CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION
ORDER NO. R5-2005-0118

WASTE DISCHARGE REQUIREMENTS FOR ANDERSON LANDFILL, INC. FOR OPERATION AND PARTIAL CLOSURE OF ANDERSON CLASS III LANDFILL AND CLASS II SURFACE IMPOUNDMENT SHASTA COUNTY

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

1. Anderson Landfill, Inc., (hereafter Discharger) a wholly owned subsidiary of USA Waste of California, Inc., owns and operates a municipal solid waste (MSW) landfill about 3.5 miles southwest of Anderson, in Section 31, T30N, R4W, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order.

2. The 246-acre facility, 130-acres which are designated for waste disposal, consists of six existing unlined waste management units (Unit) and two existing compositely lined Units covering approximately 66 acres, as shown in Attachment B, which is incorporated herein and made part of this Order. The facility is comprised of Assessor Parcel Nos. 207-170-008, 207-170-009, 207-170-011, 207-170-012, 207-170-013, 207-170-014, 207-170-015, 207-170-016, 207-170 -042, and 270-390-009.

3. Unit 1 is an unlined 39.7-acre pre-Subtitle D Unit used for disposal of MSW. During summer of 2004, municipal solid wastes were excavated from the south toe of Unit 1 to allow construction of a compositely lined Unit with a leachate collection and removal system (LCRS) entirely within the existing footprint of Unit 1. The new 7-acre compositely lined cell is referred to as South Canyon Unit (or Unit 1B) and was not considered a lateral expansion.

4. Unit 2 consists of four sub-Units (Units 2A, 2B, 2Ba, and 2C) that are not contiguous, except for Units 2B and 2Ba. Units 2A, 2B, and 2C are unlined. Unit 2A covers 4.78 acres, Unit 2B (including Unit 2Ba) covers 6.8 acres, and Unit 2C covers 6 acres. Unit 2Ba has a composite liner with a leachate collection and recovery system (LCRS) that was constructed over existing inorganic wastes in Unit 2B. Unit 2Ba was used for disposal of MSW and has reached capacity, while the remaining sub-Units of Unit 2 are or have been used for disposal of inorganic and industrial wastes, primarily friable asbestos, fly ash, wood ash, treated medical waste, and byproducts of titanium dioxide manufacturing. Unit 2C has been used exclusively for disposal of shredded tires and is scheduled for clean-closure over the next three to ten years.

5. Unit 3 (15.85 acres), located west of Unit 2C on previous site maps, was never constructed and is not authorized for waste disposal activities.

6. An unlined and unclassified inactive Unit, approximately two acres in size and used for disposal of wood wastes and petroleum-contaminated soil exists across Cambridge Road just north of the facility front access gate. The Discharger proposes clean-closure of this Unit by fall 2006.

7. Another unlined and inactive trench Unit used for disposal of designated wastes exists north of Unit 2C and south of the main office building. The designated waste trench and the unclassified Unit north of Cambridge Road were filled prior to 1984. Over 1,850 cubic yards of wastes from the designated waste trench Unit were excavated during fall 2004 as part of an approved clean-closure project. The wastes were impacted with volatile organic compounds and semi-volatile organic compounds and were hauled off-site to a Class I disposal facility in Kettleman Hills, California. Confirmation samples identified additional soil in the Unit that is still impacted with residual volatile organic compounds, and the Discharger proposes excavating these soils during summer 2005. Additional samples will be obtained from beneath the Unit in an effort to demonstrate that waste disposal activities have not impacted water quality in the vicinity of the designated waste trench Unit and to complete the clean-closure process.

8. A 4.7-acre Class II surface impoundment for storage and disposal of leachate exists near the northeast corner of the facility. Existing ancillary facilities include the landfill office and equipment repair building, fuel storage area, entrance gate, perimeter gas blower shed, and scale house.

9. On 14 June 2001, the Regional Board issued Waste Discharge Requirements (WDR) Order No. 05-01-152, in which the facility was classified as a Class III waste disposal site for the discharge of nonhazardous solid wastes and a Class II surface impoundment in accordance with the regulations in effect when the order was issued. This Order classifies the Units as a Class III landfill that accepts municipal solid waste and a Class II surface impoundment in accordance with Title 27, California Code of Regulations (CCR), Section 20005, et seq. (Title 27).

10. In a Joint Technical Document, submitted in June 2005, the Discharger proposed construction of compositely lined Unit 4 (35.6 acres) and Unit 5 (37.2 acres). The Discharger submitted a 3 June 2005 *Unit 4 and 5 Master Plan Report* describing conceptual expansion and construction of Units 4 and 5, which will be developed sequentially in approximately 6 to 14 acre cells to provide site capacity as needed for ongoing operations. Design plans have been submitted for the first phase of development, Unit 4A, which the Discharger proposes to construct during summer 2005.

11. This Order revises existing WDR Order No. 05-01-152 to incorporate the construction design of proposed Units 4 and 5 (specifically Unit 4A), closure of three existing Units

(Unit 1, South Canyon Unit, Unit 2Ba), and clean-closure of three existing Units (Unit 2C, the Unit north of Cambridge Road, and the designated waste trench Unit).

SITE DESCRIPTION

12. The site is located in the Central Valley Geologic Province of California and southwestern part of the Redding groundwater basin, which is underlain by the Red Bluff and Tehama formations. The Red Bluff Formation outcrops on the north edge of the site and ranges from 2 to 40 feet in thickness. The Tehama Formation underlies the majority of the filled areas. It consists of dense silt and clay interbedded with sand and gravel. All groundwater and gas monitoring wells at the site are completed in the Tehama Formation. Older (and deeper) pre-Tertiary units have not been encountered while drilling at the site. The Tehama Formation is the main source of drinking water in the vicinity of the landfill.

13. In-situ, unsaturated hydraulic conductivity of the Tehama Formation at the site, approximately 20 to 65 feet below ground surface, ranges from approximately 7×10^{-5} to 3×10^{-6} cm/sec. Saturated hydraulic conductivity in the deep groundwater zone, as measured in wells MW-2 and MW-3, ranges from 1.5×10^{-4} to 5×10^{-4} cm/sec.

14. A seismic hazard evaluation has been performed to identify the maximum probable earthquake (MPE) and the maximum credible earthquake (MCE) for the site. Class III landfill Units must be designed to withstand forces resulting from the MPE and Class II surface impoundments must be designed to withstand forces resulting from the MCE. No evidence of faulting has been observed at the site. The nearest mapped fault is 7.5 miles east-northeast of the site but is not active. The nearest potentially active fault (showing Quaternary-age displacement) is the Battle Creek Fault, located 14 miles east of the site. Both a near-field and a far-field event were identified as seismic design events and used for determining the MPE for the site. The MPE near-field event on the Battle Creek fault is an M_w 6.0 event with a peak horizontal ground acceleration (PHGA) of 0.24 g. The far-field event used in the MPE determination and Unit design is an M_w 6.5 event on the Hat Creek-McArthur-Mayfield fault system with a PHGA of 0.05 g. A near-field and far-field event were also identified as seismic design events and used in determining the MCE for the site. The MCE near-field event on the Battle Creek fault is an M_w 6.5 event that generates expected free-field bedrock PHGA of 0.29 g. The MCE far-field event is an M_w 7.0 event on the Hat Creek-McArthur-Mayfield fault system that generates an expected free-field bedrock PHGA of 0.06 g. Slope stability analyses were performed and a static factor of safety greater than or equal to 1.5 was achieved for each critical cross section that was evaluated.

15. The landfill property is zoned PF (Public Facilities). Land use within 1,000 feet of the facility is undeveloped grazing land and is zoned unclassified, rural residential, agricultural, and public use (regional septage ponds).

16. The facility receives an average of 30 inches of precipitation per year as indicated on an isopluvial contour map compiled by S. E. Rantz, *Mean Annual Precipitation in the*

California Region. The mean pan evaporation at the site is approximately 79 inches per year as indicated for station Anderson 9WNW in Department of Water Resources Bulletin 73, *Evaporation from Water Surfaces in California*.

17. The 100-year, 24-hour precipitation event is estimated to be 5.5 inches, based a map published by the National Oceanic and Atmospheric Administration (NOAA) in *NOAA Atlas 2, Volume XI, Isopluvials of 100-Year 24-Hour Precipitation for Northern Half of California in Tenths of an Inch*.

18. The 1,000-year, 24-hour precipitation event is estimated to be 6.86 inches, based on data for Station Anderson STP (DWR #A00 0201 30) for the years 1976 through 2000, compiled and analyzed by the Department of Water Resources, Red Bluff. For the same station and the same years of record, the 100-year wet season precipitation is 59.84 inches.

19. The southern part of the property is located within the 100-year flood plain as indicated by FEMA Flood Map Nos. 060358-900C and 060358-0895. However, none of the waste containment structures, Units, or ancillary facilities are located within the 100-year flood plain.

20. No wetlands have been identified at the site.

21. There are 48 known water supply wells within one mile of the site. The Discharger owns five of the 48 wells.

SITE HISTORY

22. The landfill began operating in 1977 as a wood waste disposal site for local lumber mills. In 1980, household wastes and small amounts of petroleum contaminated soils and associated cleanup wastes were also accepted for disposal. Over the years, other wastes have been discharged to the landfill, including industrial and agricultural wastes, construction and demolition debris, treated medical wastes, inert wastes, shredded tires, treated wood waste, asbestos, ash, and solidified waste from the manufacture of titanium dioxide.

