CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2005-0068

WASTE DISCHARGE REQUIREMENTS FOR SHASTA COUNTY WEST CENTRAL CLASS III MUNICIPAL SOLID WASTE LANDFILL AND CLASS II SURFACE IMPOUNDMENT SHASTA COUNTY

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

1. The County of Shasta, (hereafter Discharger) owns and operates the West Central Class III Municipal Solid Waste Landfill and Class II Surface Impoundment. The Discharger is currently regulated in accordance with Waste Discharge Requirements Order No. R5-2003-0079.

2. On 20 November 2001, the Discharger submitted a Liner Performance Demonstration describing how the landfill liner system for the new waste management unit (Unit 3) of the Phase II portion of the landfill will comply with Title 27 of the California Code of Regulations performance standards.

3. On 12 January 2005, the Discharger submitted a request to accept treated wood waste at the West Central Landfill. Waste Discharge Requirements Order No. R5-2003-0079 is being re-opened and revised to specifically address the Discharger's proposal to accept treated wood waste at the landfill.

4. The West Central Landfill is located about 12 miles southwest of Redding, in Sections 2 and 3, T30N, R6W, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order. The 1,058-acre facility, operated by the City of Redding, is comprised of Assessor's Parcel Nos. 041-660-05, 041-660-15, 041-660-06, 041-660-14, 041-350-24, 041-350-22, 045-020-01, 045-020-02, 205-420-03, and 205-420-10.

5. The facility has been in operation since 1981 and currently consists of a closed, partially lined Class III landfill which contains approximately 900,000 cubic yards of waste and is designated Waste Management Unit (WMU) No. 1, an existing active Class III landfill for municipal solid waste (WMU No. 2), a Class II surface impoundment for the containment of leachate (WMU No. 3), and four unclassified surface impoundments for containment of contact water.

6. West Central Landfill is constructed in Phases; the closed portion of the landfill is designated as Phase 1A. Phase II is currently receiving municipal solid waste and will have a total capacity of approximately 7,000,000 cubic yards and an estimated life of 20 years. Phase II will be constructed in stages. Stages 1A, 1B, 1C, 2, and 1D comprise the current active portion of this Phase. Future expansion of Phase II includes the addition of Stages 3, 4, and 5. Full buildout of the facility is planned in five stages reaching a total volume of 17,000,000 cubic yards with a predicted remaining life of

approximately 24 years. The life expectancy may increase by 25 to 35 percent if recycling and mulching operations are fully implemented. Currently the landfill is receiving approximately 1,000 tons of waste per day. The WMUs are shown on Attachments B and C, which are incorporated herein and made part of this Order.

SITE DESCRIPTION

7. The soils immediately underlying the WMUs consist of gravelly and sandy silts and clays of the Red Bluff and Tehama Formations. Undisturbed permeabilities on the Red Bluff Formation range between $1x10^{-5}$ and $1x10^{-6}$ cm/sec.

8. The nearest significant fault is the Quaternary Battle Creek Fault, an east/west-trending normal fault approximately 20 miles east of the site. The Battle Creek Fault is approximately 14 miles long, with an estimated slip rate of 0.5 mm/year. The last known movement of this fault appears to be over 400,000 years ago. The maximum credible earthquake on the Battle Creek Fault was estimated to be a Richter magnitude of 6.0.

9. Land within 1,000 feet of the facility is used for grazing and open space.

10. The facility receives an average of 35 inches of precipitation per year as provided by the California Department of Water Resources, Rainfall Analysis for Drainage Design, Bulletin No. 195. The mean evaporation for this facility is approximately 60 inches per year based on data from the California Department of Water Resources. Based on these data, average annual net evaporation at the facility is approximately 25 inches.

11. The 1,000-year, 24-hour precipitation event for the facility is nine inches as estimated from data published by the California Department of Water Resources, Rainfall Analyses for Drainage Design, Bulletin No. 195.

12. The 100-year, 24-hour precipitation event for the facility is seven inches as estimated from maps published by the National Oceanic and Atmospheric Administration, December 1982.

13. The facility is not within a 100-year floodplain; however, the current and proposed expansions will cover an ephemeral drainage course. To prevent inundation or washout of WMUs due to storm events, the watercourse upstream of the facility has been diverted into the adjacent drainage.

14. There are no known residences or wells within 1,000 feet of the landfill.

15. The surrounding area is characterized by dendritic-style drainage courses that have dissected canyons into the surrounding material. The ridge line ranges in elevation from 1,040 to 1,065 feet MSL. The canyon bottom ranges between 55 and 120 feet below the

ridges. Vegetation around the site consists predominately of oak trees, manzanita brush, and grass.

16. The site is near the western edge of the Redding groundwater basin. The geologic units exposed at the site consist of recent alluvium and dredge tailings, the Pleistocene Red Bluff Formation, and the Pliocene Tehama Formation. The Cretaceous Chico Formation is present at depth beneath the site but does not outcrop in the area.

17. In most areas of the Redding groundwater basin, the Chico Formation contains saline water, believed to be a relict of its marine depositional environment. The water is generally of poor quality with limited use.

18. Unconformably overlying the Chico Formation is the Tehama Formation. The formation consists of fluvial deposits of clayey and silty sandstone with lenses of pebble and cobble conglomerates. The Tehama Formation comprises the canyon sides and bottoms, and is the principal water-bearing formation in the area.

19. Overlying the Tehama Formation is the Red Bluff Formation. The formation forms a thin veneer on the ridge tops in the area and is similar in composition and depositional history to the Tehama Formation. The Red Bluff Formation generally contains little useable groundwater.

WASTE AND SITE CLASSIFICATION

20. The Discharger discharges municipal solid wastes, which are defined in Section 20164, Title 27 to WMU No. 2. Nonhazardous solid wastes include municipal solid wastes, as referred to in the Code of Federal Regulations, Title 40, Part 258.2.

21. The Discharger also accepts primary and secondary sewage sludge from local wastewater treatment plants and sludge from the County-operated septage ponds. Such wastes can be accepted at Class III landfills providing the conditions described in Section 20220(d), Title 27, are met.

22. The Discharger proposes to accept treated wood waste at the West Central Class III Municipal Solid Waste Landfill. "Treated wood" means wood that has been treated with a chemical preservative for purposes of protecting the wood against attacks from insects, microorganisms, fungi and other environmental conditions that can lead to decay of the wood and the chemical preservative is registered pursuant to the Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. Sec. 136 and following). Existing law regulates the control of hazardous waste, but exempts from the hazardous waste control laws, wood waste that is exempt from regulation under the Federal Resource Conservation and Recovery Act of 1976, as amended (RCRA), if the wood waste is disposed of in a municipal landfill that meets certain requirements imposed pursuant to the Porter-Cologne Water Quality Control Act for the classification of disposal sites, and the landfill

meets other specified requirements outlined in Section 25150.7 of the Health and Safety Code. Section 25150.8 of the Health and Safety Code also provides that if treated wood waste is accepted by a solid waste landfill that manages and disposes of the treated wood waste in the manner specified, the treated wood waste shall be deemed to be a solid waste and not a hazardous or designated waste. The Discharger has indicated that all treated wood waste accepted at the West Central Landfill will be handled and disposed of in accordance with the provisions outlined in Section 25150.7 and 25150.8 of the Health and Safety Code.

23. The site characteristics at the facility do not meet the siting criteria for a new Class III landfill contained in Section 20260(a) and (b)(1) of Title 27. As such, the site is not suitable for operating new WMUs or lateral expansions of existing WMUs for the discharge and containment of Class III wastes as described in Finding Nos. 20 and 21, without the construction of additional waste containment features in accordance with Section 20260(b)(2), Title 27 and State Water Resources Control Board Resolution No. 93-62.

24. Leachate from the landfill WMUs leachate collection and removal systems (LCRSs) are discharged to the Class II surface impoundment (WMU No. 3). These wastes are classified as 'designated wastes' using the criteria set forth in Section 20210, Title 27.

SURFACE WATER AND GROUNDWATER CONDITIONS

25. The *Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin*, Fourth Edition (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.

26. Surface drainage is to Dry Creek, a tributary of Cottonwood Creek, in the Redding Enterprise Flat Hydrologic Area (508.10) of the Sacramento River Basin.

