currently undergoing expansion. The expansion consists of 74 vertical gas extraction wells, a gas collection system with condensate collection, and a flare station to incinerate the gas.
61. Old Forward landfill has a landfill gas extraction to capture gas from Waste Management Unit B. The system consists of 18 vertical gas extraction wells and a gas collection pipe system with condensate collection. Gas from Forward is piped to the Austin Road flare station.
62. The landfill gas extraction system will expand as needed. The discharger will monitor soil gas for VOCs and when they are detected the extraction system will expand to cover those areas.
63. Landfill gas condensate will be collected and pumped to a holding tank near the flare station. Landfill gas condensate is tested at least annually. If testing indicates the condensate should be classified as hazardous waste, then the Discharger will contract with a licensed hazardous waste hauler to dispose of the condensate. Otherwise condensate will be treated, or disposed of at an appropriate facility.

CEQA AND OTHER CONSIDERATIONS

64. The San Joaquin County Community Development Department certified the final negative declaration for the facility on 6 February 2003. The Regional Board considered the negative declaration and incorporated mitigation measures from the negative declaration into these

waste discharge requirements designed to prevent potentially significant impacts to design facilities and to water quality.

65. This order implements:

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

PROCEDURAL REQUIREMENTS

66. 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.

67. The Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

68. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

69. Any person adversely affected by this action of the Board may petition the State Water Resources Control Board to review the action. The petition must be received by the State Board within 30 days of the date of issuance of this Order. Copies of the law and regulations applicable to filing the petition will be provided on request.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Orders No. 97-141 (old Forward landfill) and R5-2002-0121 (Austin Road landfill) are rescinded, and that Forward Inc., its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of 'hazardous waste' is prohibited. For the purposes of this Order, the term 'hazardous waste' is as defined in Title 23, California Code of Regulations, Section 2510 et seq., and 'designated waste' is as defined in Title 27.
2. The discharge of wastes outside of a Unit or portions of a Unit specifically designed for their containment is prohibited.
3. The discharge of waste to a closed Unit is prohibited.
4. 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.
5. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.
6. The discharge shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the Unit if such waste constituents could migrate to waters of the State — in either the liquid or the gaseous phase — and cause a condition of nuisance, degradation, contamination, or pollution.

B. DISCHARGE SPECIFICATIONS

1. Nonhazardous wastes shall be discharged to Waste Management Units equipped with a composite liner containment system which meets the requirements for both liners and leachate collection and removal systems specified under D. Construction Specifications.
2. The discharge shall remain within the designated disposal area at all times.
3. The discharge of liquid and semi-solid waste to the Class II surface impoundment is limited to leachate for the landfill units and surface impoundment leachate collection and removal systems (LCRSs), septage, chemical toilet waste, boiler blowdown water, grease trap pumpings, non-hazardous landfill gas condensate, and other wastes that are compatible with the liner system and meet the approval of the Board.
4. Wastes shall not be discharged below an elevation of seven feet above mean sea level (MSL). A minimum separation of 17 feet shall be maintained between wastes or

leachates and the highest anticipated elevation of underlying groundwater including the capillary fringe.

5. Coal or wood ash from cogeneration plants may be discharged to units which are designed and operated to isolate this waste which could produce acidic leachate.
6. 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.
7. Shredder waste, which has been granted a variance from disposal as 'hazardous waste' by DTSC, shall only be discharged to Class II landfill units at this site.
8. Sludges from water or wastewater treatment plants may be disposed of by spread on a one foot thick, compacted clay pad that is bermed to prevent runoff (WMU G). Sludges shall be handled in such a manner as to allow spraying of the waste with no percolation of liquid or waste constituents through the bottom of the clay pad. Once the waste has dried, it and any soil it has contacted shall be moved to a lined unit that is approved by the Executive Officer for the acceptance of designated solid waste. The clay pad shall be rebuilt to its original thickness after each drying cycle. This operation may be done from May through October.

C. FACILITY SPECIFICATIONS

1. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order.
2. The Discharger shall immediately notify the Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
3. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control, and construction.
4. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.
5. Methane and other landfill gases shall be adequately vented, removed from the 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. The existing landfill gas extraction system shall be

expanded as new units are opened so that all active or filled units are within the area of influence of the system.

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. Precipitation and drainage control systems shall be designed, constructed, and maintained to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 1000-year, 24-hour precipitation conditions for Class II WMUs and 100-year, 24-hour precipitation conditions for Class III WMUs.
9. Annually, prior to the anticipated rainy season, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding and to prevent surface drainage from contacting or percolating through wastes.
10. The Class II Landfill shall be designed to withstand the maximum credible earthquake without damage to the foundation, or to the structures which control leachate, surface drainage, erosion, or gas.
11. A system of landfill gas monitoring points shall be installed that are sufficient to detect gas escaping from the landfill. Gas control measures shall be implemented for a Class II landfill module upon the detection of methane and gas-phase concentrations of volatile organic compounds (VOCs) in landfill gas monitoring points. The gas control measures shall be sufficient to prevent the gas-phase migration of VOCs from the Class II modules.

D. CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for Executive Officer review and approval **prior to** construction, design plans and specifications for new Units and expansions of existing Units, that include the following:
 - a. A Construction Quality Assurance Plan meeting the requirements of §20324 of Title 27; and
 - b. A geotechnical evaluation of the soils proposed for use in construction of the low hydraulic conductivity layer; and

- c. An unsaturated zone monitoring system, consisting of a pan lysimeter shall be installed beneath the unit leachate sump.
2. The bottom liner of all new Units and lateral expansion areas of existing Units shall be constructed in accordance with the following composite liner designs: a prepared subgrade; a 24-inch thick, low-permeability soil layer (minimum permeability of 1×10^{-7} cm/sec); a 60-mil high density polyethylene (HDPE) geomembrane; a 12-ounce/square yard cushion geotextile (may be omitted if the LCRS gravel is sub-angular to rounded); a 12-inch LCRS gravel drainage layer; an 8-ounce/square yard separator geotextile; and a 12-inch thick protective cover soil operations layer. The side slope liner of all new Units and later expansion areas of existing Units shall be constructed in accordance with the following composite liner design: a prepared subgrade; a GCL or a 24-inch thick low permeability soil layer (minimum permeability of the soil 1×10^{-7} cm/sec); a geocomposite drainage net; and a 12-inch thick protective cover soil operations layer.
3. The Discharger may propose changes to the liner system design prior to construction, provided that approved components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed liner system results in the protection of water quality equal to or greater than the design prescribed by Title 27 and this Order. The proposed changes may be made following approval by the Executive Officer. Substantive changes to the design require reevaluation as an engineered alternative and approval by the Board.
4. If the Discharger proposes to construct a liner system in which a GCL is placed on top of a subgrade, the subgrade for the bottom and the side slopes of the Unit shall be prepared in an appropriate manner using accepted engineering and construction methods so as to provide a smooth surface that is free from rocks, sticks, or other debris that could damage or otherwise limit the performance of the GCL.
5. Construction shall proceed only after all applicable construction quality assurance plans have been approved by Executive Officer.
6. Following the completion of construction of a Unit or portion of a Unit, and prior to discharge onto the newly constructed liner system, the final documentation required in §20324(d)(1)(C) of Title 27 shall be submitted to the Executive Officer for review and approval. The report shall be certified by a registered civil engineer or a certified engineering geologist. It shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, and with the prescriptive standards and performance goals of Title 27. Testing shall include a liner leak detection test conducted after installation of the drainage layer and the operations layer.

7. 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.
8. 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 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.
9. Any WMU that will not receive waste over the winter rainy season (November 1 through March 30) shall be graded to shed stormwater (at least a 3% grade), maintained to prevent ponding and have an enhanced intermediate cover installed. The enhanced intermediate cover shall consist of: one foot of clayey soil compacted to achieve a hydraulic conductivity of 10^{-5} cm/sec or some other equivalent hydraulic barrier overlain by an erosion layer composed of one foot of loosely compacted soil.
10. Closed landfill modules shall be graded to at least a three-percent (3%) grade and maintained to prevent ponding.

E. DETECTION MONITORING SPECIFICATIONS

1. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, soil-pore gas, and the unsaturated zone, and in accordance with Monitoring and Reporting Program No. R5-2003-0049.
2. The Discharger shall provide Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation, repair, or abandonment of monitoring devices, and a minimum 48 hour notification prior to the collection of samples associated with a detection monitoring program, evaluation monitoring program, or corrective action program.
3. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, Monitoring and Reporting Program No. R5-2003-0049, and the Standard Provisions and Reporting Requirements, dated April 2000.
4. The Water Quality Protection Standard for organic compounds which are not naturally occurring and not detected in background groundwater samples shall be taken as the detection limit of the analytical method used (i.e., US-EPA methods 8260 and 8270). The presence of non-naturally occurring organic compounds in samples above the Water Quality Protection Standard from detection monitoring wells is evidence of a release from the Unit.

5. The concentrations of the constituents of concern in waters passing the Point of Compliance shall not exceed the concentration limits established pursuant to Monitoring and Reporting Program No. R5-2003-0049.
6. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the Water Quality Protection Standard using procedures specified in Monitoring and Reporting Program No. R5-2003-0049 and §20415(e) of Title 27.
7. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless the Executive Officer approves a longer time period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.
8. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) *Methods for the Analysis of Organics in Water and Wastewater* (USEPA 600 Series), (2) *Test Methods for Evaluating Solid Waste* (SW-846, latest edition), and (3) *Methods for Chemical Analysis of Water and Wastes* (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan.
9. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology shall be submitted for review and approval by the Executive Officer prior to use.
10. The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., “trace” or “ND”) in data from background monitoring points for that medium, the analytical method having the lowest method detection limit (MDL) shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.
11. **“Trace” results** - results falling between the MDL and the practical quantitation limit (PQL) - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
12. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA

analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.

13. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with estimates of the detection limit and quantitation limit actually achieved. The **MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.** The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.
14. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.
15. Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.
16. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to §20415(e)(7) of Title 27 that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs for routine laboratory operating conditions that are available to the facility. The Discharger's technical report, pursuant to §20415(e)(7) of Title 27, shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, California Code of Regulations, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or nonstatistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's

concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of “ties”.