23. In 1987, WDR Order No. 87-196 further refined waste disposal practices by defining two waste management units at the site, Unit 1 and Unit 2. In accordance with WDR Order No. 87-196, putrescible wastes could be discharged only to Unit 1, while discharge of inorganic wastes, such as friable asbestos, fly ash, and byproducts of titanium dioxide manufacturing, was restricted to Unit 2. This was done to alleviate concerns that in an unlined Unit, leachate generated by decomposition of putrescible wastes could mobilize salts and other detrimental inorganic constituents, thus posing a threat to groundwater.

24. Waste delineation investigations conducted during 2001 and 2002 identified wood waste and ash buried in the north and east portions of Unit 1 by the former landfill owner,

which conflicts with requirements of WDR Order No. 87-196. Subsequent laboratory analyses found that metals did not leach out of the discharged wastes under acidic conditions.

25. A perimeter gas extraction system was installed in the early 1990s along the north boundary of Unit 1 adjacent to Cambridge Road after methane was detected in excess of 5%. Landfill gases are passively vented to the atmosphere. An additional gas collection system was installed at the South Canyon Unit beneath the foundation layer and along the side slopes that overlie wastes in Unit 1. This gas collection system is connected to the perimeter gas extraction system at the north end of the facility. The Discharger also submitted a 21 April 2005 *Landfill Gas Master Plan* that describes build-out of the entire facility gas extraction system. During construction of Unit 4, the Discharger proposes installation of a gas collection pipe beneath the Unit 4 liner and adjacent to Units 1 and 2Ba. This gas collection pipe will be monitored quarterly for methane. If methane concentrations exceed 5% by volume, then the gas collection pipe will be connected to the perimeter gas extraction system. The Discharger proposes to install the first phase of the facility infill gas extraction system by 1 November 2007, when Units 1 and 2Ba are closed.

26. The Existing Footprint was identified on 9 October 1993 as required by State Water Resources Control Board Resolution No. 93-62. The footprint determination, however, inappropriately included Unit 2, which abuts Unit 1 but is not an MSW unit. In response to this and other concerns regarding exact Unit boundaries, the Discharger submitted a 31 December 2002 *Supplemental Waste Delineation And Characterization Report* that identifies the extent of buried wastes in each Unit. The waste delineation investigation also identifies the boundaries of the unclassified Unit north of Cambridge Road and the designated waste trench north of Unit 2C and south of the main office building.

WASTE AND SITE CLASSIFICATION

27. The Discharger discharges municipal solid wastes, which are defined in Section 20164 of Title 27, to Unit 1, Unit 2Ba, and South Canyon Unit and proposes to discharge municipal solid wastes to Units 4 and 5. Other industrial solid and inert wastes, including friable asbestos, fly ash, wood ash, treated medical waste, shredded tires, and byproducts of titanium dioxide manufacturing have been discharged to Units 2A, 2B (closed), and 2C (shredded tires only) in the past. Unit 2A is still available for disposal of asbestos containing wastes and other industrial and inert wastes as described above. Unit 2B has reached capacity and Unit 2C no longer accepts shredded tires for disposal and is scheduled for clean-closure over the next three to ten years. Shredded tires mined from Unit 2C are used for daily cover during periods of dry weather. Petroleum contaminated soils are accepted for disposal and use as daily cover during dry weather provided it meets Anderson Landfill, Inc.'s acceptance criteria outlined in Appendix T of the June 2005 *Joint Technical Document*. The designated waste trench Unit and the Unit

across Cambridge Road are scheduled for clean-closure during 2005 and 2006, respectively.

28. The Discharger also accepts primary and secondary sewage sludge from local wastewater treatment plants and sludge from local septage ponds. Such wastes can be accepted at Class III landfills providing the conditions described in Section 20220(c), Title 27, are met. Sludge is characterized to assure it is nonhazardous prior to disposal in compositely lined Units with leachate collection and removal systems (LCRS). The Discharger accepts sewage sludge for disposal provided it meets acceptance criteria outlined in Appendix T of the June 2005 *Joint Technical Document*.

29. Based on data available as of 1 January 2005, the facility has an estimated ultimate disposal capacity (wastes and cover soil) of 15,015,000 cubic yards. An additional 1,826,000 cubic yards of materials account for the base and final cover liner systems. Approximately 3,089,000 cubic yards of wastes and cover soil are in place in the existing Units. The facility has an estimated 11,926,000 cubic yards of remaining airspace available for disposal purposes. The estimated site-life projection, based on a current average intake of 515 tons per day, is 27 years.

30. The Discharger proposes to accept treated wood waste at Anderson Class III 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.

31. Units 1, 2A, 2B, 2C, the designated waste trench Unit, and the Unit across Cambridge Road are all unlined. Unit 2Ba and the South Canyon Unit (Unit 1B) are currently the only Units at the site with constructed engineered liners. The Unit 2Ba liner consists of, from bottom to top, two feet of subgrade soil, one foot of low-permeability soil (1×10^{-6} cm/sec), a geosynthetic clay liner (GCL), a 60-mil single sided textured high density polyethylene (HDPE) liner, a one foot thick LCRS granular layer, an eight ounce geotextile filter layer, and a one foot thick operations layer. The South Canyon Unit (Unit 1B) liner consists of, from bottom to top, two feet of subgrade soil, one foot of low-

permeability soil (1 x 10^{-6} cm/sec), a GCL, a 60-mil single sided textured HDPE liner, and a one foot thick LCRS granular layer. A double compositely lined Class II surface impoundment was constructed at the site in 2004 for the containment of leachate and contact water (see Finding 69). Notwithstanding site characteristics, to comply with Title 27, Subtitle D, and State Water Resources Control Board Resolution No. 93-62, any lateral expansion of the Units for non-inert wastes beyond the Existing Footprint requires a composite liner with an LCRS.

SURFACE WATER AND GROUNDWATER CONDITIONS

32. 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.

33. Surface drainage along the south portion of the property is toward an unnamed tributary to Cottonwood Creek, a tributary of the Sacramento River, in the Lower Cottonwood Hydrologic Area (508.20) of the Sacramento Hydrologic Basin. Surface drainage along the north portion of the property is toward unnamed tributaries of Anderson Creek, a tributary of the Sacramento River, in the Enterprise Flat Hydrologic Area (508.10) of the Sacramento Hydrologic Basin.

34. The existing and potential beneficial uses of Cottonwood Creek and Anderson Creek, as specified in the Basin Plan, are municipal and agricultural supply, industrial process supply, industrial service supply, recreation, freshwater habitat, fish migration and spawning, and wildlife habitat.

35. Two water-bearing zones are known to occur at the site. First encountered groundwater is found from 55 to 70 feet below native ground surface directly north, northwest, and east of Unit 1 and is thought to be perched and not laterally continuous. Confined, laterally continuous, groundwater is encountered from 270 to 300 feet below the ground surface (approximately 150 to 200 feet below the deepest waste). During construction of Units 4 and 5, the Discharger proposes to excavate soil to grades below the perched groundwater zone. Perched groundwater will be collected in interceptor trenches on the west, north, and east sides of Units 4 and 5 as cell development occurs. The interceptor trench on the west side of Unit 4 adjacent to unlined Unit 1 will drain to a separate collection sump from the rest of the interceptor drain system so that liquids can be tested and managed appropriately.

36. Monitoring data indicates background groundwater quality in the deeper regional aquifer has a mean total dissolved solids (TDS) content of about 150 mg/L.

37. The direction of groundwater flow in deep (confined) groundwater is northeast. Groundwater flow in the shallow (perched) zone is also towards the northeast, except at the northwest corner of the site where a northwest flow direction is observed.

38. The designated beneficial uses of groundwater, as specified in the Basin Plan, are domestic, municipal, and agricultural supply; industrial process supply, and industrial service supply.

STORM WATER

39. Undiverted precipitation falling on landfill Units that contacts waste must be collected and handled through 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.

40. 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 at the south portion of the facility and an unnamed tributary of Anderson Creek at the north portion of the landfill. 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 (SWPPP). The Discharger's Waste Discharge Identification (WDID) Number is 5R45I005373.

DETECTION MONITORING

41. The existing vadose zone monitoring system consists of suction and pan lysimeters installed at strategic locations beneath or adjacent to existing Units.

    a. Suction lysimeter L-1 is installed 54 feet BGS and is located near the northwest corner of the facility. Suction lysimeter L-4 is installed 44 feet BGS south of the South Canyon Unit just above the south canyon sediment detention basin. The Discharger believes that L-1 and L-4 have not provided much useful information over the years that they have been monitored and proposes to discontinue their use in the unsaturated zone detection monitoring program. These suction lysimeters are not believed to provide for the earliest possible detection of a release due to their respective locations, 500 and 300 feet away from the nearest Unit.