27. The beneficial uses of groundwater are domestic, municipal, agricultural, and industrial supply.

28. The beneficial uses of the surface waters are domestic, municipal, agricultural, and industrial supply; groundwater recharge; power generation; recreation; aesthetic enjoyment; navigation; freshwater replenishment; and preservation and enhancement of fish, wildlife, and other aquatic resources.

29. First encountered groundwater is in the Tehama Formation. Groundwater flow generally follows the topography, flowing from the ridges into the canyon in an easterly direction towards Dry Creek. Monitoring wells indicate the water table is approximately 80 feet below the ridges. Monitoring wells in the bottom of the canyon are artesian in the winter and spring, indicating a groundwater discharge area. In the summer, groundwater in the

canyon bottom may drop to approximately three feet below the ground surface. Permeabilities of the Tehama Formation immediately beneath the site range from $1.8x10^{-4}$ to $5.4x10^{-5}$ cm/sec. Groundwater velocities have been calculated at 31 feet/year.

30. Groundwater is relatively shallow beneath the site and, depending upon recharge by precipitation, may discharge into the canyon drainages. Due to the high groundwater, underdrain systems are necessary to prevent buildup of hydraulic head under the disposal areas. The underdrains consist of perforated PVC pipe in the bottom of the drainage channels. Compacted fill and clay liners are placed over the pipes in quantities sufficient to assure a minimum five-foot separation between groundwater and the base of the WMUs.

31. Groundwater beneath the landfill is classified as magnesium - calcium - bicarbonate type waters. Background total dissolved solid concentrations range from 96 to 133 milligrams per liter. Background chloride concentrations range from less than 1 to 4 milligrams per liter. Historically, aluminum, manganese, and iron have been present in groundwater at elevated concentrations. In 2001, these pollutants were detected in excess of the California maximum contaminant levels (MCL). Iron concentrations are elevated above the EPA secondary drinking water standards. During construction of one of the artesian monitoring wells, OB-9, (prior to the deposition of waste), effervescence was noted in the water. The gas was odorless and ignitable, indicating the presence of natural gas. To date, VOCs have not been detected in OB-9.

STORM WATER

32. Un-diverted precipitation falling on landfill WMUs that contacts waste is collected in contact water ponds and handled under the leachate collection and removal system or otherwise be kept on-site in accordance with Section 20365(b) of Title 27 and the Standard Provisions and Reporting Requirements for Title 27 (27 CCR section 20005, et seq.) and Subtitle D (40 CFR 258), dated April 2000 (Standard Provisions).

33. Precipitation that falls on the site without contacting waste (storm water) is diverted off-site by a system of drainage structures and holding facilities. Storm water leaving the site eventually enters an unnamed tributary to Cottonwood Creek. Discharge of storm water to a water of the United States requires a federal permit under the National Pollutant Discharge Elimination System (NPDES). The facility operates under a general NPDES permit for industrial storm water (No. 97-03-DWQ/NPDES CAS000001) and has an approved Storm Water Pollution Prevention Plan. This Order requires that the Discharger continue to maintain and comply with an industrial storm water permit and Storm Water Pollution Prevention Plan.

GROUNDWATER MONITORING

34. The existing groundwater monitoring system consists of three upgradient wells (OB-17, OB-18, and OB-12) and six downgradient wells (OB-2, OB6A, OB-6B, OB-9, OB-10, and OB-16) as shown on Attachment B. Total depths range from 120 to 160 feet below ground surface with screen intervals of 20 feet. Wells OB-17 and OB-18 replaced OB-5 and OB-7 respectively as described in the work plan submitted to the Regional Board in October 2001.

35. The Discharger's detection monitoring program for groundwater at this facility satisfies the requirements contained in Title 27.

36. Volatile organic compounds (VOCs) are often detected in a release from a landfill, and are the primary waste constituents detected in groundwater beneath a municipal solid waste landfill. Since volatile organic compounds are not naturally occurring and thus have no background value, they are not amenable to the statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a Unit.

37. 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 WMU in accordance with Section 20415(b)(1)(B) 2 through 4 of Title 27. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.

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

39. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a WMU, this Order specifies a non-statistical method for the evaluation of monitoring data.

40. 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 WMU. 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 WMU has occurred. Following an indication of a release, verification testing will be conducted to determine whether there has been a release from the WMU, 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

41. Results of the January 1999, January 2001, and July 2002 groundwater monitoring events show detections of VOCs in four of the monitoring wells, OB-5, OB-6A, and OB-6B. Chloroethane, cis-1, 2 dichloroethene, 1,1-dichloroethane, toluene, vinyl chloride, and total xylenes have been detected in OB-5. Total xylenes and toluene have been detected in OB-6A and OB-6B, respectively. The detection of VOCs in groundwater indicates a release from the landfill and is a violation of this Order. The VOCs were detected at low concentrations, ranging between the detection limit of 1 µg/l to 10 µg/l, and were predominately in the upgradient monitoring well OB-5. Since the detections occur mainly in the winter period during or immediately following periods of significant storm events when the earth is saturated and/or barometric pressure is low and gas pressures within the landfill would be greater than those outside the Unit, the source of VOCs in groundwater may be landfill gas.

UNSATURATED ZONE MONITORING

42. The unsaturated zone beneath the Class II surface impoundment is monitored using a single suction lysimeter. Monitoring of the unsaturated zone beneath WMU 1 and 2 is not practical due to the shallow groundwater; however, early leakage detection is accomplished by accessing and obtaining a sample from the Unit 1 and 2 underdrain system described in Finding No. 28 above. Groundwater has only been observed flowing into the Unit 1 and 2 underdrain during the winter and spring months.

43. In December 2002, VOCs were detected and confirmed in groundwater discharging from the Unit 1 and 2 underdrain. These VOCs include: acetone, benzene, chloroethane, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,1-dichloroethane, cis-1,2-dichloroethene, 1,2-dichloropropane, ethyl benzene, isopropylbenzene, p-isopropyltoluene, methylene chloride, methyl t-butyl ether, n-propylbenzene, tert-amyl methyl ether, tetrachloroethene, tetrahydrofuran, toluene, 1,1,1-trichloroethane, trichloroethene, 1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, vinyl chloride,and total xylenes. The VOC concentrations are high, and appear to be representative of the characteristics of the collected leachate. Regional Board staff requested the Discharger submit an engineering feasibility study for a corrective action program necessary to meet the requirement of Section 20430 of Title 27. The following items have been completed by the Discharger in response to the release as specified in Section 20420(k) of Title 27:

a. Route the Unit 1 and 2 underdrain effluent to the leachate collection sump, where it is pumped to the Class II Surface Impoundment;

b. A scan for COCs in the Unit 1 and 2 underdrain effluent, collected leachate, and monitoring wells;

c. An amended report of waste discharge, proposing an evaluation monitoring program meeting the requirements of Section 20430 of Title 27.

SURFACE WATER MONITORING

44. Surface waters are monitored in accordance with Monitoring and Reporting Program No. R5-2005-0068 and in keeping with an industrial storm water permit as described in Finding No. 33.

OPERATION OF FACILITIES

45. Wastes are accepted from the unincorporated areas of Shasta County and the Cities of Redding, Anderson, and Shasta Lake City. The current maximum daily load capacity is estimated at 480 tons and the average daily load is estimated at 340 tons. Based upon the Discharger's estimated density of compacted waste of 900 lb/yard^3, the current maximum daily load capacity and the average daily load capacity are expected to be 1,067 cubic yards, and 756 cubic yards, respectively. The waste load is expected to increase by two percent per year.

46. Commercial wastes are deposited directly at the working face; however, private citizens' waste is deposited into 40-cubic-yard boxes that are transferred to the working face by the operator. This allows control of the types of wastes deposited in the landfill and implementation of a hazardous waste screening program.

47. The expansion areas of Phase II will be prepared in 100,000 to 500,000-square-foot increments, and a liner and leachate collection system installed in each incremental unit until buildout of Phase II is complete.

DESIGN AND CONSTRUCTION OF LANDFILL WMUS

48. 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 RCRA Subtitle D, Part 258, Title 40 of the Code of Federal Regulations (Subtitle D).

49. 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.

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

51. Section 20080(b) of Title 27 allows the Regional Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with Section 20080(c)(1) and (2), the Discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in Section 20080(b), or would be impractical and would not promote attainment of applicable performance standards. The Discharger must also demonstrate that a proposed engineered alternative liner system is consistent with the performance goal addressed by the particular prescriptive standard, and provides protection against water quality impairment equivalent to the prescriptive standard in accordance with Section 20080(b)(2) of Title 27.