17. The Discharger may propose an alternate statistical method [to the methods listed under 27 CCR §20415(e)(8)(A-D)] in accordance with §20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer. Upon receiving written approval from the Executive Officer, alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate). Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Board staff.
18. The Discharger shall use the following nonstatistical method for the VOC_{water} and VOC_{spg} (Soil Pore Gas) Monitoring Parameters and for all Constituents of Concern which are not amenable to the statistical tests above (i.e., less than 10% of the data from background samples that equal or exceed their respective MDL). Each qualifying constituent at a monitoring point shall be determined based on either:
 - a. The data from a single sample for that constituent, taken during that reporting period from that monitoring point; or
 - b. The data from the sample which contains the largest number of qualifying constituents, where several independent samples have been analyzed for that constituent at a given monitoring point.
 - c. Background for water samples or soil-pore gas samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point). The Discharger may propose an alternate statistical method [to the methods listed under 27 CCR §20415(e)(8)(A-D)] in accordance with §20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer.
19. The method shall be implemented as follows:
 - a. *For the Volatile Organic Compounds Monitoring Parameter For Water Samples [VOC_{water}]:* For any given monitoring point, the VOC_{water} Monitoring Parameter is a composite parameter addressing all “qualifying VOCs” (in this case, VOCs that are detected in less than 10% of background samples).

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

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

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

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

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

- 1) The data contains two or more qualifying constituents that equal or exceed their respective MDLs; or
- 2) The data contains one qualifying constituent that equals or exceeds its PQL.

20. **Non-Statistical Method Retest.** A non-statistical test method may be used by the Discharger to analyze the monitoring data for which it is impractical to conduct a statistical analysis. A non-statistical test method shall include a procedure to verify that there is “measurably significant” evidence of a release from the Unit. For the VOC_{water}, VOC_{spg}, and nonstatistical COC test, the Discharger shall use a discrete retest consisting

of two new samples from each indicating monitoring point. The Discharger shall conduct the retest for the standard non-statistical method as follows:

- a. **For VOC_{water} and VOC_{spg.}** Because the VOC composite Monitoring Parameter (for water or soil pore gas) is a single parameter which addresses an entire family of constituents likely to be present in any landfill release, **the scope of the laboratory analysis for each of the two retest samples shall include all VOCs detectable in that retest sample.** Therefore, a confirming retest, in accordance with Detection Monitoring Specification E.20.a. and b., above, for either triggering condition in either of the two retest samples, shall have validated the original indication even if the detected constituents in the confirming retest sample(s) differs from those detected in the sample which initiated the retest.
- b. **For Constituents of Concern.** Because all Constituents of Concern that are jointly addressed in the non-statistical test above, remain as individual Constituents of Concern, **the scope of the laboratory analysis for the non-statistical retest of Constituents of Concern shall address only those constituents detected in the sample which initiated the retest.** Therefore, the list of “qualifying constituents” for use in the retest, under Detection Monitoring Specification E.20.c., shall consist of those constituents which provided the original indication at that monitoring point. If the retest meets either triggering condition in either of the two retest samples, the retest shall have validated the original indication.

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

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

Then the Discharger shall:

- a) **Immediately** notify the Board by phone;
- b) Follow up with written notification by certified mail **within seven days**;
- c) Obtain **two** new independent VOC samples from that background monitoring point; and

- d) Send such samples for laboratory analysis of all detectable VOCs **within thirty days**.
 - b. If either or both the new samples validates the presence of VOC(s), using the above criteria, the Discharger shall:
 - 1) **Immediately** notify the Board about the VOC(s) verified to be present at that background monitoring point, and follow up with written notification submitted by certified mail **within seven days** of validation; and
 - 2) If the Discharger believes that the VOC(s) in background is from a source other than the Unit, then:
 - a) **Within seven days** of determining “measurably significant” evidence of a release, submit to the Board by certified mail a Notification of Intent to make such a demonstration pursuant to §20420(k)(7) of Title 27; and
 - b) **Within 90 days** of determining “measurably significant” evidence of a release, submit a report to the Board that demonstrates that a source other than the Unit caused the evidence, or that the evidence resulted from error in sampling, analysis or evaluation, or from natural variation in groundwater, surface water, or the unsaturated zone.
 - c. If the Executive Officer determines, after reviewing the submitted report(s), that the VOC(s) detected originated from a source other than the Unit(s), the Executive Officer will make appropriate changes to the monitoring program.
22. If the Executive Officer determines, after reviewing the submitted report, that the detected VOC(s) most likely originated from the Unit(s), the Discharger shall **immediately** implement the requirements of XI. Response To A Release, C. Release Has Been Verified, contained in the Standard Provisions and Reporting Requirements.
23. The discharger shall monitor all soil gas monitoring probes for the presence of VOCs on an annual basis in compliance with Monitoring and Reporting Program No. R5-2003-0049. Upon confirmation of a VOC release in landfill gas in a given area of the landfill, Gas extraction shall be implemented for that area.

F. CORRECTIVE ACTION MONITORING

1. The Corrective Action Monitoring Program shall be used to assess the nature and extent of the release from the landfill and to evaluate the effectiveness of the corrective action program and the landfill cover.