       In place of L-1 and L-4, the Discharger is proposing new sampling points to satisfy the intent of the unsaturated zone detection monitoring program. These new sampling points include the Unit 1 toe drain collection system, a future landfill gas collection trench located between Unit 4 and Units 1 and 2Ba, perimeter gas monitoring probes, and shallow perched groundwater monitoring wells.

b. Pan lysimeters/leak detection systems exist beneath the LCRS sumps in Unit 2Ba and the Class II surface impoundment. The Discharger proposes to install new pan lysimeters/leak detection systems below LCRS sumps in each cell constructed for Units 4 and 5.

42. The existing groundwater monitoring system at Anderson Landfill consists of nine monitoring wells (SM-1, MW-1, MW-3, MW-4A, MW-5, MW-6, MW-8, MW-9, MW-10), seven of them completed in the deep (confined) groundwater zone (MW-1, MW-3, MW-4A, MW-5, MW-6, MW-9, MW-10) and two in the shallow (perched) groundwater zone (SM-1 and MW-8). Two additional gas monitoring wells (GM-6 and GM-9) are utilized in the shallow groundwater monitoring program because they are completed and screened across the perched zone and consistently yield sufficient water for sampling purposes.

a. The monitoring system assessing the deep confined groundwater consists of the following:

1) Background wells include MW-1 and MW-3. MW-1 is 327 feet deep with a screen interval between 269 and 297 feet below ground surface (BGS). MW-1 is located at the northwest corner of the landfill west of the main office building. MW-3 is 312 feet deep with a screen interval between 292 and 312 feet BGS. MW-3 is located outside of the permitted waste disposal area southwest of Unit 1. The Discharger proposes to stop monitoring MW-1 because MW-3 is in a truer up gradient position and MW-1 is not necessary for performing statistical evaluation of the monitoring data.

2) Compliance or down and cross gradient wells include MW-4A, MW-5, MW-6, MW-9, MW-10. MW-4A, located just north of the northwest corner of Unit 4, is 362 feet deep with a screen interval between 339 and 362 feet BGS. MW-5, located north of Units 1 and 4 across Cambridge Road, is 331 feet deep with a screen interval between 302 and 319 feet BGS. The Discharger proposes to eliminate well MW-5 from the detection monitoring program due to its proximity to well MW-4A. MW-6, located directly east of the southeast corner of proposed Unit 5, is 345 feet deep with a screened interval between 314 and 344 feet BGS. MW-9 is 358 feet deep with a screened interval between 340 and 350 feet BGS, and MW-10 is 360 feet deep with a screened interval between 337 and 357 feet BGS. MW-9 and MW-10 are located northeast of Units 4 and 5 near the Class II surface impoundment.

The Discharger proposes to install additional compliance wells (MW-11 and MW-12). During the 2005 construction season, MW-11 will be installed at the northeast corner of the landfill near the Class II surface impoundment and southeast of MW-10. Once the final cell of Unit 4 is

constructed, MW-12 will be installed along the east property boundary south of MW-11.

3) Abandoned well (MW-2). MW-2 was located in between the southeast portion of Unit 1 and the northeast corner of Unit 2Ba adjacent to proposed Unit 4. On 21 June 2005, to allow for construction of Unit 4, the Discharger abandoned MW-2 under permit from Shasta County Environmental Health Division. MW-2 was 294 feet deep with a screen interval between 276 and 294 feet BGS.

b. The monitoring system assessing the perched groundwater consists of the following:

1) SM-1, located below South Canyon Unit, is 30 feet deep. No recent data regarding water quality or yield is available for SM-1. The Discharger is proposing to eliminate SM-1 from the detection monitoring program.

2) MW-8, located directly north of Units 1 and 4 near deep well MW-4A, is 75 feet deep with a screen interval between 62 and 72 feet BGS.

3) GM-6D is 75 feet deep with a screen interval between 68 and 73 feet BGS.

4) GM-9D is 73.5 feet deep with a screen interval between 61 and 71 feet BGS.

43. The Discharger's detection monitoring program for shallow and deep groundwater satisfies the requirements contained in Title 27. However, additional wells may be necessary to adequately assess groundwater quality as new Units are constructed and additional site data becomes available.

44. Volatile organic compounds (VOCs) are often detected in a release from a MSW landfill. Since VOCs 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. VOC analysis is being used as the primary indicator or trigger for determining whether a release of waste has occurred in the shallow groundwater zone.

45. Sections 20415(e)(8) and (9) of Title 27 provide for the non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible detection of a release from a Unit in accordance with Section 20415(b)(1)(B)2-4 of Title 27. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.

46. 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.

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

48. The specified non-statistical method for evaluation of monitoring data provides two criteria (or triggers) for making the determination that there has been a release of non-naturally occurring waste constituents from a Unit. The criteria, if met, trigger an evaluation monitoring program in accordance with Section 20425 of Title 27 and Section XI, Response to a Release, contained in *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Title 27 and/or Subtitle D*, dated April 2000. The presence of two non-naturally occurring waste constituents above their respective method detection limits (MDL), or one non-naturally occurring waste constituent detected above its practical quantitation limit (PQL), or other statistically derived limit approved by the Executive Officer, may indicate that a release of waste from a Unit has occurred. Following an indication of a potential release, verification testing will be conducted to determine whether there has been a release from the Unit, whether 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

49. Sporadic detections of xylenes, toluene, and methylene chloride were observed in suction lysimeters at the site prior to 1995. However, no volatile organic compounds have been detected in unsaturated zone monitoring devices since July 1994.

50. The organic compounds xylenes, toluene, and methylene chloride were sporadically detected in deep groundwater from wells MW-1 and MW-5 prior to 1996. Previously observed high levels of methylene chloride in well MW-5 were attributed to electrical tape or other foreign substance associated with the first pump that was installed. That pump was pulled in October 1992, the well blown out with air, and a new pump installed. No organic compounds have been detected in well MW-5 since that time, and no organic compounds have been detected in deep groundwater since 1995. Several volatile organic compounds have been detected below method detection limits at deep well MW-4A and shallow well MW-8. However, resamples obtained shortly after the initial detections

found no volatile organic compounds above method detection limits at either monitoring point. Currently, it does not appear that the landfill is imparting organic compounds to deep groundwater. In regards to the shallow perched saturated zone, to date, no impacts have been confirmed in shallow groundwater.

LINER PERFORMANCE DEMONSTRATION

51. 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 a single, double, and triple composite liner will likely be necessary."

52. The Discharger submitted a liner performance demonstration for Units 4 and 5, which demonstrates that the proposed liner system will comply with applicable Title 27 performance standards. The overall performance of the liner system depends on site and design specific factors such as site and waste characteristics, the proposed landfill liner and containment system, Construction Quality Assurance, and estimated liner leakage. Liner leakage is considered most important of the factors mentioned above. The Discharger used the Hydrologic Evaluation of Landfill Performance (HELP) model to determine leachate generation, head above the liner system, surface runoff, and leakage through the liner system. The calculated leakage rate through the liner system was used as an input parameter for MULTIMED modeling, which is used to evaluate potential impacts on groundwater from liner defects. Modeling indicated that the hydraulic efficiency of the proposed single composite liner system was 99.9998%. Double and triple composite liner systems were also evaluated, and the hydraulic efficiency of these types of liner systems was calculated to be 100%. The double or triple liner system provided for an increase in liner hydraulic efficiency of only 0.0002%. A cost-benefit analysis was also performed to compare single, double, and triple liners. The cost of a double liner system increased $58,980 per acre over a single liner system, and a triple liner system cost $58,981 per acre more than a double liner system. The liner performance evaluation concluded that the single composite liner system provided adequate protection to groundwater and the associated costs of more than $58,000 per

acre for an extra composite liner would be significantly burdensome and provide only minimal improvements.

DESIGN AND CONSTRUCTION OF NEW LANDFILL UNITS

53. 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 Subtitle D.

54. 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.

55. 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 engineered alternative liner systems be of a composite design similar to the prescriptive standard.

56. 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.

57. 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.

58. The Discharger proposes a liner system for Units 4 and 5 that will be designed, constructed, and operated to prevent degradation of waters of the state in accordance with the criteria set forth in Title 27, and the provisions in State Water Resources Control Board Resolution No. 93-62 for municipal solid wastes. The Discharger submitted a June 2005 *Joint Technical Document* and the 3 June 2005 *Unit 4 and 5 Master Plan Report* that describes design considerations for new Units 4 and 5. The Discharger proposes an engineered alternative to the prescriptive base liner design.

59. Units 4 and 5 will be constructed in a series of phases. Unit 4A is the first phase proposed for construction during summer/fall 2005. The engineered alternative proposed by the Discharger for the bottom liner consists of, in ascending order: a compacted soil layer having a hydraulic conductivity of 1×10^{-6} cm/sec or less; a geosynthetic clay liner (GCL); and a 60-mil thick single sided textured high density polyethylene (HDPE) geomembrane (texture side down). Side slope liners in Unit 4A are proposed to be constructed of the same materials and in the same sequence and manner as the bottom liner system. The sideslope liner of Unit 4A will tie into the Unit 2Ba liner on the west side.