52. Section 13360(a)(1) of the California Water Code allows the Regional Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.

53. The Discharger proposes a liner system which will be capable of preventing degradation of waters of the state as a result of waste discharges to the landfill, during disposal operations, closure, and the postclosure maintenance period in accordance with the criteria set forth in Title 27 for a Class III landfill, and the provisions in State Water Resources Control Board Resolution No. 93-62 for municipal solid wastes.

54. The Discharger submitted a Report of Waste Discharge requesting approval of an engineered alternative to the prescriptive liner requirements.

55. The engineered alternative proposed in the liner performance demonstration for Unit 3 consists of, in ascending order: a one-foot thick compacted clay layer with a bentonite additive to achieve a maximum permeability of 1×10^{-7} cm/sec; a Geosynthetic Clay Liner (GCL); a 60-mil thick HDPE geomembrane, a 16-oz non-woven geotextile, and a one-foot gravel drainage layer.

56. The Discharger adequately demonstrated that construction of a Subtitle D prescriptive standard liner would be unreasonable and unnecessarily burdensome when compared to the proposed engineered alternative design. The on-site materials cannot achieve the permeability requirements without the addition of bentonite additives. The cost of importing adequate bentonite to amend the additional foot thickness of material would cost substantially more than 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 or better protection against water quality impairment.

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

    In a letter dated 17 April 2001, the Executive Officer notified Owners and Operators of Solid Waste Landfills that "the Regional 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."

58. The performance standard for the design and construction of a Class III waste management unit specified in Section 20310(c) of Title 27 is "Class III landfills shall have containment structures which are capable of preventing degradation of waters of the state as a result of waste discharges to the landfills if site characteristics are inadequate."

59. The Discharger submitted a liner performance demonstration for Unit 3 of Phase II, which demonstrates that the system will comply with the applicable Title 27 performance standards.

    The Discharger demonstrated the adequacy of their proposed liner system by calculating potential leakage rates and by estimating the potential impacts to groundwater. The Discharger calculated the potential impacts to groundwater by estimating dilution factors provided by a groundwater flow and solute transport model along with analytical results from leachate samples collected from the WMU. Estimates of the concentrations of leachate constituents were determined at the edge of the WMU and at locations downgradient of the point of compliance.

60. The Discharger's data demonstrate that groundwater is very shallow beneath the central portion of the Phase II WMUs and the bottom of the canyon making vadose zone monitoring impractical. The bottom of the drainage in which the landfill is located is a groundwater discharge zone. To avoid having groundwater enter the landfill, an underdrain constructed in the canyon bottom collects and diverts this water into the stream below the landfill. The Unit 1 and 2 underdrain consists of a slotted pipe buried a minimum of five feet below the top of the lowermost portion of the clay liner. Future WMUs will require vadose monitoring, as practical, and a gas monitoring system.

61. As described in Finding No. 42, the current Unit 1 and 2 underdrain system is no longer adequate as a detection monitoring system for the new Unit 3 due to the discovery of VOCs in the underdrain effluent. Construction specifications for Unit 3 include plans for a leak detection sump located along the eastern toe. The leak detection sump will consist (from top to bottom) of a minimum six-inch layer of Caltrans class 2 permeable material, a 4-inch diameter slotted HDPE leak detection pipe at the base of the sump, and an 80-mil HDPE geomembrane layer. The leak detection sump will be placed in between the GCL and compacted clay layer of the landfill baselayering scheme. In addition, the Unit 1 and 2 underdrain will be permanently routed to the leachate main pipe and a new underdrain will be constructed for Unit 3 (Unit 3 underdrain).

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

DESIGN AND CONSTRUCTION OF CLASS II SURFACE IMPOUNDMENTS

63. Article 4, Table 4.1, and Sections 20330 and 20340, Title 27, contain construction standards for Class II surface impoundments. Minimum requirements include the following:

    a. A single (replaceable) compacted clay liner with a hydraulic conductivity of 1×10^{-6} cm/s, or less. The liner must be replaced before the last 25 percent (minimum one-foot thickness) of liner has been penetrated by fluid waste; **or**

    b. A double liner consisting of a synthetic flexible membrane primary (inner) liner (minimum thickness 40 mils) underlain by a blanket type leachate collection and removal system underlain by a minimum two-foot thick compacted clay liner having a hydraulic conductivity of 1×10^{-6} cm/s, or less, or a substantial thickness of natural geologic materials having a hydraulic conductivity of 1×10^{-6} cm/s, or less.

64. The Discharger has constructed a Class II surface impoundment for the containment of leachate. The pond liner consists of (from the top down) an 80-mil HDPE synthetic membrane liner, a geotextile, a geonet drainage layer for leachate collection and removal, a second geotextile, and a 24-inch clay liner with a maximum hydraulic conductivity of 1×10^{-6} cm/sec.

65. Experience has shown, that the prescriptive standard described in Finding 63 will not meet the performance standard for a Class II surface impoundment which is "to prevent migration of wastes from the WMUs to adjacent geologic materials, groundwater, or surface water, during disposal operations, closure, and the post closure maintenance period" (Section 20310(a), Title 27). To meet the performance standard, future Class II surface impoundments constructed and operated at this site must, at a minimum, consist of a synthetic flexible membrane inner liner and a composite outer liner with an intervening LCRS. The composite outer liner must, at a minimum, consist of one-foot of compacted clay with a hydraulic conductivity of 1×10^{-6}, or less, overlain by a synthetic

flexible membrane liner. Synthetic flexible membrane liner materials must have a minimum thickness of 40 mils (60 mils, if HDPE).

66. All WMUs designed for containment of Class II wastes (leachate) will be constructed to contain the 1,000-year, 24-hour storm event and the 100-year wet season while still maintaining two feet of freeboard.

67. Fluid leaking through the inner liner of a Class II surface impoundment will be collected and returned to the impoundment or otherwise disposed of in a manner approved by the Executive Officer. Flow through the inner liner will be measured and expressed in units of gallons/minute/acre. Fluid that has leaked through the inner liner will necessitate a response on the part of the Discharger up to and including the emptying of a surface impoundment and the completion of needed repairs.

CEQA AND OTHER CONSIDERATIONS

68. The activities described in Findings 1 through 67 have the potential to add pollutants to surface and groundwater in the form of sediment and landfill waste constituents as a result of earth disturbance and disposal of nonhazardous solid wastes and landfill leachate. These activities could adversely affect beneficial uses of surface waters and groundwaters unless adequately mitigated. Compliance with these waste discharge requirements will prevent impacts to surface and groundwaters.

69. The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code §21000, et seq., and the CEQA guidelines, in accordance with §15301, Title 14, CCR.

70. Section 13267(b) of California Water Code provides that: "In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of discharging, or who proposed to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. The monitoring and reporting program required by this Order and the attached "Monitoring and Reporting Program No. R5-2005-0068" are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

71. This Order implements:

    a. The *Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin*, 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, Title 40 of the Code of Federal Regulations (Subtitle D); 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

72. 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.

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

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

75. Any person adversely affected by this action of the Regional Board may petition the State Water Resources Control Board (State 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 upon request.

IT IS HEREBY ORDERED pursuant to Section 13263 and 13267 of the California Water Code, that Order No. R5-2003-0079 is rescinded, and that Shasta County its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted hereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of 'hazardous waste,' is prohibited. For the purposes of this Order, the term 'hazardous waste' is as defined in Title 23, California Code of Regulations, Section 2510 et seq.

2. The discharge of 'designated waste' is prohibited except landfill leachate to Class II surface impoundments designed and constructed to contain such wastes. For the

purposes of this Order, the term 'designated waste' is as defined in Section 13173 of the California Water Code.

3. The discharge of wastes outside of a WMU or portions of a WMU specifically designed for their containment is prohibited.

4. The discharge of waste to a closed WMU is prohibited.

5. 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 is prohibited.

6. The discharge of solid, or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.

7. An increase caused by the discharge in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of a WMU, 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 is prohibited.

B. DISCHARGE SPECIFICATIONS

1. Nonhazardous wastes shall be discharged to either:

   a. The unclosed portions of WMU 2; or

   b. To a WMU equipped with a composite liner containment system which meets the requirements for both liners and leachate collection and removal systems specified under E. Class III Landfill Construction Specifications.

2. Designated wastes (landfill leachate from on-site Class III WMUs) shall be discharged on-site only to Class II surface impoundments or off-site in a manner approved by the Executive Officer.