2. In accordance with the Corrective Action Monitoring Program, the Discharger shall collect and analyze all data necessary to assess the effectiveness of the Corrective Action in reducing the impacts of the release on groundwater quality. A sufficient number of monitoring wells shall be installed to delineate the release.
3. The Discharger shall comply with the monitoring provisions for the Corrective Action Program (CAP) as described in Section 20430(d) of Title 27. The program shall include the detection monitoring program as well as an annual report evaluating the ground water and unsaturated data of the past year(s) in an effort to demonstrate the effectiveness of the CAP.
4. The discharger has proposed a system of specific threshold limits to evaluate the effectiveness of the CAP (*Evaluation Procedures for Proposed Corrective Action at Austin Road Landfill*). The system uses both changes in VOC mass within the contaminant plume and changes in VOC concentrations at individual wells to evaluate remedial effectiveness. Upon determination that an exceedance for either the total mass or individual well threshold limit has occurred using the method and threshold limits described in *Evaluation Procedures for Proposed Corrective Action at Austin Road Landfill*, the discharger shall notify the RWQCB within 14 days and shall submit an evaluation of the CAP within 90 days.

G. REPORTING REQUIREMENTS

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

Such legible records shall show the following for each sample:

- a. Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;

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

- b. A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
- c. For each groundwater body, a description and graphical presentation of the gradient and direction of groundwater flow under/around the Unit, and the groundwater flow rate, based upon water level elevations taken prior to the collection of the water quality data submitted in the report.
- d. Laboratory statements of results of all analyses evaluating compliance with requirements.
- e. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.
- f. A summary and certification of completion of all **Standard Observations** for the Unit(s), for the perimeter of the Unit, and for the receiving waters. The Standard Observations shall include:
 - 1) For the Unit:
 - a) Evidence of ponded water at any point on the facility (show affected area on map);
 - b) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and
 - c) Evidence of erosion and/or of day-lighted refuse.
 - 2) Along the perimeter of the Unit:
 - a) Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map);
 - b) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and
 - c) Evidence of erosion and/or of day-lighted refuse.
 - 3) For receiving waters:
 - a) Floating and suspended materials of waste origin - presence or absence, source, and size of affected area;

- b) Discoloration and turbidity - description of color, source, and size of affected area;
 - c) Evidence of odors - presence or absence, characterization, source, and distance of travel from source;
 - d) Evidence of water uses - presence of water-associated wildlife;
 - e) Flow rate; and
 - f) Weather conditions - wind direction and estimated velocity, total precipitation during recent days and on the day of observation.
- g. The quantity and types of wastes discharged and the locations in the Unit where waste has been placed since submittal of the last such report.
5. The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Board **within seven days**, containing at least the following information:
- a. A map showing the location(s) of seepage;
 - b. An estimate of the flow rate;
 - c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);
 - d. Verification that samples have been submitted for analyses of the Constituents of Concern and Monitoring Parameters, and an estimated date that the results will be submitted to the Board; and
 - e. Corrective measures underway or proposed, and corresponding time schedule.
6. The Discharger shall submit an **Annual Monitoring Summary Report** to the Board covering the reporting period of the previous monitoring year. This report shall contain:
- a. All monitoring parameters and constituents of concern shall be graphed so as to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for

- background plots shall be the same as that used to plot downgradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
- b. Unless otherwise exempted by the Executive Officer, all monitoring analytical data obtained during the previous four quarterly reporting periods, shall be submitted in tabular form as well as in a digital file format acceptable to the Executive Officer. The Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [§20420(h)], in that this facilitates periodic review by the Board.
 - c. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.
 - d. A map showing the area and elevations in which filling has been completed during the previous calendar year and a comparison to final closure design contours.
 - e. A written summary of the monitoring results, indicating any changes made or observed since the previous annual report.
 - f. An evaluation of the effectiveness of the leachate monitoring/control facilities.
7. The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the State Department of Water Resources with regard to the construction, alteration, destruction, or abandonment of all monitoring wells used for compliance with this Order or with MRP No. R5-2003-0049, as required by Section 13750 through 13755 of the California Water Code.
 8. The Discharger shall notify the Board in writing of any proposed change in ownership or responsibility for construction or operation of the landfill. The Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Board.
 9. The Board will review this Order periodically and will revise these requirements when necessary.

H. 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.

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2003-0049
FORWARD INC. AND ALLIED WASTE INDUSTRIES
FOR OPERATION OF
FORWARD CLASS II LANDFILL
SAN JOAQUIN COUNTY

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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. R5-2003-0049, which is incorporated into and made part of this Order.
4. The Discharger shall comply with the applicable portions of the Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Title 27 and/or Subtitle D (27 CCR §20005 et seq. and 40 CFR 258 et seq.), dated April 2000, which are hereby incorporated into this Order.
5. All reports and transmittal letters shall be signed by persons identified below:
 - a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor.
 - c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.
 - d. A duly authorized representative of a person designated in a, b or c above if;
 - 1) The authorization is made in writing by a person described in a, b, or c of this provision;
 - 2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 - 3) The written authorization is submitted to the Board.
 - e. Any person signing a document under this Section shall make the following certification:

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

significant penalties for submitting false information, including the possibility of fine and imprisonment.”

6. The Discharger shall maintain legible records of the volume and type of waste discharged at the landfill and the manner and location of discharge. Such records shall be maintained at the facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Board and of the State Water Resources Control Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Regional Board.
7. 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.
8. 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.
9. 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.
10. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Board requesting transfer of the Order within 14 days of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Board, and a statement. The statement shall comply with the signatory requirements contained in Provision F.5. and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer of this Order shall be approved or disapproved by the Board.
11. The Discharger shall conduct an annual review of the financial assurance for initiating and completing corrective action, and submit a report for Executive Officer review and approval. The assurances of financial responsibility shall provide that funds for corrective action shall be available to the Regional Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. The Discharger shall adjust the cost

annually to account for inflation and any changes in facility design, construction, or operation.