60. A LCRS will be installed over the liner system described in Finding 59. The LCRS will consist of perforated HDPE pipes installed along the toes of slopes connected to a central perforated collection pipe that drains towards a temporary collection sump at the north central portion of Unit 4A. The temporary LCRS sumps will be moved with each phase of construction, until such time that a permanent LCRS sump is constructed in both Unit 4 and Unit 5. Leachate collected from Unit 2Ba will also be conveyed to the LCRS for Unit 4, where it will flow to either the temporary or permanent sump, depending on cell development. Collected leachate will be pumped from the Unit LCRS sump to an adjacent holding tank, similar to the storage system for South Canyon Unit (Unit 1B). Leachate that is collected in the holding tank will be trucked to the Class II surface impoundment for storage and disposal. Peak daily leachate flow rates for the floor grades and sideslopes of Unit 4 are calculated to be 5,285 ft^3/day per acre. Unit 2Ba will contribute up to an additional 200 ft^3/day to the Unit 4 LCRS. The pipe components of the Unit 4 LCRS have been designed to collect twice the peak daily leachate flow rate that was estimated using the HELP Model. A one-foot thick drainage layer consisting of rounded to sub-rounded clean 3/8 inch minus gravel with a hydraulic conductivity of 0.3 cm/sec will be placed directly over the geomembrane and LCRS collection pipes. An operations layer with a minimum hydraulic conductivity of 0.02 cm/sec will be placed along the sideslopes. An eight-ounce geotextile will be placed over the LCRS drainage layer, followed by a one-foot thick soil operations layer.

61. The liner system for the LCRS collection sumps consists of in ascending order, a three inch sand bedding layer overlain by a 60-mil double sided textured HDPE geomembrane; three feet of select vadose zone gravel that surrounds an 18 inch diameter HDPE vadose zone monitoring riser pipe; an eight ounce geotextile; a one-foot thick low permeability soil layer with a hydraulic conductivity of 1×10^{-6} cm/sec or less; a GCL; a 60-mil single sided textured HDPE geomembrane (texture side down); and an additional 60-mil single sided textured HDPE geomembrane (texture side down) that will be welded to the primary HDPE base liner. Three feet of drainage gravel overlain by an eight-ounce geotextile and a soil operations layer will be placed over the LCRS discharge pipe in the collection sump. An automatic control system will be installed to maintain leachate levels in the LCRS sumps. Leachate that collects in the LCRS sumps will be pumped to an adjacent holding tank. Leachate that collects in the holding tank will be trucked to the Class II surface impoundment for storage and disposal.

62. 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. Limited soil materials are available on-site for construction of a two-foot thick compacted clay liner in accordance with the prescriptive design. The prescriptive design, with the added expense of importing clay materials, costs substantially more than the alternative design. The Discharger has demonstrated, with respect to Units 4 and 5, the proposed engineered alternative is consistent with the performance goals of the prescriptive standard and affords equivalent protection against water quality impairment.

63. The performance standard for the design and construction of a Class III waste management unit specified in Section 20310(c) of Title 27 states that "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."

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

DESIGN AND CONSTRUCTION OF CLASS II SURFACE IMPOUNDMENTS

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

    a. A minimum one foot thick single replaceable compacted clay liner with a hydraulic conductivity of 1×10^{-6} cm/sec, 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/sec, or less, or a substantial thickness of natural geologic materials having a hydraulic conductivity of 1×10^{-6} cm/sec, or less.

66. Experience has shown, however, that the prescriptive standard described in Finding 65 will not meet the performance standard for a Class II surface impoundment, which is "to prevent migration of wastes from the Unit to adjacent geologic materials, groundwater, or surface water, during disposal operations, closure, and the post-closure maintenance period" [Title 27, Section 20310(a)].

67. All compositely lined Units at Anderson Class III Landfill have LCRSs. During summer and fall of 2004, the Discharger constructed a double lined Class II surface impoundment

for storage and evaporation of leachate. The Class II surface impoundment liner consists of, from bottom to top, a prepared soil subgrade, one foot of low permeability soil (1×10^{-6} cm/sec), a GCL, a 60-mil double sided textured HDPE liner, a geocomposite drainage layer, another GCL, a 60-mil single sided textured HDPE liner (textured side down), and a one foot thick protective soil layer. The Discharger may line an additional Class II surface impoundment directly west of the existing one when additional storage capacity is needed. Leachate from South Canyon Unit (Unit 1B) collects in a sump at the western edge of the Unit. From there, leachate is pumped into two 12,000-gallon intermediate plastic storage tanks. Leachate from Unit 2Ba collects in a sump at the southeastern corner of the Unit and is pumped into two 11,500-gallon intermediate plastic storage tanks. Leachate is currently trucked from the South Canyon Unit and Unit 2Ba intermediate holding tanks to the Class II surface impoundment on an as needed basis in order to maintain sufficient storage capacity. The 3 June 2005 Unit 4 and 5 Master Plan Report describes the conveyance system that will transfer leachate from Unit 2Ba to the LCRS system for new Unit 4, from where it will be transferred to a holding tank and trucked to the Class II surface impoundment for storage and disposal. Additionally, unlined Unit 1 has a toe drain system at the southern portion of the Unit that abuts South Canyon Unit (Unit 1B). The Discharger monitors the toe drain system for liquids and transports any leachate that the system collects to the Class II surface impoundment.

68. All Units designed for containment of Class II wastes (leachate) have been or will be constructed to contain the 1,000-year, 24-hour storm event in addition to the 100-year wet season while still maintaining two feet of freeboard.

69. Any liquid detected between the primary and secondary liner of the Class II surface impoundment will be characterized to try and determine whether the primary liner is leaking. Liquid collected from between the liners will be returned to the surface impoundment. If it is determined that the primary liner is leaking, then the Discharger will be requested to immediately begin repairs.

CEQA AND OTHER CONSIDERATIONS

70. Waste disposal activities 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 water and groundwater unless adequately mitigated.

71. The Final Environmental Impact Report (EIR 1-89; SCR# 89052316) for the facility was certified on 7 June 1990 by the Shasta County Planning Commission for Use Permit No. 68-89. Use Permit No. 68-89 was later amended with the adoption of a Mitigated Negative Declaration for Use Permit No. 68-89A, which allowed tire shredding. Then, on 12 October 2000, the Shasta County Planning Commission adopted a Mitigated Negative Declaration for new Use Permit No. 00-24, which additionally required

increased litter control along site access roads, specifically West Anderson Drive and portions of Gas Point Road, and a ten-year renewal ending in 2010. Compliance with this Order, including implementation of the monitoring and reporting program, will mitigate or avoid potential significant impacts to water quality described in Finding 70.

72. Section 13267(b) of the 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 having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the Regional Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports." The monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program No. R5-2005-0118 is necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

73. 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 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

74. 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.

75. 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.

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

77. Any person adversely affected by this action of the Regional Board may petition the State Water Resources Control Board to review the action in accordance with Sections 2050 through 2068, Title 23, California Code of Regulations. The petition must be received by the State Water Resources Control Board, Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812, within 30 days of the date of issuance of this Order. Copies of the law and regulations applicable to filing of a petition are available on the Internet at http://www.swrcb.ca.gov/water_laws/index.html and will be provided upon request.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 05-01-152 is rescinded, and that Anderson Landfill, Inc., its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of 'hazardous waste', except for waste that is hazardous due only to its friable asbestos content, 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 for 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 Unit or portions of a Unit specifically designed for their containment is prohibited.

4. The discharge of additional MSW to the unlined north or east portions of Unit 1 is prohibited.

5. The discharge of waste to a closed Unit is prohibited.

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

7. An increase in the concentration of waste constituents, caused by the discharge of waste, in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of a Unit, if such waste constituents could migrate to waters of the State — in either the liquid or the gaseous phase — and cause a condition of nuisance, degradation, contamination, or pollution is prohibited.

B. DISCHARGE SPECIFICATIONS

1. Nonhazardous solid wastes, with the exception of wood ash and fly ash, shall be discharged to either:

   a. The unclosed portions within the Existing Footprint of South Canyon Unit, Unit 2Ba, and Unit 1 south of the north ridge line at 750 feet MSL and west of Unit 2Ba; or

   b. To a Unit 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. Wood ash, fly ash, and asbestos (including friable asbestos in excess of 1% by weight) shall be discharged only to Unit 2A. Wood and fly ash may also be used for daily cover over asbestos wastes and as a foundation layer for final cover over other unlined Class III Units.

3. Disposal of asbestos shall be in accordance with Section 25143.7 of the California Health and Safety Code.

4. Treated wood wastes shall be managed and disposed in accordance with Health and Safety Code Sections 25150.7 and 25150.8 and shall only be discharged to Units equipped with a composite liner and LCRS.

5. Dewatered sewage or water treatment sludge shall only be discharged to Units equipped with a composite liner and LCRS in accordance with Title 27 Section 20220(c). The sludge shall be characterized for hazardous constituents in accordance with the Discharger's *Nonhazardous/Nondesignated Septage Sludge Acceptance Criteria* described in Appendix T of the June 2005 *Joint Technical Document*, prior to disposal. The waste characterization results shall be available for review to Regional Board staff during normal business hours.

6. Soils contaminated with petroleum wastes shall only be discharged to Units equipped with composite liners and LCRS. Petroleum contaminated soils shall be characterized for hazardous constituents in accordance with the Discharger's *Nonhazardous/Nondesignated Petroleum-Contaminated Soil Acceptance Criteria* described in Appendix T of the June 2005 *Joint Technical Document*, prior to

disposal. The waste characterization results shall be available for review to Regional Board staff during normal business hours.