3. The discharge shall remain within the designated disposal areas at all times.

4. "Treated wood" wastes may be discharged, but only to an area equipped with a composite liner and leachate collection and removal system, as described in Construction Specification D.2, and shall be handled in accordance with California Health and Safety Code Section 25150.7.

C. FACILITY SPECIFICATIONS

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

2. The Discharger shall immediately notify the Regional Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions that 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 WMU, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.

6. Waste filling at landfill WMUs shall be conducted in accordance with a fill plan demonstrating that all temporary refuse fill slopes will be stable under static conditions and under dynamic conditions for the design earthquake event for that WMU.

7. Surface drainage within the waste management facility shall either be contained on-site or be discharged in accordance with applicable storm water regulations.

8. The Discharger shall maintain and comply with a *Storm Water Pollution Prevention Plan* and *Monitoring Program and Reporting Requirements* in accordance with State Water Resources Control Board Order No. 97-03-DWQ, or retain all storm water on-site.

D. GENERAL CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for Executive Officer review and approval **prior to** construction, design plans and specifications for new WMUs and expansions of existing WMUs. The plans and specifications shall include, but not be limited to:

   a. A Construction Quality Assurance Plan meeting the requirements of Section 20324 of Title 27; and

   b. A geotechnical evaluation of the area soils, evaluating their use as the base layer; and

c. An unsaturated zone monitoring system, which is demonstrated to remain effective throughout the active life, closure, and post-closure maintenance periods of the WMU, which shall be installed beneath the composite liner system in accordance with Section 20415(d) of Title 27.

d. A demonstration that each element of the proposed design(s) meets the performance standards of Title 27 and Resolution 93-62 for that element, as applicable.

2. Materials used to construct LCRSs shall have appropriate physical and chemical properties to ensure the required transmission of leachate over the life of the WMUs and the post-closure maintenance period.

3. Clay liner materials shall have a maximum hydraulic conductivity of $1x10^{-6}$ cm/s or $1x10^{-7}$ cm/s, or less, for Class II surface impoundments and Class III landfill WMUs, respectively. Clay liner materials shall have a minimum relative compaction of 90 percent. At least 30 percent of the material, by weight, shall pass a No. 200 U.S. Standard sieve with no particles larger than one inch. The materials shall be fine-grained soils with a significant clay content and without organic matter in the "SC" (clayey sand), "CL" (clay, sandy, or silty clay), or "CH" (clay, sandy clay) classes of the Unified Soil Classification system. Hydraulic conductivities of liner materials shall be determined by laboratory tests using solutions with similar properties as the fluids that will be contained. Engineered alternatives to the prescriptive liner material standards may be used if approved by the Executive Officer pursuant to Section 20080 of Title 27.

4. Class II and Class III WMUs shall be designed, constructed, and operated to provide a minimum separation of five feet between the base of the WMUs and the highest anticipated elevation of groundwater.

5. The LCRS shall be designed and operated to be free draining and at no time shall the LCRS be allowed to become a pressurized conduit.

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

7. Following the completion of construction of a WMU or portion of a WMU, and prior to discharge onto the newly constructed liner system, the final documentation required in Section 20324(d)(1)(C) of Title 27 shall be submitted to the Executive Officer for review and approval. The report shall be certified by a registered civil engineer or a certified engineering geologist. It shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, and with the prescriptive standards and performance goals of Title 27.

8. A third party independent of both the Discharger and the construction contractor shall perform all of the construction quality assurance monitoring and testing during the construction of a liner system.

E. CLASS III LANDFILL CONSTRUCTION SPECIFICATIONS

1. Both the bottom liner and side slope liner of all new landfill WMUs and lateral expansion areas of existing landfill WMUs shall be constructed in accordance with one of the following composite liner designs:

   a. The prescriptive standard design which consists of a lower compacted soil layer that is a minimum of two feet thick with a hydraulic conductivity of $1x10^{-7}$ cm/sec or less and has a minimum relative compaction of 90 percent. Immediately above the compacted soil layer, and in direct and uniform contact with the soil layer, shall be a synthetic flexible membrane component that shall be at least 40-mil thick (or at least 60 mils thick if composed of high density polyethylene [HDPE]), which is immediately overlain with a leachate collection and removal system. A soil operations layer shall be placed above the leachate collection and removal system; or

   b. An engineered alternative composite liner system that is comprised, in ascending order, of the following:

      1) A twelve-inch thick compacted soil layer with a hydraulic conductivity of $1x10^{-7}$ cm/sec or less and has a minimum relative compaction of 90 percent.

      2) A geosynthetic clay liner (GCL) that shall exhibit appropriate strength characteristics (hydrated) to accommodate stresses associated with specific landfill design parameters, with particular attention to interface, long-term creep shear, and bearing capacity.

      3) A 60-mil thick synthetic flexible membrane of HDPE.

2. The Discharger may propose changes to the liner system design prior to construction, provided that approved components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed liner system results in the protection of water quality equal to or greater than the design prescribed by Title 27 and this Order. The proposed changes may be made following approval by the Executive Officer. Substantive changes to the design require reevaluation as an engineered alternative and approval by the Regional Board.

3. For a liner system with a geosynthetic clay liner (GCL) component, soil beneath the GCL 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.

F. CLASS II SURFACE IMPOUNDMENT CONSTRUCTION SPECIFICATIONS

1. Future Class II surface impoundments shall be constructed with a double liner having a blanket-type LCRS between the inner and outer liners. The inner liner shall be a synthetic flexible membrane at least 40-mil thick (60 mils, if HDPE). The outer liner, under the LCRS, shall be a composite, consisting of an upper synthetic flexible membrane at least 40-mil thick (60-mil, if HDPE), underlain by at least one foot of compacted clay having a hydraulic conductivity of 10^{-6} cm/s, or less.

2. Class II surface impoundments and related containment structures shall be constructed and maintained to prevent, to the greatest extent possible, inundation, erosion, slope failure, washout, and overtopping under 1000-year, 24-hour precipitation conditions, and shall be designed to contain the 100-year wet season precipitation without using the required two feet of freeboard.

3. Class II surface impoundments and related containment structures shall be designed and constructed to withstand a maximum credible earthquake.

4. LCRSs shall be designed, constructed, and maintained to collect twice the anticipated daily volume of leachate generated by the WMU and to prevent the buildup of hydraulic head on the underlying liner. The depth of fluid in any collection sump shall be kept at or below the minimum needed to ensure efficient pump operation.

G. DETECTION MONITORING SPECIFICATIONS

1. The Discharger shall submit for Executive Officer review and approval an updated Water Quality Protection Standards (WQPS) Report prior to any WMU expansion.

2. The Discharger shall submit for Executive Officer review and approval a Sample Collection and Analysis Plan. The Sample Collection and Analysis Plan shall at a minimum include:

   a. Sample collection, including purging techniques, sampling equipment, and decontamination of sampling equipment;

   b. Sample preservation and shipment;

   c. Analytical procedures; and

   d. Chain of custody control.

3. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, in accordance with Monitoring and Reporting Program No. R5-2005-0068. A detection monitoring program for a new WMU shall be installed, operational, and one year of monitoring data collected **prior to** the discharge of wastes.

4. The Discharger shall provide Regional Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation, repair, or abandonment of monitoring devices, and a minimum **48-hour** notification prior to the collection of samples associated with a detection monitoring program, evaluation monitoring program, or corrective action program.

5. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, Monitoring and Reporting Program No. R5-2005-0068, and the Standard Provisions and Reporting Requirements, dated April 2000.

6. 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 WMU.

7. 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. R5-2005-0068.

8. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the Water Quality Protection Standard using procedures specified in this Order, Monitoring and Reporting Program No. R5-2005-0068, and Section 20415(e) of Title 27.

9. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless the Executive Officer approves a longer time period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

10. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent versions of *Standard Methods for the Examination of Water and Wastewater* (Standard Methods) and 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.

11. If methods other than Standard Methods or USEPA-approved methods are used, the exact methodology shall be submitted for review and approval by the Executive Officer prior to use.

12. 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 percent 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.

13. **"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.

14. **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 laboratory, 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.

15. 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 percent 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.

16. 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.

17. **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.

18. 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 Section 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 Section 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, 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."

19. The Discharger may propose an alternate statistical method to the methods listed under 27 CCR Section 20415(e)(8)(A-D) in accordance with Section 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 Regional Board staff.