12. The Discharger shall conduct an annual review of the financial assurance for closure and postclosure maintenance, and submit a report for Executive Officer review and approval. The assurances of financial responsibility shall provide that funds for closure and postclosure maintenance shall be available to the Regional Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.
13. The Discharger shall receive approval from the Executive Officer before discharging waste to containment areas or waste management units constructed after the effective date of this Order. The Discharger shall submit to the Board all documentation (i.e., reports, plans, designs) required by this Order for the review and approval by Board staff prior to implementation.
14. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule:

<u>Task</u>	<u>Compliance Date</u>
A. Construction Plans	
Submit construction and design plans, specifications, construction schedule and construction quality assurance plan. for Executive Officer review and approval. (see Construction Specification D.1)	One Month Prior to start of construction of any landfill expansion.
B. Construction Report	
Submit as-built plans, construction quality assurance, and certification report for Executive Officer review and approval. (see Construction Specification D.6)	Prior to discharge of waste to a new unit.

<u>Task</u>	<u>Compliance Date</u>
C. Financial Assurance Review	
1. Annual Review of Financial Assurance for (see Provision G.10.)	30 April each year
2. Annual Review of Financial Assurance for (see Provision G.11.)	30 April each year
D. Corrective Actions	
1. Install improvements to the landfill gas collection system that will prevent future release of VOCs from the facility.	31 October 2002
2. Complete construction of enhanced groundwater recharge facilities.	15 October 2002
3. Install interim final cover over the entire unlined footprint of the landfill.	15 November 2002

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 14 March 2003.

RDA: 3/14/2003

THOMAS R. PINKOS, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2003-0049
FOR
FORWARD INC. AND ALLIED INDUSTRIES
FOR
OPERATION OF
FORWARD CLASS II SOLID WASTE LANDFILL
SAN JOAQUIN 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. R5-2003-0049.

A. REQUIRED MONITORING REPORTS

<u>Report</u>	<u>Due</u>
1. Groundwater Monitoring (Section D.1)	See Table I
2. Annual Monitoring Summary Report (Order No. R5-2003-0049, F.6.)	Annually
3. Unsaturated Zone Monitoring (Section D.2)	See Table II
4. Leachate Monitoring (Section D.3)	See Table III
5. Surface Water Monitoring (Section D.4)	See Table IV
6. Landfill Gas Monitoring (Section D.5)	See Table II
7. Facility Monitoring (Section D.6)	As necessary
8. Incoming Waste Monitoring (Section D.7)	Quarterly
9. Response to a Release (Standard Provisions and Reporting Requirements)	As necessary

B. REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in Order No. R5-2003-0049 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. R5-2003-0049.

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

<u>Sampling Frequency</u>	<u>Reporting Frequency</u>	<u>Reporting Periods End</u>	<u>Report Date Due</u>
Monthly	Quarterly	Last Day of Month	by Quarterly Schedule
Quarterly	Quarterly	31 March	30 April
		30 June	31 July
		30 September	31 October
		31 December	31 January
Semiannually	Semiannually	30 June	31 July
		31 December	31 January
Annually	Annually	31 December	31 January

The Discharger shall submit an **Annual Monitoring Summary Report** to the Board covering the previous monitoring year. The annual report shall contain the information specified in F. Reporting Requirements, of Order No. R5-2003-0049, 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 be 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

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

- a. By calculation in accordance with a statistical method pursuant to §20415 of Title 27; or
- b. By an alternate statistical method acceptable to the Executive Officer in accordance with §20415 of Title 27.

Concentration limits for detection monitoring have previously been established at old Forward landfill on an intrawell basis and at Austin Road Landfill on an interwell basis. A corrective action evaluation procedure has been adopted for Austin Road Landfill (see *Evaluation Procedures for Proposed Corrective Action at Austin Road Landfill*). The physical separation between old Forward and Austin Road units means that monitoring results from the two areas can be evaluated independently. Detection and evaluation monitoring programs should continue under the existing protocols. All monitoring results for both areas should be submitted in a single integrated monitor report.

Intra-well concentration limits at Forward wells are calculated in the *Revised Post Closure Maintenance Plan* (November 4, 1994) by Kleinfelder. Parametric or non-parametric tolerance limits with a 95% confidence factor. These confidence limits will continue to be used at the Forward detection monitor wells. Inter-well concentration limits used at Austin Road landfill detection monitor wells are summarized as follows:

Parameter	unit	Concentration Limit
Temperature	°C	21.25
Specific Conductance	umhos/cm	1236
pH	Units	6.64 – 8.408
Turbidity	NTU	126.6
TDS	mg/l	997.2
Chloride	mg/l	79.91
Sulfate	mg/l	153.5
Nitrate as N	mg/l	125

A procedure has been established to evaluate progress of corrective actions at Austin Road landfill. The procedure is described in detail in *Evaluation Procedures for Proposed Corrective Action at Austin Road Landfill* (February 2002) by Herst and Associates, Inc. A Total VOC Mass Threshold Limit (41.85 kg) and Total VOC Threshold Limits for individual wells have been established. If either of the two types of threshold limits is exceeded and verified, the corrective action program is re-evaluated to determine if changes to the corrective action plan are necessary to meet the cleanup goals. Threshold limits for the proposed new well will be established from background data collected from those wells.