7. The Discharger may use petroleum contaminated soils (provided it meets the Discharger's acceptance criteria), shredded tires, and/or plastic tarps for alternative daily cover. Petroleum contaminated soils and shredded tires shall only be used for alternative daily cover between 1 June and 15 October annually, and only on days when there is less than a 50% chance of precipitation as predicted by the National Weather Service. Additionally, petroleum contaminated soils shall only be used as alternative daily cover in Units equipped with composite liners and LCRS. No other material shall be used for alternative daily cover unless the Discharger first obtains approval from Regional Board staff and the Shasta County Solid Waste Local Enforcement Agency.

8. Units 1 and 2 shall be separated by at least five feet of native soil.

9. Designated wastes (landfill leachate from on-site Class III Units) shall be discharged on-site only to Class II surface impoundments or off-site in a manner approved by the Executive Officer. The Discharger may also apply leachate to compositely lined Units with a LCRS for dust control, in accordance with Section 20340(g) of Title 27, SWRCB Resolution 93-62, and Subtitle D. Leachate shall only be used for dust control between 1 June and 15 October annually on days when there is less than a 50% chance of precipitation as predicted by the National Weather Service. Leachate that is discharged back to a lined Unit shall not exceed the moisture holding capacity of the wastes. The Discharger shall submit the volumes of leachate applied for dust control, the dates of application, and the Unit to which leachate was applied in each semiannual monitoring report covering the reporting period during which the leachate was applied.

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

C. FACILITY SPECIFICATIONS

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

2. The Discharger shall characterize the interceptor drain liquids that collect in the Unit 4 (IT-4) and Unit 5 (IT-4/5) interceptor drain sumps for the constituents and at the frequencies listed in Table IV of Monitoring and Reporting Program No. R5-2005-0118. Liquids that collect in the interceptor drain system shall be discharged to the Class II surface impoundment, used as dust control over a lined Unit with a LCRS, or discharged in another manner that is approved by the Executive Officer prior to discharging. If collected liquids are used for dust control, then application of the liquids shall occur only between 1 June and 15 October annually on days when there is less than a 50% chance of precipitation

as predicted by the National Weather Service. Liquids being applied to lined Units for dust control shall not exceed the moisture holding capacity of the wastes. The flow rate of liquids collecting in each interceptor drain shall be measured monthly and reported in each semiannual monitoring report in gallons/day for the period (month) in which observations were made. The dates and volumes of liquids discharged to the Class II surface impoundment, used for dust control, or discharged in another manner approved by the Executive Officer and the associated analytical results shall be included with the semiannual monitoring report for the period is which liquids were discharged or samples obtained.

3. The Discharger shall immediately notify the Regional Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions, which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.

4. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control and construction.

5. The Discharger shall maintain in good working order any facility, containment structure, control system, or monitoring device installed to achieve compliance with the waste discharge requirements. Repairs to any of the facilities described above shall be discussed in each Annual Monitoring Summary Report in accordance with Reporting Requirements B.6.c. of Monitoring and Reporting Program No. R5-2005-0118.

6. Methane and other landfill gases shall be adequately vented, removed from the Unit, or otherwise controlled to prevent adverse health effects, nuisance conditions, and/or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.

7. In addition to the perimeter gas extraction system along the north side of the landfill and Cambridge Road, the Discharger shall install gas extraction and control facilities in and around waste management units to help prevent methane and other trace gases from impacting surface and groundwater quality. Installation of the gas extraction and control facilities will occur in a series of phases with the first phase installed during construction of Unit 4A. During construction of Unit 4A, a gas collection pipe shall be installed beneath the west Unit 4 liner and along the east side of Unit 2Ba and Unit 1. The gas collection pipe shall be monitored quarterly by the Discharger for methane. If methane concentrations exceed 5% by volume, then the Discharger shall connect the gas collection pipe to the perimeter gas extraction system within 90 days of such a detection. The 21 April 2005 *Landfill Gas Master Plan for Anderson Landfill* describes additional extraction and control facilities to be installed. Installation of the first phase of *infill gas extraction and control* must be completed **no later**

than 1 November 2007. Installation of additional phases of infill gas extraction and control facilities will occur as the landfill is built-out or as a result of landfill gas migration, which may potentially impact beneficial uses of ground and surface waters.

8. Landfill gas condensate collected from any knockout drum or condensate sump associated with a gas extraction system at the site shall be disposed in the Class II surface impoundment on-site or in another manner approved by the Executive Officer. The volumes of gas condensate collected and any associated analytical data shall be reported in the semiannual monitoring report for the period that measurements were made or samples collected.

9. Waste disposal activities at landfill Units shall be conducted in accordance with a fill plan demonstrating that all temporary refuse fill slopes are and will be stable under static conditions and under dynamic conditions for the design earthquake event used in the design of that unit.

10. **By 15 September annually**, the Discharger shall develop and submit for Executive Officer review and approval, a Winterization Plan that describes any necessary erosion control measures; construction, maintenance, or repair of precipitation and drainage control facilities; and any other measures to prevent erosion or flooding at the facility, and to prevent surface drainage from contacting or percolating through wastes. The Winterization Plan shall be implemented **prior to 15 October each year**.

11. Class II surface impoundments, sediment detention basins, and all other related containment structures shall be constructed, operated, and maintained in accordance with applicable provisions of Title 27 and the Discharger's Storm Water Pollution Prevention Plan to accomplish the following:

    a. Prevent, to the greatest extent possible, inundation, erosion, slope failure, washout, and overtopping due to floods.

    b. Maintain a freeboard of 2 feet at all times. Freeboard shall be defined as the vertical distance between the water surface and lowest point in each pond from which overflow or discharge can occur.

    c. Prevent the scouring and/or erosion of the liners or other features at points of discharge into the impoundments and by wave action at the waterline.

12. Leak detection systems in Class II surface impoundments shall be monitored monthly for the presence of liquids. Inspection dates and the results of the inspections shall be included with each semiannual monitoring report.

13. Waste discharges to the Class II surface impoundments shall be stopped in the event of any containment system failure that causes a threat to water quality.

14. Liquid detected in a Class II surface impoundment leak detection system (ie: liquids between the primary and secondary liner) shall be measured, sampled for the constituents listed in Table III of Monitoring and Reporting Program No. R5-2005-0118, and returned to the Unit. Upon detection of solution in a previously dry Class II surface impoundment leak detection system, the Discharger shall notify the Regional Board in writing within seven days. If a persistent leak of the primary liner is identified, then the Discharger shall submit a corrective action work plan for repairing the containment structure within 30 days of determining the persistent leak.

15. If monitoring reveals substantial or progressive increases of leachate generation above the design leachate flow volume for a landfill Unit or portion of a Unit, the Discharger shall notify the Regional Board in writing within seven days. The notification shall include a timetable for remedial or corrective action necessary to achieve compliance with the leachate depth limitation.

16. Unit LCRSs shall be tested annually to demonstrate proper operation, pursuant to Section 20340(d) of Title 27. To satisfy this requirement, the Discharger shall manually operate all pumps, valves and controls to determine whether the systems are functioning properly. The annual LCRS test shall be conducted **before 1 December of each year** with the results reported in each Annual Monitoring Summary Report in accordance with Reporting Requirements B.6, of Monitoring and Reporting Program No. R5-2005-0118.

17. The Discharger shall manage storm water discharges at the site in accordance with Anderson Landfill, Inc.'s Industrial Storm Water Permit (WDID No. 5R45I005373), SWPPP, Title 27, the Basin Plan, and Monitoring and Reporting Program No. R5-2005-0118

D. GENERAL CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for Executive Officer review and approval **prior to construction**, design plans and specifications for new Class II or Class III Units and expansions of existing Units. 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;

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

c. An unsaturated zone monitoring system that will remain effective throughout the active life, closure, and post-closure maintenance period of the Unit, in accordance with Section 20415(d) of Title 27; and

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 active life, closure, and post-closure maintenance period of the Unit(s).

3. The depth of fluid over any portion of the base liner shall not exceed 30 cm [40 CFR 258.40(a)(2)]. Leachate collection sumps may be designed to include a small limited area for the leachate removal pump where the fluid depth may exceed 30 cm. The leachate removal pump sump area can be no larger or contain a fluid depth greater than the minimum needed for efficient pump operation [27 CCR §20340(c)].

4. Soil used in the construction of Unit liners shall have a maximum hydraulic conductivity of $1x10^{-6}$ cm/sec as measured using a double ring infiltrometer test method that conforms to requirements of Title 27. Soil barrier layer 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 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. Laboratory tests to determine hydraulic conductivities of liner materials shall use solutions with similar properties as the fluids that will be contained within the Unit (i.e.: leachate). Engineered alternatives to the prescriptive liner material standards may be used if approved by the Executive Officer pursuant to Section 20080 of Title 27.

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

E. CLASS III LANDFILL CONSTRUCTION SPECIFICATIONS

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

a. The prescriptive standard design which consists of a lower compacted soil layer that is a minimum of two feet thick with a hydraulic conductivity of

1×10^{-7} cm/sec or less and has a minimum relative compaction of 90%. Immediately above the compacted soil layer, and in direct and uniform contact with the soil layer, shall be a synthetic flexible membrane component that shall be at least 40-mil thick (or at least 60 mils thick if composed of high density polyethylene [HDPE]), which is immediately overlain with a LCRS. A soil operations layer shall be placed above the LCRS; or

b. An engineered alternative composite liner system that has been approved by the Executive Officer and meets the performance goals of Title 27, Section 20310 and State Water Resources Control Board Resolution 93-62, Section III, Containment.