20. 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 percent of the data from background samples 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 Section 20415(e)(8)(A-D) in accordance with Section 20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer.

21. 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 percent of background samples).

    The Discharger shall conduct verification testing (see Detection Monitoring Specifications G.22. and G.24 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 percent of background soil pore gas samples.

    The Discharger shall conduct verification testing (see Detection Monitoring Specifications G.22 and G.24 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 5-Year 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 percent of applicable background samples.

    The Discharger shall conduct verification testing (see Detection Monitoring Specifications G.22 and G.24 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.

22. **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 WMU. 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 G.21.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 G.21.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.

23. **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) **Within 24 hours**, notify the Regional Board by phone;

b) **Within seven days**, follow up with written notification by certified mail; and

c) **Within 30 days**, obtain **two** new independent VOC samples from that background monitoring point submit such samples to laboratory for analysis of all detectable VOCs.

b. If either or both the new samples validates the presence of VOC(s), using the above criteria, the Discharger shall:

1) **Within 24 hours,** notify the Regional Board by telephone about the VOC(s) verified to be present at that background monitoring point, and follow up with written notification submitted by certified mail

2) **Within seven days** of validation; and if the Discharger believes that the VOC(s) in background is from a source other than the WMU, then:

a) **Within seven days** of determining "measurably significant" evidence of a release, submit to the Regional Board by certified mail a Notification of Intent to make such a demonstration pursuant to Section 20420(k)(7) of Title 27; and

b) **Within 90 days** of determining "measurably significant" evidence of a release, submit a report to the Regional Board that demonstrates that a source other than the WMU 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 WMU(s), the Executive Officer will make appropriate changes to the monitoring program.

24. If the Executive Officer determines, after reviewing the submitted report, that the detected VOC(s) most likely originated from the WMU(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.

H. EVALUATION MONITORING SPECIFICATIONS

1. The Discharger, **within 14 days** of determining "measurably significant" evidence of a release, shall notify all persons who own the land or reside on the land that directly overlies any portion of the plume of contamination if contaminants have migrated off-site if indicated by sampling or detection monitoring wells [40 CFR258.55(g)(1)(iii)].

2. The Discharger shall complete an Evaluation Monitoring Program meeting the requirements of Section 20430 of Title 27, and submit a technical report describing all actions and monitoring proposed to complete the Evaluation Monitoring Program. Regional Board staff has requested the Evaluation Monitoring Program report be submitted prior to the adoption of this Order.

3. The Executive Officer may revise Monitoring and Reporting Program No. R5-2005-0068, as appropriate after reviewing the Evaluation Monitoring Program and technical reports described in Evaluation Monitoring Specification H.2.

I. REPORTING REQUIREMENTS

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Regional Board office by telephone **within 24 hours** of it or its agents first having 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 for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Executive Officer.

   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 monitoring 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 Sample Collection 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 WMU, 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 WMU(s), for the perimeter of the WMU, and for the receiving waters. The Standard Observations shall include:

1) For the WMU:

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 WMU:

a) Evidence of liquid leaving or entering the WMU, 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.

d) The quantity and types of wastes discharged and the locations in the WMU 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 **within 24 hours** after it is discovered. A written report shall be filed with the Regional Board **within seven days**, containing at least the following information:

a. A map showing the location(s) of seepage;

b. An estimate of the flow rate;

c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);

d. Verification that samples have been submitted for analyses of the Constituents of Concern and Monitoring Parameters, and an estimated date that the results will be submitted to the Regional Board; and

e. Corrective measures underway or proposed, and corresponding time schedule.

6. The Discharger shall submit an **Annual Monitoring Summary Report** to the Regional Board covering the reporting period of the previous monitoring year. This report shall contain:

a. All monitoring parameters and Constituents of Concern shall be graphed so as to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of

record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.

b. Unless otherwise exempted by the Executive Officer, all monitoring analytical data obtained during the previous two six-month reporting periods, shall be presented in tabular form as well as on 3.5" computer diskettes or CD-Rom, either in MS-Access, ASCII, or in another file format acceptable to the Executive Officer. Data sets too large to fit on a single diskette may be submitted on disk in a commonly available compressed format (e.g. PKZIP). The Regional Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis, in that this facilitates periodic review by the Regional Board.

c. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.

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

e. A written summary of the monitoring results, indicating any changes made or observed since the previous annual report.

f. An evaluation of the effectiveness of the leachate monitoring/control facilities.

J. PROVISIONS

1. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.

2. The Discharger shall comply with all applicable provisions of Title 27 and Title 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. R5-2005-0068, 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 Section 20005 et seq. and 40 CFR 258 et seq.)*, dated April 2000, which are hereby incorporated into this Order.

5. All reports and transmittal letters shall be signed by persons identified below:

   a. For a corporation: by a principal executive officer of at least the level of senior vice-president.

   b. For a partnership or sole proprietorship: by a general partner or the proprietor.

   c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.

   d. A duly authorized representative of a person designated in a, b or c above if;

      1) The authorization is made in writing by a person described in a, b, or c of this provision;

      2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a WMU, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

      3) The written authorization is submitted to the Regional Board.

   e. Any person signing a document under this Section shall make the following certification:

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

6. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.

7. The Discharger shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and post-closure maintenance period of the WMU(s) and during subsequent use of the property for other purposes.

8. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of the Order.

9. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Regional Board requesting transfer of the Order within 14 days of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Board, and a statement. The statement shall comply with the signatory requirements contained in Provision J.5 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer of this Order shall be approved or disapproved by the Regional Board.

10. The Discharger is required to establish and maintain financial assurances mechanism(s) for closure and post-closure maintenance costs as specified in Chapter 6, Title 27. The Discharger is required to submit the financial assurance mechanism to the Financial Assurances Section of the California Integrated Waste Management Board, which determines if the mechanism meets the requirements of Chapter 6, Title 27, and if the amount of coverage is adequate.

11. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the landfill in an amount approved by the Executive Officer, and shall submit the financial assurance mechanism to the Financial Assurances Section of the California Integrated Waste Management Board for approval.

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 28 April 2005.

THOMAS R. PINKOS
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2005-0068
FOR

SHASTA COUNTY
WEST CENTRAL CLASS III MUNICIPAL SOLID WASTE LANDFILL
AND
CLASS II SURFACE IMPOUNDMENT
SHASTA 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 (hereafter Standard Provisions), is ordered by Waste Discharge Requirements Order No. R5-2005-0068.

A. REQUIRED MONITORING REPORTS

	Report	Due
1.	Groundwater Monitoring (Section D.1)	**See Table I**
2.	Annual Monitoring Summary Report (Order No. R5-2005-0068, I.6.)	**31 January**
3.	Unsaturated Zone Monitoring (Section D.2)	**See Table II**
4.	Leachate Monitoring (Section E.)	**See Table III**
5.	Class II Surface Impoundment Monitoring (Section F.)	**Quarterly**
6.	Storm Event Monitoring (Section G.)	**As indicated**
7.	Surface Water Monitoring (Section H.)	**Table IV**
8.	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. R5-2005-0068 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 I. Reporting Requirements, of Order No. R5-2005-0068.

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

Sampling Frequency	Reporting Frequency	Reporting Periods End	Report Date Due
Monthly	Quarterly	31 March	**30 April**
		30 June	**31 July**
		30 September	**31 October**
		31 December	**31 January**
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 Regional Board covering the previous monitoring year. The annual report shall contain the information specified in I. Reporting Requirements, of Order No. R5-2005-0068, 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 Regional Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

1. Water Quality Protection Standard Report (Report)

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

The report shall:

a. Identify **all distinct bodies of surface and groundwater** that could be affected in the event of a release from a WMU or portion of a WMU. 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 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 WMU. The Constituents of Concern for all WMUs at the facility are listed in Tables I through IV for groundwater, unsaturated zone, leachate, and surface water monitoring, respectively. Tables V and VI are incorporated by reference into Tables I through IV. Table V is a list of specific volatile organic compounds referred to by analytical method but not listed in Tables I through III. Table V also contains inorganic "surrogates for metallic constituents," required by Subtitle D if the metallic constituents are not

included in detection monitoring**. Table VI contains specific inorganic and organic parameters, referred to but not listed in Tables I through III, that are required to be monitored under 5-Year Constituents of Concern monitoring.**

3. 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 WMU. The monitoring parameters for all WMUs are those listed in Tables I through IV for the specified monitored medium.