4. Point of Compliance

The point of compliance for the water standard at each Unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit. For the foreseeable future the point of compliance for old Forward area is the downgradient margin of old Forward WMUs, and the point of compliance for Austin Road area is the downgradient margin of Austin Road Landfill.

5. Compliance Period

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

D. MONITORING

The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, in accordance with

Detection Monitoring Specification E.2 and E.4 of Waste Discharge Requirements, Order No. R5-2003-0049. 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 quarterly, including the times of highest and lowest elevations of the water levels in the wells.

Detection Groundwater Monitoring System wells at Forward include:

Well (or Well pair)	Function
MW-1, -1B	Detection Monitoring
MW-2A, -2B	Detection Monitoring
MW-3, -3B	Detection Monitoring
MW-10	Detection Monitoring

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MW-13, -13B	Detection Monitoring
MW-14, -14B	Detection Monitoring
MW-15	Detection Monitoring
MW-16	Detection Monitoring
MW-17	Detection Monitoring
MW-18	Detection Monitoring
MW-19	Detection Monitoring
MW-21	Detection Monitoring
MW-22	Background
MW-23R	Background

Detection and Corrective Action Groundwater Monitoring Systems at Austin Road include:

Well (or well pair)	Function
AMW-1	Corrective Action
AMW-2	Background
AMW-3	Corrective Action
AMW-4	Corrective Action
AMW-5	Corrective Action
AMW-6	Detection Monitoring
AMW-7	Detection Monitoring
AMW-10	Corrective Action
AMW-11	Corrective Action
AMW-12	Detection Monitoring
AMW-13	Detection Monitoring
AMW-14	Detection Monitoring
AMW-16, -16B*	Corrective Action
AMW-17*	Corrective Action
AMW-18*	Corrective Action
AMW-19, -19B*	Corrective Action
AMW-20*	Corrective Action
8106A	Corrective Action
7898	Corrective Action

*Proposed new wells or new well pairs.

Note that a suffix A was added to previous Austin Road well names to prevent confusion with old Forward wells.

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

prepared quarterly and submitted annually.

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

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

The pan lysimeters shall be checked 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 quarterly 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).

4. Surface Water Monitoring

Littlejohns Creek shall be sampled upstream of the landfill at background monitoring point SW-1, and downstream at monitoring point SW-2. Surface water samples shall be collected quarterly when water is present. Samples shall be collected from all stations and analyzed for the monitoring parameters 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. Annually, all monitoring parameters shall be graphed so as to show historical trends at each sample location.

5. Landfill Gas Monitoring

The discharger shall install, expand as needed, and operate a landfill gas monitoring system in accordance with a landfill gas detection monitoring plan approved by the Executive Officer. Landfill gas monitoring points shall be sampled and analyzed for the monitoring parameters specified in Table II. 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.

6. 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. R5-2003-0049. 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.

7. Incoming Waste Monitoring

The Discharger shall monitor all wastes discharged to the Class II landfill units, land treatment unit, landfills and waste piles on a monthly basis and report as follows:

Parameter	units	Reporting Frequency
Quantity Discharged:		
Nonhazardous solid waste	Cubic yards	Quarterly
Asbestos	Cubic yards	Quarterly
Sewage and Wastewater	Gallons	Quarterly
Treatment Sludges		
Average % Solids	%	Quarterly
Where Discharged	--	Quarterly
Source of Waste	--	Quarterly
Minimum Elevation of Discharge	Feet & Tenths, (MSL)	Quarterly
Remaining Capacity of unit	%	Annually

When it is necessary to determine if a solid waste, including contaminated soil, is a 'designated waste', a Waste Extraction Test (WET) shall be run. The waste may be disposed of in a Class III landfill unit at this site only under the following conditions:

- a. If the concentrations of extractable constituents (expressed in mg/l of extract), as determined by the standard WET (CCR, Title 22, Division 4.5, Chapter 11), do not exceed the Maximum Concentrations specified below, the waste may be co-disposed with 'nonhazardous solid waste'.

- b. If the concentrations of extractable constituents (expressed in mg/l of extract), as determined by the DI WET in place of the standard citrate acid WET, do not exceed the Maximum Concentrations specified below, the waste may be disposed of in a monofill dedicated to this solid waste, on in an area where the waste will not contact wastes capable of generating acidic leachate or landfill leachate, or be overlain by wastes capable of generating acidic leachate.

Designated Level Parameter	Maximum Concentration in WET Extract (mg/l)
Cadmium	0.05
Chromium (VI)	0.5
Copper	20
Lead	1.5
Mercury	0.02
Nickel	1.0
Zinc	200

The Designated Levels for petroleum contaminated soils are 100 mg/kg TPH Diesel by Modified EPA 8015 or equivalent method and nondetectable TPH Gasoline or BTEX.

Waste determined by the above procedures to exceed the Designated Levels shall be discharged to a Class II WMU.