2. The following engineered alternative liner system has been approved in place of a prescriptive liner for future Units 4 and 5. Design plans for the first phase of Unit 4 (Unit 4A) have been approved. The bottom and side slope liner systems for Units 4 and 5 shall be comprised of the following, in ascending order:

   a. A compacted one-foot thick low permeability soil layer with a hydraulic conductivity of 1×10^{-6} cm/sec or less. Minimum relative compaction of the soil layer shall be 90%;

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

   c. A single-sided textured 60-mil thick HDPE synthetic flexible membrane liner.

3. A LCRS shall be installed directly over the liner system described in Class III Landfill Construction Specification E.2. The LCRS for Unit 4A shall consist of a gravel layer with a hydraulic conductivity of 0.3 cm/sec for the floor grades and an operations layer with a minimum hydraulic conductivity of 0.02 cm/sec for the sideslopes. The gravel drainage layer is supplemented by lateral collection pipes installed along benches and the toes of slopes, graded to drain toward perforated collector pipes, which drain to a leachate collection sump. Leachate collected within the Unit 2Ba sump will also be conveyed to the collection sump within Unit 4. Leachate from the Unit 4 sump will be pumped to an adjacent holding tank where it will be transferred by truck to the Class II surface impoundment, transported to a publicly owned treatment works (POTW), or used for dust control over lined Units with LCRSs. The LCRS sump in Unit 4 will be moved as cell development proceeds. The LCRS sump for future Unit 5 is separate from the Unit 4 sump and will be constructed during the first phase of construction for that Unit. The LCRS sump for Unit 5 will not move as Unit 5 development proceeds.

A leak detection system consisting of an extra HDPE flexible membrane liner beneath the sump that can be monitored for the presence of liquids will also be installed. The LCRS has been designed to collect and transport more than twice the peak daily leachate flow rate, which is estimated to be 5285 ft^3/day/acre for Unit 4. Unit 2Ba will contribute up to an additional 200 ft^3/day.

4. Any base liner design proposed by the Discharger that is different from the engineered alternative liner system described in Class III Landfill Construction Specification E. 2, requires submittal of documentation demonstrating that the proposed liner system complies with the Title 27 performance standards. The demonstration should include, but not be limited to, site-specific factors and cost/benefit analyses for single, double and triple composite liners.

5. Following completion of construction of a Unit, portion of a Unit, or Class II surface impoundment, and prior to discharge of wastes onto any newly constructed liner system, final documentation required pursuant to 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 approved design plans and specifications, and with the prescriptive standards and performance goals of Title 27.

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

7. The Discharger shall perform an electronic leak test or utilize similar technology to assess for post-construction leaks in the liner system of Unit 4A as part of the Construction Quality Assurance Program. All future Class II and Class III compositely lined Units shall incorporate a means of assessing for post-construction liner leaks acceptable to the Executive Officer as part of the Construction Quality Assurance Program.

8. The Discharger shall submit to the Executive Officer by fax or e-mail construction quality assurance Daily Summary Reports in accordance with Section 20324(d)(1)(A) of Title 27. Daily Summary Reports shall discuss all testing that was performed, identify problems or deficiencies that were encountered, and any corrective measure that was implemented in response to the problem or deficiency that was identified. Daily Summary Reports shall be provided within 24 hours after each days work is completed during construction of Units and Class II surface impoundments, until the project engineer or certified engineering geologist in charge certifies the project is complete in accordance with Class III Landfill Construction Specifications E.5.

F. CLASS II SURFACE IMPOUNDMENT CONSTRUCTION SPECIFICATIONS

1. Class II surface impoundments shall be constructed with a double liner having a blanket-type LCRS between the inner and outer liners. The double liner system shall be constructed with an inner 60-mil single sided textured HDPE flexible membrane liner (texture side down) overlying a GCL. The blanket-type LCRS and drainage layer will be installed beneath the inner liner and over the outer or bottom composite liner. The composite outer liner shall consist of one-foot of compacted soil with a hydraulic conductivity of 1×10^{-6} cm/sec or less, overlain by a GCL, which is overlain by a 60-mil HDPE flexible membrane liner. A leak detection system consisting of pan lysimeters or other device approved by the Executive Officer shall be installed at strategic locations beneath the double liner system.

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, in addition to 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.

G. CLOSURE CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit **by 1 April 2007** Final Closure and Post-closure Maintenance Plans for Unit 1, South Canyon Unit, and Unit 2Ba in accordance with Title 27 Section 21769 (c), which include design plans and specifications for completing closure activities, and a Construction Quality Assurance Plan meeting the requirements of Title 27 Section 20324. Final closure of Unit 1, South Canyon Unit, and Unit 2Ba shall be completed **by 1 November 2007**.

2. The final cover system installed by the Discharger shall comply with Title 27 Section 21090(a) and include:

   a. A foundation layer using appropriate materials engineered and constructed to minimize differential settlement and impacts to the final cover system. Foundation layer soil shall be compacted to the maximum density obtainable at optimum moisture content using methods that are in accordance with accepted civil engineering practices;

   b. A low hydraulic conductivity layer constructed over the foundation layer to minimize infiltration of water through the final cover system; and

c. An erosion resistant layer constructed over the low hydraulic conductivity layer that protects the cover system and prevents migration of sediments away from the closed Unit.

3. The final cover system shall have a minimum 3% slope and be graded and maintained to promote lateral runoff of precipitation and to prevent water ponding over buried wastes.

4. Final cover systems shall be designed and constructed to withstand a maximum probable earthquake.

5. All necessary precipitation and drainage control systems (including storm water detention ponds) shall be designed, constructed, and maintained to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 100-year, 24-hour storm events.

6. At least two permanent survey monuments, installed by a licensed surveyor, shall be installed into the final cover system so that the locations and elevations of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period.

7. The Discharger shall not deviate from any previously approved final cover design or eliminate any necessary component of a landfill final cover system without first receiving Executive Officer approval.

8. Following completion of final closure activities and **no later than 1 January 2008**, the Discharger shall submit the final project documentation (in accordance with Title 27 Section 20324(d)(1)(c) for a landfill final cover system) for Executive Officer review and approval. The report shall be certified by a registered civil engineer or certified engineering geologist. It shall contain sufficient information and test results to verify that construction was in accordance with the Final Closure Plan and with the prescriptive standards and performance goals of Title 27.

9. A third party independent of both the Discharger and the construction contractor shall perform all of the construction quality assurance monitoring and testing during construction of the final cover system.

10. Upon closure of Unit 1, the South Canyon Unit, and Unit 2Ba, the Discharger shall record with the Shasta County Recorder's Office, a deed restriction (or similar property restriction as allowed by Shasta County) that runs with the land, identifies the exact location of the landfill, and that restricts activities that will impact the integrity of the containment structures, conveyance systems, and monitoring facilities. The document must indicate that the restrictions may not be removed without approval of the Regional Board. The document may indicate

that the facility is still operating other active Units provided that the anticipated final closure date for the entire landfill is included. Prior to recording the land use restriction document, the Discharger shall submit the proposed restriction language to the Executive Officer for review and approval. Once approved, **and no later than 1 January 2008**, the Discharger shall submit proof of the land use restriction recording with the Shasta County Recorder's Office.

11. The Discharger shall clean-close the designated waste trench Unit located north of Unit 2C and south of the main office building in accordance with Section 21090(f) of Title 27. In accordance with the approved Final Clean-Closure Plan, samples will be obtained from beneath the Unit to demonstrate that all residual wastes have been removed from the Unit and to also demonstrate that groundwater has not been impacted in the vicinity of the Unit. Any groundwater sample obtained to demonstrate that all residual wastes have been removed from the Unit shall be analyzed for the monitoring parameters and constituents of concern (including 5-year constituents of concern) listed in Table I of Monitoring and Reporting Program No. R5-2005-0118. The Discharger shall characterize all of the excavated residual wastes in accordance with the approved Final Clean-Closure Plan and obtain written approval from the Executive Officer prior to disposal. Clean-closure of the designated waste trench Unit shall be completed **by 1 November 2005**.

12. The Discharger shall clean-close the estimated two acre unclassified Unit located north of Cambridge Road and the facility front access gate in accordance with Section 21090(f) of Title 27. A clean-closure work plan describing what actions will be taken is due **by 15 August 2005**. Wastes from this Unit shall be characterized to determine appropriate disposal options. Clean-closure of the estimated two acre unclassified Unit north of Cambridge Road shall be completed **by 1 November 2006**.

13. The Discharger shall clean-close Unit 2C, which has been used exclusively for disposal of shredded tires, in accordance with Section 21090(f) of Title 27. A clean-closure work plan describing what actions will be taken is due **by 15 August 2005**. Clean-closure of this Unit shall be completed **by 1 November 2015**.