4. Concentration Limits

For naturally occurring Constituents of Concern or non-naturally occurring Constituents of Concern that have background values, 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.

For non-naturally occurring Constituents of Concern that do not have background values, the concentration limit for each constituent of concern shall be determined in accordance with *G. Detection Monitoring Specifications* of Waste Discharge Requirements Order No. R5-2005-0068.

5. Point of Compliance

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

6. Compliance Period

The compliance period for each WMU shall be the number of years equal to the active life of the WMU 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 WMU. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program.

D. DETECTION MONITORING

The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater and the unsaturated zone, in accordance with Detection Monitoring Specifications G.3 and G.5 of Waste Discharge Requirements, Order No. R5-2005-0068. All monitoring shall be conducted in accordance with an approved 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, and leachate monitoring points shall be sampled and analyzed as indicated and listed in Tables I through III.

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.

The Discharger may, with the approval of the Executive Officer, use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program.

1. Groundwater

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

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

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

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

Applicable inorganic parameters (minerals) shall also be evaluated each reporting period with regards to the cation/anion balance, and the results shall be graphically presented using Piper and Stiff diagrams. Stiff diagrams shall be plotted on a site map having the current quarter's groundwater elevation contours and other pertinent information. Each Stiff diagram shall be placed next to the corresponding monitoring point.

2. Unsaturated Zone Monitoring

For new WMUs and lateral expansions, the Discharger shall install and operate an unsaturated zone detection monitoring system that complies with the applicable provisions of §20415 and §20420 of Title 27. 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.

a. Lysimeters

Unsaturated zone samples shall be collected from the monitoring devices and background monitoring devices of the approved unsaturated zone monitoring system, including the suction lysimeter is installed under the Class II surface impoundment. If sufficient sample is obtained from the lysimeters, 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.

b. Landfill Underdrain System

Samples shall be collected from the underdrain system and be analyzed for the listed constituents in accordance with the methods and frequency specified in Table II.

E. LEACHATE MONITORING

All WMU 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 quantity of leachate pumped from each sump shall be measured daily, summarized monthly, and reported quarterly as Leachate Flow Rate (in gallons).

The quantity of leachate which seeps to the surface from the WMU shall be estimated and reported separately as Seepage Flow Rate (in gallons/day).

F. CLASS II SURFACE IMPOUNDMENT MONITORING

Each Class II surface impoundment shall be monitored monthly and the results reported quarterly according to the schedule in Section B. Monitoring parameters shall include freeboard, fluid depth, total capacity, and capacity remaining.

G. STORM EVENT MONITORING

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.

H. SURFACE WATER MONITORING

The Discharger shall install and operate a surface water detection monitoring system downstream of the landfill WMUs that complies with the applicable provisions of §20415 and §20420 of Title 27 and has been approved by the Executive Officer.

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

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

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

28 April 2005
(Date)

TABLE I

GROUNDWATER DETECTION MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Groundwater Elevation	Ft. & hundredths, M.S.L.	Semiannual
Temperature	^{o}C	Semiannual
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
Turbidity	Turbidity units	Semiannual
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Semiannual
Chloride	mg/L	Semiannual
Carbonate	mg/L	Semiannual
Bicarbonate	mg/L	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual
Sulfate	mg/L	Semiannual
Calcium	mg/L	Semiannual
Magnesium	mg/L	Semiannual
Potassium	mg/L	Semiannual
Sodium	mg/L	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, see Table IV)	µg/L	Semiannual
5-Year Constituents of Concern (see Table V)		
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

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

PAN LYSIMETERS (or other vadose zone monitoring device)

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

TABLE III

LEACHATE MONITORING PROGRAM

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

TABLE IV

SURFACE WATER DETECTION MONITORING PROGRAM

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

TABLE V

MONITORING PARAMETERS FOR DETECTION MONITORING

Surrogates for Metallic Constituents:

pH
Total Dissolved Solids
Electrical Conductivity
Chloride
Sulfate
Nitrate nitrogen

Constituents included in VOC:

USEPA Method 8260B
Acetone
Acrylonitrile
tert-Amyl methyl ether (TAME)
Benzene
Bromochloromethane
Bromodichloromethane
Bromoform (Tribromomethane)
tert-Butyl alcohol (TBA)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- l ,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
Ethyl tert-butyl ether (ETBE)
Ethylbenzene
2-Hexanone (Methyl butyl ketone)
di-Isopropyl ether (DIPE)
Methyl bromide (Bromomethene)

TABLE V

MONITORING PARAMETERS FOR DETECTION MONITORING

Continued

Methyl chloride (Chloromethane)
Methylene bromide (Dibromomethane)
Methyl tert-butyl ether (MTBE)
Methylene chloride (Dichloromethane)
Methyl ethyl ketone (MEK: 2-Butanone)
Methyl iodide (Iodomethane)
4-Methyl-2-pentanone (Methyl isobutylketone)
Styrene
1,1,1,2-Tetrachloroethane
1,1.2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene
1,1,1-Trichloethane (Methylchloroforrn)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride
Xylenes

TABLE VI

5-YEAR CONSTITUENTS OF CONCERN & APPROVED ANALYTICAL METHODS

Inorganics (dissolved):	**USEPA Method**
Aluminum	6010
Antimony	7041
Barium	6010
Beryllium	6010
Cadmium	7131A
Chromium (total)	6010
Chromium (hexavalent)	7199
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 8260B

Acetone
Acetonitrile (Methyl cyanide)
Acrolein
Acrylonitrile
Allyl chloride (3-Chloropropene)
tert-Amyl methyl ether (TAME)
Benzene
Bromochloromethane (Chlorobromomethane)
Bromodichloromethane (Dibromochloromethane)
Bromoform (Tribromomethane)
tert-Butyl alcohol (TBA)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride
Chloroform (Trichloromethane)
Chloroprene

TABLE VI

5-YEAR CONSTITUENTS OF CONCERN & APPROVED ANALYTICAL METHODS

Continued

Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dribromide; 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, l-Dichloroethene; Vinylidene chloride)
cis- l ,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans- l ,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- l ,3-Dichloropropene
Ethylbenzene
Ethyl tert-butyl ether (ETBE)
Ethyl methacrylate
Hexachlorobutadiene
Hexachloroethane
2-Hexanone (Methyl butyl ketone)
Isobutyl alcohol
di-Isopropyl ether (DIPE)
Methacrylonitrile
Methyl bromide (Bromomethane)
Methyl tert-butyl ether (MTBE)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK; 2-Butanone)
Methyl iodide (Iodomethane)
Methyl methacrylate
4-Methyl-2-pentanone (Methyl isobutyl ketone)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Naphthalene
Propionitrile (Ethyl cyanide)
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane

TABLE VI

5-YEAR CONSTITUENTS OF CONCERN & APPROVED 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 8270C - 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-methyethyl) 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

5-YEAR CONSTITUENTS OF CONCERN & APPROVED 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-Dimehtylphenol (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

TABLE VI

5-YEAR CONSTITUENTS OF CONCERN & APPROVED ANALYTICAL METHODS

Continued

Hexachlorocyclopentadiene
Hexachloropropene
Indeno(1,2,3-c,d)pyrene
Isodrin
Isophorone
Isosafrole
Kepone
Methapyrilene
Methoxychlor
3-Methylcholanthrene
Methyl methanesulfonate
2-Methylnaphthalene
1,4-Naphthoquinone
1-Naphthylamine
2-Naphthylamine
o-Nitroaniline (2-Nitroaniline)
m-Nitroaniline (3-Nitroaniline)
p-Nitroaniline (4-Nitroaniline)
Nitrobenzene
o-Nitrophenol (2-Nitrophenol)
p-Nitrophenol (4-Nitrophenol)
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)
N-Nitrosodiethylamine (Diethylnitrosamine)
N-Nitrosodimethylamine (Dimethylnitrosamine)
N-Nitrosodiphenylamine (Diphenylnitrosamine)
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)
N-Nitrosomethylethylamine (Methylethylnitrosamine)
N-Nitrosopiperidine
N-Nitrosospyrrolidine
5-Nitro-o-toluidine
Pentachlorobenzene
Pentachloronitrobenzene (PCNB)
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
p-Phenylenediamine
Polychlorinated biphenyls (PCBs; Aroclors)
Pronamide
Pyrene
Safrole

TABLE VI

5-YEAR CONSTITUENTS OF CONCERN & APPROVED ANALYTICAL METHODS

Continued

1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
o-Toluidine
Toxaphene
1,2,4-Trichlorobenzene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene

Chlorophenoxy Herbicides:

USEPA Method 8l51A
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
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)
Dimethoate
Disulfoton
Methyl parathion (Parathion methyl)
Parathion
Phorate

INFORMATION SHEET

ORDER NO. R5-2005-0068
SHASTA COUNTY
WEST CENTRAL CLASS III MUNICIPAL SOLID WASTE LANDFILL
AND CLASS II SURFACE IMPOUNDMENT
SHASTA COUNTY

The Shasta County West Central Landfill is located approximately 12 miles southwest of Redding. Beginning in January 1990, the City of Redding has taken over operation of the landfill.