SHREDDER WASTE MONITORING

Monitoring requirements for shredder waste are as follows:

Parameter/Constituent	Units	Sampling Frequency
PCBs	mg/kg	Every 1,000 tons*
Locations of shredder waste	--	Quarterly
Amount of shredder waste	Tons	Quarterly
BTEX	mg/l or ug/l	Every 1,000 tons
Total Petroleum Hydrocarbons (TPH)	mg/kg	Every 1,000 tons

* Or more frequently as required by the Department of Health Services.

Testing for PCBs shall be conducted using composite samples collected at the shredder facility. The samples shall be analyzed using EPA Method 8080.

COAL AND WOOD ASH MONITORING

Monitoring requirements for coal and wood ash accepted at Forward, Inc., are as follows for each waste stream:

Parameter/Constituent	Units	Sampling Frequency
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Amount of coal or wood ash	Cubic Yards	Quarterly
EC*	umhos/cm	Quarterly
pH	pH units	Quarterly
TDS*	mg/l	Quarterly
Metals (Inorganics in Table VI)*	mg/l	Quarterly

* Tests to be run on the extract generated by the WET.

Whenever the source of coal or wood ash or power plant configuration is changed, the above tests shall be run immediately to characterize the new ash.

PETROLEUM CONTAMINATED SOILS MONITORING

Monitoring requirements for soils accepted for treatment in WMU G or direct disposal in any landfill unit are as follows:

Parameter/Constituent	Units	Sampling Frequency
Soil Amount	Cubic Yards	Every Lot
Before acceptance:		
For Gasoline:	mg/kg	Every Lot
EPA 5030/8015M		
EPA 5030/8020		
TTLC Pb		
For Diesel & Virgin Oil:	mg/kg	Every Lot
EPA 3550/8015M		
EPA 5030/8020		
For Waste Oil	mg/kg	Every Lot
EPA 3550/8015M		
EPA 5030/8015M		
EPA 8260 (or 8010 & 8020)		
EPA 8270		
418.1 (TPH)		
TTLC Metals***: Cd, Cr, Pb, Ni, Zn		
Aquatic 96-hour Static Bioassay required if:		Every Lot
Gasoline > 5,900 ppm; or		
Diesel > 20,000 ppm; or		
Motor or waste oil > 10,000 ppm.		
After Treatment or Discharge	--	Every Lot*
Final disposition of soil		

* The total amount of contaminated soil accepted from a site gas station, pipeline spill, etc.) shall be defined as a lot. For every lot of soil, representative testing shall be

conducted before the soil is accepted at Forward, Inc. If the lot can be treated all at once, then at least one sample shall be collected and tested to establish post-treatment organic contaminant values. If the lot must be split into groups for treatment, then at least one sample shall be collected from each group and tested for organic contaminants.

** The WET method shall be run if any total metal concentration exceeds the STLC or 10 times the Designated Level if waste is discharged to the Class III landfill.

Data from contaminated soil monitoring shall be organized in a tabular form and maintained by the Discharger as part of the operating record.

LIQUID AND SEMI-SOLID WASTE MONITORING

The Discharger shall monitor all wastes discharged to the Class II surface impoundment(s) on a daily basis and report to the Board as follows:

Parameter	Units	Reporting Frequency
Quantity discharged	Gallons	Quarterly
Type of Material discharged	--	Quarterly
Source(s) of Material discharged	--	Quarterly
Minimum Freeboard	Feet & Tenths	Quarterly

In addition, grab samples of impoundment contents shall be taken and analyzed for the parameters and constituents listed in Table III for Leachate Monitoring at the frequencies indicated thereunder.

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

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

14 March 2003

(Date)

MONITORING AND REPORTING PROGRAM NO. R5-2003-0049
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RDA:

TABLE I
GROUNDWATER DETECTION MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Groundwater Elevation	Ft. & hundredths, M.S.L.	Quarterly
Temperature	°C	Quarterly
Electrical Conductivity	µmhos/cm	Quarterly
pH	pH units	Quarterly
Turbidity	Turbidity units	Quarterly
Monitoring Parameters		
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
Barium	mg/L	Quarterly
Strontium	mg/L	Quarterly
Arsenic	mg/L	Quarterly
Chromium VI	mg/L	Quarterly
TPHgasoline	µg/L	Quarterly
TPHoil&grease	µg/L	Quarterly
Volatile Organic Compounds (USEPA Method 8260, see Table V)	µg/L	Quarterly
Constituents of Concern (see Table VI)		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

TABLE II
UNSATURATED ZONE DETECTION MONITORING PROGRAM

SOIL-PORE GAS

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

PAN LYSIMETERS AND SUCTION LYSIMETERS

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

Constituents of Concern (see Table VI)

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

TABLE III
LEACHATE DETECTION MONITORING PROGRAM

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

TABLE IV
SURFACE WATER DETECTION MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Temperature	°C	Quarterly
Electrical Conductivity	µmhos/cm	Quarterly
pH	pH units	Quarterly
Turbidity	Turbidity units	Quarterly
Monitoring Parameters		
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
Total Organic Carbon	mg/L	Quarterly
Chemical Oxygen Demand	mg/L	Quarterly
TPH oil & grease	µg/L	Quarterly
Volatile Organic Compounds (USEPA Method 8260B, see Table V)	µg/L	Quarterly
Constituents of Concern (see Table VI)		
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