H. DETECTION MONITORING SPECIFICATIONS

1. The Discharger shall comply with the Water Quality Protection Standard in accordance with Title 27, the Standard Provisions, and Monitoring and Reporting Program No. R5-2005-0118. Additionally, the Discharger shall maintain a Water Quality Protection Standard Report that accounts for the constituents of concern, constituent concentration limits that are updated every two years, the point of compliance, and all surface and groundwater quality monitoring points.

2. 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. R5-2005-0118. A detection monitoring program for a new Unit shall be installed, operational, and one year of monitoring data collected prior to the discharge of wastes [27 CCR Section 20415(e)(6)].

3. The Discharger shall provide Regional Board staff a minimum of one week notification prior to commencing any field activities related to the installation, repair, or abandonment of monitoring devices.

4. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, Monitoring and Reporting Program No. R5-2005-0118, and the Standard Provisions and Reporting Requirements, dated April 2000.

5. The Water Quality Protection Standard for organic compounds, which are not naturally occurring and not detected in background groundwater samples shall be taken as the PQL of the analytical method used (e.g., US-EPA Methods 8260 and 8270). The repeated detection of one or more non-naturally occurring organic compounds in samples above the Water Quality Protection Standard from detection monitoring wells is evidence of a release from the Unit.

6. The concentrations of the Constituents of Concern in waters passing the Point of Compliance shall not exceed the concentration limits established pursuant to the Water Quality Protection Standard and Monitoring and Reporting Program No. R5-2005-0118.

7. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the Water Quality Protection Standard using procedures specified in this Order, Monitoring and Reporting Program No. R5-2005-0118, and Section 20415(e) of Title 27.

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

9. Specific methods of collection and analysis 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 an approved Sample Collection and Analysis Plan.

10. 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.

11. The methods of analysis and the detection limits used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background monitoring points for that medium, the analytical method having the lowest method detection limit (MDL) shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.

12. "Trace" results - results falling between the MDL and the practical quantitation limit (PQL) - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.

13. MDLs and PQLs shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the 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.

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

15. All QA/QC data shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name of the person(s) performing the analyses. Sample results shall be reported unadjusted

for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.

16. Unknown chromatographic peaks shall be reported, flagged, and tracked for potential comparison to subsequent unknown peaks that may be observed in future sampling events. Identification of unknown chromatographic peaks that recur in subsequent sampling events may be required.

17. The statistical method used to evaluate monitoring data for evidence of a release of waste 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, an indication that falls between the MDL and the PQL for that constituent (hereafter called a "trace" detection) shall be identified. For a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties."

18. The Discharger may propose an alternate statistical method [to the methods listed under 27 CCR 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.

19. The Discharger shall use the following non-statistical method for all analytes that are detected in less than 10% of the background samples. The non-statistical method shall be implemented as follows:

    a. From the constituent of concern or monitoring parameter list, identify each analyte in the **current** sample that exceeds either its respective MDL or PQL. The Discharger shall conclude that the exceedance provides a

preliminary indication of a release or a change in the nature or extent of the release, at that monitoring point, if ***either:***

1) The data contains two or more analytes that are detected in less than 10% of background samples that equal or exceed their respective MDLs; or

2) The data contains one or more analyte that exceeds its PQL.

b. Discrete **Retest** [Title 27 CCR Section 20415(e)(8)(E)]:

1) In the event that the Discharger concludes (pursuant to paragraph 19.a., above) that there is preliminary indication of a release, then the Discharger shall immediately notify Regional Board staff by phone or e-mail and, within 7 days of such indication, shall collect **two new** (retest) samples from the monitoring point where the release is preliminary indicated.

2) As soon as the retest data are available, the Discharger shall conclude that there is measurable significant evidence of a release if two or more analytes equal or exceed their respective MDLs or if one or more analyte equals or exceeds its PQL and shall:

a) Immediately notify Regional Board staff about any constituent or constituents verified to be present at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of validation; and

b) Comply with paragraph 20, below if any constituent or constituents were verified to be present.

3) Any analyte that is confirmed using the discrete retest per this method shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event.

20. If the Discharger determines that there is measurably significant evidence of a release from the Unit at any monitoring point, then 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.

I. PROVISIONS

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

contents, and to regulatory agency personnel.

2. The Discharger shall comply with all applicable provisions of Title 27 and 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. R5-2005-0118, 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 Unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

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

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

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

6. The Discharger shall take all reasonable steps to minimize any adverse impact to waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature and extent 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 wastes during the active life, closure, and post-closure maintenance period of the Unit(s) and during subsequent use of the property for other purposes.

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

9. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Regional Board requesting transfer of the Order within 14 days of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Board, and a statement. The statement shall comply with the signatory requirements contained in Provision I.5, above, 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 assurance mechanisms for closure and post-closure maintenance costs as specified in Chapter 6 of Title 27. The Discharger is required to submit the financial assurance mechanism to the Financial Assurances Section of the California Integrated Waste Management Board, which determines if the mechanism meets the requirements of Chapter 6, Title 27, and if the amount of coverage is adequate.

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.

12. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule:

UNIT CLOSURE AND CLEAN-CLOSURE ACTIVITIES

	Task	Compliance Date
1	Submit Final Clean-Closure Work Plans for Unit 2C and the estimated two acre unclassified Unit north of Cambridge Road, in accordance with Section 21090(f) of Title 27	**15 August 2005**
2	Complete clean-closure activities for the designated waste trench Unit.	**1 November 2005**
3	Complete clean-closure activities for the estimated two acre unclassified Unit north of Cambridge Road.	**1 November 2006**
4	Submit Final Closure and Post-closure Maintenance Plans for Unit 1, South Canyon Unit, and Unit 2Ba in accordance with Section 21769(c) of Title 27. Final closure of these Units shall also include construction of an infill gas extraction and control system.	**1 April 2007**
5	Complete final closure construction activities and installation of the first phase of the infill gas extraction and control system for Unit 1, South Canyon Unit, and Unit 2Ba.	**1 November 2007**
6	Submit the final closure documentation for Unit 1, South Canyon Unit, and Unit 2Ba pursuant to Section 20324(d)(1)(C) of Title 27.	**1 January 2008**
7	Submit proof of the required site deed restriction information filed with the Shasta County Recorder's Office.	**1 January 2008**
8	Complete clean-closure activities for Unit 2C	**1 January 2015**

UNIT 4A CONSTRUCTION

	Task	Compliance Date
1	Complete Unit 4A construction activities in accordance with the design plans, technical specifications, and Construction Quality Assurance Plan.	**1 November 2005**
2	Provide final documentation certifying that Unit 4A construction was completed in accordance with the approved design plan, technical specifications, and Construction Quality Assurance Plan pursuant to Section 20324(d)(1)(C) of Title 27	**1 January 2006**

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 5 August 2005.

THOMAS R. PINKOS, Executive Officer

DPS/KLC: sae: 09 August 2005

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2005-0118
FOR
ANDERSON LANDFILL, INC.
FOR
OPERATION AND PARTIAL CLOSURE OF
ANDERSON CLASS III 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, is ordered by Waste Discharge Requirements Order No. R5-2005-0118.

A. REQUIRED MONITORING REPORTS

	Report	Due
1.	Groundwater Monitoring (Section D.1)	See Table I
2.	Annual Monitoring Summary Report (Section B.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.)	See Table III
6.	Surface Water Monitoring (Section G.)	See Table IV
7.	Storm Event Monitoring (Section H.)	As indicated
8.	Response to a Release (Standard Provisions and Reporting Requirements)	As necessary

B. REPORTING REQUIREMENTS

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program, Order No. R5-2005-0118, and the Standard Provisions and Reporting Requirements. Reports that 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 compliance with the waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format acceptable to the Executive Officer. The Discharger shall also comply with the following Reporting Requirements:

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of Order No. R5-2005-0118 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, 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 laboratory and personnel 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, then it 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 an approved Sample Collection and Analysis Plan.

   b. A map or aerial photograph showing the locations of waste management units, ancillary facilities, observation stations, and monitoring points.

   c. Tabulated monitoring data listing at least the previous five years worth of sample results from each respective monitoring point.

   d. For each groundwater body, a description and graphical presentation of the gradient and direction of groundwater flow under/around the Unit, and the groundwater flow rate, based upon water level elevations taken prior to the collection of the water quality data submitted in the report.

   e. Laboratory statements of results of all analyses evaluating compliance with requirements.

   f. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.

   g. Tabulated volumes of leachate applied for dust control, date of application, and Unit to which leachate was applied.

   h. A summary and certification of completion of all Standard Observations for the Unit(s), for the perimeter of the Unit(s), and for the receiving

waters. The Standard Observations shall be conducted **at least weekly** and include:

1) For the Unit(s):

   a) Date of weekly inspection and name of the person conducting the inspection;

   b) Evidence of ponded water at any point on the facility (show affected area on map);

   c) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and

   d) Evidence of erosion and/or of day-lighted refuse.

   e) Evidence of liquids in a previously dry leak detection system.

2) Along the perimeter of the Unit(s):

   a) Date of weekly inspection and name of the person conducting the inspection;

   b) Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map);

   c) Evidence, characteristics, and flow rate of liquids discharging through Unit 4 and/or 5 interceptor drains;

   d) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and

   e) Evidence of erosion and/or of day-lighted refuse.