The landfill has accepted waste since 1981. The facility will be developed in five phases to reach a total volume of 17,000,000 cubic yards. Phase I is full and has been closed. Phase II is currently under construction but has been accepting waste since 1990. Phase II will be constructed in stages to reach a total capacity of 7,000,000 cubic yards.

Phase IA, the closed portion of the landfill, was designed in 1981 and constructed in 1982. The Phase I liner consists of 3-feet of clayey soil in the bottom of the canyon, and the LCRS is comprised of a perforated PVC pipe surrounded by gravel and cobbles. Phase II consists of a series of separately constructed units as shown in Attachments B and C. Phase II-Unit 1A, the first unit constructed following closure of Phase I, is lined with a one foot clay layer with a maximum hydraulic conductivity of 1×10^{-6} cm/sec, and a 6-mil PVC moisture barrier overlain by six inches of drain rock with perforated PVC piping. Units 1B, 1C, and 2 are constructed with 12 inches of compacted clay with a bentonite additive to achieve a maximum hydraulic conductivity of 1×10^{-7} cm/sec, a Geosynthetic Clay Liner (GCL), and a 40-mil PVC flexible membrane liner overlain by a one foot gravel drainage layer.

Unit 1D is lined (from bottom to top) with 12 inches of compacted clay with a bentonite additive to achieve a maximum hydraulic conductivity of 1×10^{-7} cm/sec, a GCL, a textured 60-mil HDPE flexible membrane liner, and a one foot gravel drainage layer. The side slopes are constructed at a 2:1 geometry, layered with a GCL, a textured 60 mil HDPE liner, and a geonet drainage layer overlain by a nonwoven geotextile. Newly constructed, Unit 3, is the active unit of the Phase II portion of the landfill. The Discharger submitted a liner performance evaluation demonstrating how the proposed single composite liner system will comply with the performance standard outlined in Title 27. The Discharger proposed a bottom liner system consisting of (from top to bottom) a one-foot gravel drainage layer, a geotextile, a 60-mil HDPE geomembrane, a CGL, and a one-foot compacted clay layer. The side slopes will be lined (from top to bottom) with a geocomposite drainage net, a 60-mil HDPE geomembrane, a GCL, and a geotextile over the subgrade.

Leachate is discharged to a covered Class II surface impoundment. The surface impoundment consists of (bottom to top) a two-foot compacted clay liner with a maximum hydraulic conductivity of $1x10^{-6}$ cm/sec, a geonet drainage layer on the side slopes and a blanket leachate collection system of sand, overlain by an 80-mil-thick HDPE geomembrane.

Four unclassified surface impoundments, one at the base of the landfill and three on the adjoining ridge, are used for the containment of contact water, which may contain minor amounts of waste constituents. Water from these ponds will either be evaporated in the summer months, used for on-site dust control, or sprinkled on the hillside for erosion and wildfire management.

Wastes will be accepted from the unincorporated areas of Shasta County and the Cities of Redding, Anderson, and Shasta Lake City. The current average daily load is estimated at 340 tons or 756 cubic yards (based on a density of 900 lbs/yard^3 for compacted waste). Tires are no longer accepted at the facility.

The Discharger proposes to accept treated wood waste at the West Central Landfill. Existing law regulates the control of hazardous waste, but exempts from the hazardous waste control laws, wood waste that is exempt from regulation under the Federal Resource Conservation and Recovery Act of 1976, as amended (RCRA), if the wood waste is disposed of in a municipal landfill that meets certain requirements imposed pursuant to the Porter-Cologne Water Quality Control Act for the classification of disposal sites, and the landfill meets other specified requirements outlined in Sections 25143.1.5, 25150.7 and 25150.8 of the Health and Safety Code. The Discharger has indicated that all treated wood waste accepted at the West Central Landfill will be handled and disposed of in accordance with the provisions outlined in Sections 25143.1.5, 25150.7 and 25150.8 of the Health and Safety Code. The West Central Landfill appears to meet the necessary requirements imposed pursuant to the Porter-Cologne Water Quality Control Act. This Order therefore allows the disposal of treated wood waste in accordance with the conditions imposed pursuant to the Health and Safety Code to Unit 3 of the Phase II portion of the West Central Landfill.

The disposal method is a canyon fill operation. The surrounding area consists of shallow canyons vegetated oak trees, manzanita brush, and grass. Land within 1,000 feet of the facility is used for grazing and open space. Surface water drainage is to Dry Creek, a tributary of Cottonwood Creek, which flows into the Sacramento River.

The facility is not within the 100-year floodplain, however the WMUs area cover an ephemeral drainage course. To prevent inundation of the facility, the watercourse upstream of the facility has been diverted into the adjacent drainage.

The beneficial uses of these surface waters are domestic, municipal, agricultural, and industrial supply; groundwater recharge; power generation; recreation; esthetic enjoyment; navigation;

freshwater replenishment; and preservation and enhancement of fish, wildlife, and other aquatic resources.

The site is near the western edge of the Redding groundwater basin. The geologic units exposed consist of the Red Bluff Formation on the ridge tops underlain by the Tehama Formation. The Chico Formation is present at depths below the site but does not outcrop in the area. Recent alluvium and dredge tailings are found in the canyon bottom. The Red Bluff and Tehama Formations are fluvial deposits of clayey and silty sandstone with lenses of pebble and cobble conglomerates. Permeabilities range between $1x10^{-5}$ and $1x10^{-6}$ cm/sec.

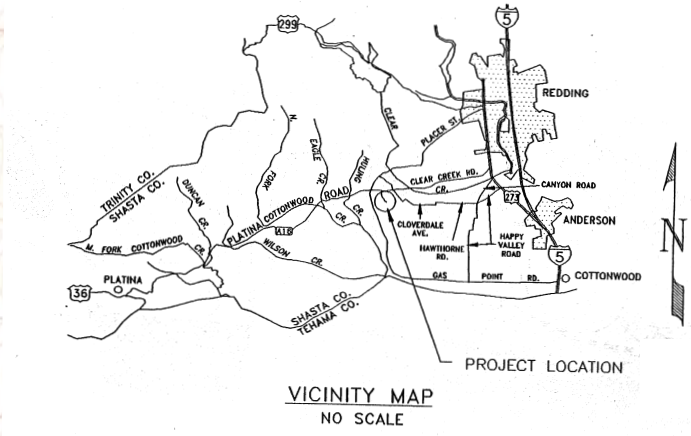
First-encountered groundwater is in the Tehama Formation. Monitoring of the groundwater indicates that the water table is approximately 80 feet below the ridge tops. Groundwater flow generally follows the topography, flowing from the ridges into the canyon eastward. Wells in the bottom of the canyon are artesian in the winter and spring, indicating a groundwater discharge area.

The Discharger has constructed a groundwater underdrain system beneath Units 1 and 2 to prevent groundwater from building up under the liners. The underdrains maintain the minimum five feet of separation between wastes and groundwater. Water collected in the underdrain systems can be collected and tested for waste constituents. In December 2002, VOC's were detected and confirmed in groundwater discharging from the Unit 1 and 2 underdrain. The underdrain effluent has since been routed to the Class II surface impoundment. The Unit 1 and 2 underdrain is no longer adequate as a detection monitoring system for Unit 3 since the discovery of VOCs in the underdrain effluent, therefore in addition to the construction of a new underdrain beneath Unit 3, a leak detection sump will also be constructed along the eastern to of Unit 3.

The beneficial uses of groundwater are domestic, municipal, agricultural, and industrial supply.

The average annual precipitation for the area is 35 inches, and the average evaporation rate is 60 inches per year.