TABLE V
MONITORING PARAMETERS FOR DETECTION MONITORING

Surrogates for Metallic Constituents:

pH
Total Dissolved Solids
Electrical Conductivity
Chloride
Sulfate
Nitrate nitrogen

Constituents included in VOC:

USEPA Method 8260B

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

TABLE V
MONITORING PARAMETERS FOR DETECTION MONITORING

Continued

Hexachloroethane
Methyl bromide (Bromomethene)
Methyl chloride (Chloromethane)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl ethyl ketone (MEK: 2-Butanone)
Methyl iodide (Iodomethane)
Methyl t-butyl ether
4-Methyl-2-pentanone (Methyl isobutylketone)
Naphthalene
Styrene
Tertiary amyl methyl ether
Tertiary butyl alcohol
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane (Methylchloroform)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride
Xylenes

TABLE VI
CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

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

Volatile Organic Compounds:

USEPA Method 8260

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

TABLE VI

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- 1,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC 12)
1,1 -Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1 -Dichloroethylene (1, 1-Dichloroethene; Vinylidene chloride)
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans- 1,2-Dichloroethylene (trans- 1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
1,3-Dichloropropane (Trimethylene dichloride)
2,2-Dichloropropane (Isopropylidene chloride)
1,1 -Dichloropropene
cis- 1,3-Dichloropropene
trans- 1,3-Dichloropropene
Di-isopropylether (DIPE)
Ethanol
Ethyltertiary butyl ether
Ethylbenzene
Ethyl methacrylate
Hexachlorobutadiene
Hexachloroethane
2-Hexanone (Methyl butyl ketone)
Isobutyl alcohol
Methacrylonitrile
Methyl bromide (Bromomethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK; 2-Butanone)
Methyl iodide (Iodomethane)
Methyl t-butyl ether
Methyl methacrylate
4-Methyl-2-pentanone (Methyl isobutyl ketone)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Naphthalene
Propionitrile (Ethyl cyanide)
Styrene
Tertiary amyl methyl ether
Tertiary butyl alcohol
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane

TABLE VI

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)
Toluene
1,2,4-Trichlorobenzene
1,1,1 -Trichloroethane, Methylchloroform
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene; TCE)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride (Chloroethene)
Xylene (total)

Semi-Volatile Organic Compounds:

USEPA Method 8270 - base, neutral, & acid extractables

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

TABLE VI

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

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

TABLE I

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

Isodrin
Isophorone
Isosafrole
Kepone
Methapyrilene
Methoxychlor
3-Methylcholanthrene
Methyl methanesulfonate
2-Methylnaphthalene
1,4-Naphthoquinone
1-Naphthylamine
2-Naphthylamine
o-Nitroaniline (2-Nitroaniline)
m-Nitroaniline (3-Nitroaniline)
p-Nitroaniline (4-Nitroaniline)
Nitrobenzene
o-Nitrophenol (2-Nitrophenol)
p-Nitrophenol (4-Nitrophenol)
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)
N-Nitrosodiethylamine (Diethylnitrosamine)
N-Nitrosodimethylamine (Dimethylnitrosamine)
N-Nitrosodiphenylamine (Diphenylnitrosamine)
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)
N-Nitrosomethylethylamine (Methylethylnitrosamine)
N-Nitrosopiperidine
N-Nitrosopyrrolidine
5-Nitro-o-toluidine
Pentachlorobenzene
Pentachloronitrobenzene (PCNB)
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
p-Phenylenediamine
Polychlorinated biphenyls (PCBs; Aroclors)
Pronamide
Pyrene
Safrole
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
o-Toluidine
Toxaphene
2,4,5-Trichlorophenol
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene
Chlorophenoxy Herbicides:

USEPA Method 8151A

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

Organophosphorus Compounds:

USEPA Method 8141A

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

INFORMATION SHEET

ORDER NO. R5-2003-0049
WASTE DISCHARGE REQUIREMENTS
FORWARD LANDFILL
FORWARD INC. AND ALLIED WASTE INDUSTRIES
SAN JOAQUIN, COUNTY

Allied Waste Industries as Forward Inc. owns and operates Forward and Austin Road Landfills, two adjacent facilities approximately seven miles southeast of Stockton on Austin Road. The discharger has requested revised Waste Discharge Requirements that combine the two facilities. The combined facility will be approximately 567 acres and will include both existing and planned waste management units.

New waste management units will be designed and constructed for the discharge of designated waste. The liner system for new units consists of a single composite base liner composed of from bottom to top: a prepared subgrade, two feet of compacted clay with a hydraulic conductivity of 10^{-7} or less, 60 mil HDPE, one-foot gravel drainage layer, filter fabric, and one-foot operations layer. Double composite liners will be installed under landfill sumps; and a electric leak test will be conducted over the entire base liner after installation of the operations layer.

Implementation of a corrective action plan to cleanup a groundwater contaminant plume at Austin Road Landfill is ongoing. The contamination is characterized by the presence of volatile organic compounds (VOCs) including but not limited to vinyl chloride, tetrachloroethane, trichloroethane, and cis-1,2-dichloroethane. The Corrective Actions include installation of a landfill cover on the unlined waste unit, improvements to the landfill gas extraction system and groundwater recharge. Additionally, improvements will be made to the monitor well system; and if groundwater contamination is not contained or if significant progress toward cleanup is not made additional extraction wells will be brought on line.