West Central Class III
Municipal Solid Waste Landfill
and
Class II Surface Impoundment

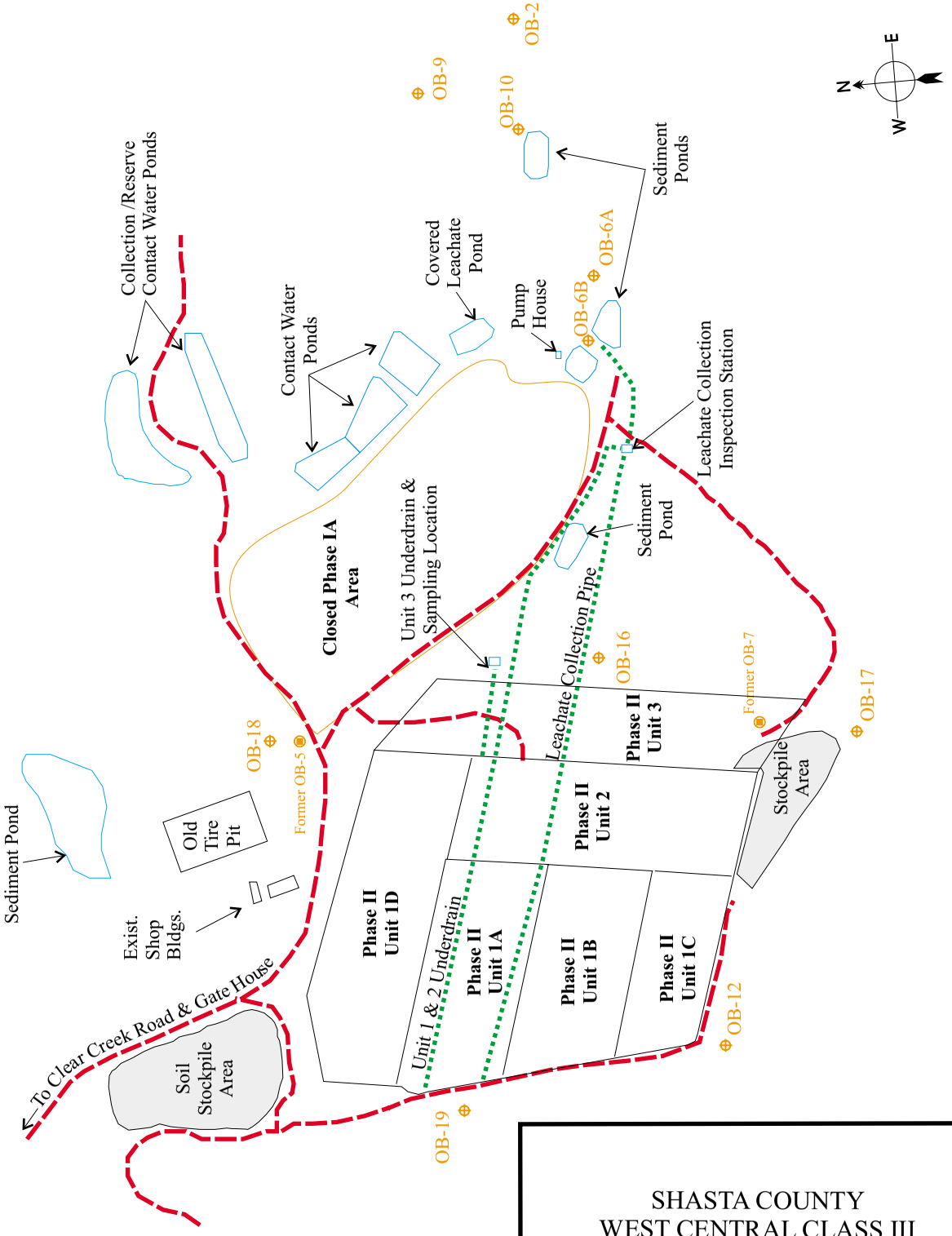


VICINITY MAP
NO SCALE

SHASTA COUNTY
WEST CENTRAL CLASS III
MUNICIPAL SOLID WASTE LANDFILL
AND
CLASS II SURFACE IMPOUNDMENT

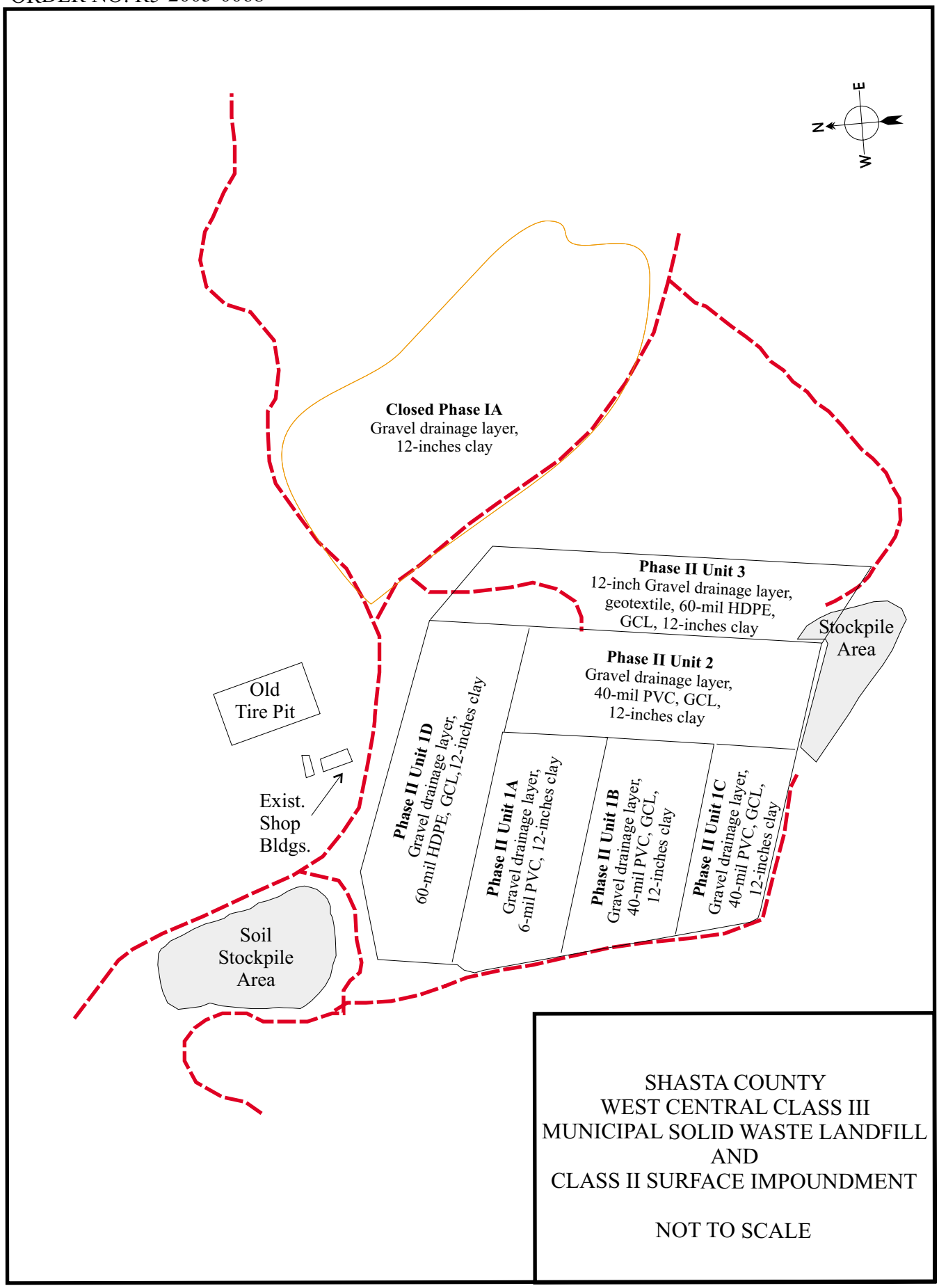
SECTIONS 2&3, T30N,R6W,MDB&M
USGS 7.5' ONO QUADRANGLE

SCALE 1 inch = 1137.5 feet



SHASTA COUNTY
WEST CENTRAL CLASS III
MUNICIPAL SOLID WASTE LANDFILL
AND
CLASS II SURFACE IMPOUNDMENT

NOT TO SCALE



SHASTA COUNTY
WEST CENTRAL CLASS III
MUNICIPAL SOLID WASTE LANDFILL
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