3) For receiving waters:

   a) Date of weekly inspection and name of the person conducting the inspection;

   b) Floating and suspended materials of waste origin – presence or absence, source, and size of affected area;

   c) Discoloration and turbidity – description of color, source, and size of affected area;

   d) Evidence of odors – presence or absence, characterization, source, and distance of travel from source;

   e) Evidence of water uses – presence of water-associated wildlife;

f) Flow rate; and

g) Weather conditions – wind direction and estimated velocity, total precipitation during recent days and on the day of observation.

i. The quantity and types of wastes discharged and the locations in the Unit(s) 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 locations(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 schedules.

f. A description of weather conditions at the time the leachate seep is discovered.

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 and tabulated 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. Graphs shall be plotted to show 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, as appropriate. 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 five calendar years 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 [Section 20420(h)], in that this facilitates periodic review by the Regional Board.

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

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

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

f. An evaluation of the effectiveness of the leachate monitoring/control facilities, including the results of the annual LCRS test.

7. All required monitoring reports shall be submitted according to the following schedule:

Report Type	Reference Table or Requirement Associated With Necessary Monitoring	Frequency of Submittal	Report Due Date
Shallow and Deep Groundwater Monitoring	Table I - MRP	Semiannual	31 July and 31 January Annually
Unsaturated Zone Monitoring	Table II - MRP	Semiannual	31 July and 31 January Annually
Class II Surface Impoundment (LCRS) Leak Detection System Monitoring	Table III - MRP	Upon detection of liquid in a previously dry leak detection system	30 days after samples were taken and also include data in the appropriate Semiannual Monitoring Reports
Leachate Monitoring	Table III and Section E- MRP	Semiannually	31 July and 31 January Annually
Surface Water and Detention Pond	Table IV	Semiannually	31 July and 31 January Annually

Report Type	Reference Table or Requirement Associated With Necessary Monitoring	Frequency of Submittal	Report Due Date
Annual Monitoring Summary	Reporting Requirements B.6, MRP	Annually	31 January
Winterization Plan	Facility Specification C.10, WDR	Annually	15 September annually

MRP – Monitoring and Reporting Program No. R5-2005-0118
WDR – Waste Discharge Requirements Order No. R5-2005-0118

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

The Discharger shall maintain a Water Quality Protection Standard (WQPS) Report that complies with Sections 20390 through 20410 of Title 27 and addresses the following information:

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

The report shall:

a. Identify all distinct bodies of groundwater that could be affected in the event of a release from a Unit or portion of a Unit. This list shall include the shallow and deep groundwater bearing zones.

b. Include a map showing the monitoring points and background monitoring points for the shallow and deep groundwater detection 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 shallow and deep groundwater bearing zones.

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 WQPS.

2. **Constituents of Concern**

The Constituents of Concern include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit. The Constituents of Concern for all Units at the facility are 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 IV. Table V also contains inorganic "surrogates for metallic constituents," required by Subtitle D if the metallic constituents are not already included in the detection monitoring program.

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

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

3. **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 taken as the PQL of the analytical method used (e.g., US-EPA Methods 8260 and 8270) in

accordance with Detection Monitoring Specification H.5 of Order No. R5-2005-0118. Concentration limits shall be updated by the Discharger every two years and reported in the Annual Monitoring Summary Report for the respective reporting period.

4. Point of Compliance

The point of compliance for the water standard at each Unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the shallow and deep water bearing zones underlying the Unit(s).

5. Compliance Period

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

D. DETECTION MONITORING

The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, the unsaturated zone, and surface water in accordance with Detection Monitoring Specification H.2 of Waste Discharge Requirements, Order No. R5-2005-0118. 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 detection monitoring program groundwater monitoring wells, unsaturated zone monitoring devices, surface water and detention pond monitoring points, leachate monitoring points, and Unit leak detection systems shall be sampled and analyzed as indicated and listed in Tables I through IV and this MRP.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those that 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

All point of compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard.

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

The existing groundwater monitoring system at Anderson Landfill consists of nine monitoring wells, seven of them completed in the deep (confined) groundwater zone and two in the shallow (perched) groundwater zone. Three of the deep wells (MW-1, MW-5, and MW-6) are not being utilized in the deep groundwater detection monitoring program (see Finding No. 42 of Order No. R5-2005-0118 for additional information). Two additional gas monitoring wells (GM-6 and GM-9) are utilized in the shallow groundwater monitoring program because they are completed and screened across the perched zone and consistently yield sufficient water for sampling purposes. A description of the shallow and deep groundwater monitoring points required for the detection monitoring program follows:

Deep Groundwater Bearing Zone

Well ID	Service Type	*Location	Depth	Screen Interval
MW-3	Background	340 ft. S of S. Canyon Unit	312 ft.	292 to 312 ft. bgs.
MW-4A	Compliance	110 ft. NNW of NE corner of Unit 1	362 ft.	339 to 362 ft. bgs.
MW-6 (To be monitored once Unit 5C is constructed)	Compliance	East property boundary, 450 ft. E. of SE portion of proposed Unit 5	345 ft.	314 to 344 ft. bgs.
MW-9	Compliance	Along Cambridge Road, 100 ft. NW of the future west Class II surface impoundment	358 ft.	340 to 350 ft. bgs.

Well ID	Service Type	*Location	Depth	Screen Interval
MW-10	Compliance	Along Cambridge Road, 100 ft. N. of the east Class II surface impoundment	360 ft.	337 to 357 ft. bgs.
MW-11	Compliance	475 ft. NE of the NE portion of future Unit 5	Installed by 1 November 2005	To be determined
Future well MW-12 (To be monitored once Unit 4C is constructed)	Compliance	East property boundary about 700 ft. south of MW-11	Installed during construction of Unit 4C	To be determined

bgs = Below Ground Surface
* Location distances are estimated

Construction details are not currently available for future wells MW-11 and MW-12. Well MW-11 will be installed **by 1 November 2005** and is part of the current detection monitoring program. Well MW-12 will be installed during construction of the last phase of Unit 4. The Discharger is required to update the June 2005 Joint Technical Document with construction details for all new monitoring points **within 60 days** after they are constructed. MW-6 will be included into the deep groundwater detection monitoring program once construction of Unit 5C is completed.

Shallow Groundwater Bearing Zone

Well ID	Service Type	*Location	Depth	Screen Interval
MW-8	Compliance	175 ft. N. of NE corner of Unit 1	75 ft.	62 to 72 ft. bgs.
GM-6D	Compliance	175 ft. N of Cambridge Road across from NE portion of Unit 1	75 ft.	68 to 73 ft. bgs.
GM-9D	Compliance	250 ft. S. of Cambridge Road near NW portion of Unit 1	73.5 ft.	61 to 71 ft. bgs.
SM-1	Background	700 ft. S. of Unit 2A	30 ft.	Not Available

bgs = Below Ground Surface
* Location distances are estimated

The Discharger has proposed eliminating SM-1 from the detection monitoring program due to insufficient yield. However, no data is currently available regarding lack of water. If this well is consistently dry over the course of a complete hydrologic cycle, then the Discharger may propose abandoning the well effectively eliminating it from the detection monitoring program.

Quarterly, the Discharger shall determine the groundwater elevation, 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.

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 and the Constituents of Concern in accordance with the methods and frequencies specified in Table I. The sampling frequency for background well MW-3 shall be annual. All monitoring parameters shall be graphed and tabulated so as to show historical trends at each monitoring point.

2. **Unsaturated Zone Monitoring**

For new units 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. Unsaturated zone samples shall be collected from the monitoring devices and background monitoring devices of the approved unsaturated zone monitoring system. The collected samples shall be analyzed for the listed constituents in accordance with the methods and frequencies specified in Table II. All monitoring parameters shall be graphed and tabulated so as to show historical trends at each monitoring point. A description of the unsaturated zone monitoring points required for the detection monitoring program follows:

Lysimeter ID	Type	*Location	Depth
VZM-2Ba	Pan	Beneath LCRS sump in SE corner of Unit 2Ba	10 ft.
VZM-4A	Pan	Beneath LCRS sump in Unit 4A	To be determined
Future VZM-4B	Pan	Beneath LCRS sump in Unit 4B	To be determined

Lysimeter ID	Type	*Location	Depth
Future VZM-4C	Pan	Beneath LCRS sump in Unit 4C	To be determined
Future VZM-5	Pan	Beneath LCRS sump in Unit 5	To be determined
East Leachate Pond VZM (EPOND-VZM)	Pan	Beneath LCRS sump in east Class II surface impoundment	To be determined
Unit 4A Gas Collection Pipe (GT-4A)	Gas Collection Pipe	Between west Unit 4A liner and Units 1 and 2Ba	To be determined

* Locations are estimated
All pan lysimeters are located directly below LCRS sumps and base liners

Sample point GT-4A for the Unit 4A gas collection pipe shall be monitored quarterly for methane. Methane sample results shall be submitted with each semiannual monitoring report. If methane concentrations exceed 5% by volume, then the Discharger shall connect the gas collection pipe to the perimeter gas extraction system **within 90 days** of such a detection.

E. LEACHATE MONITORING

All Unit leachate collection and removal system sumps shall be inspected monthly for leachate generation. Inspection dates, the person conducting the inspection, and the results of the inspection shall be recorded in each semiannual monitoring report. 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 calendar quarter thereafter, with a retest during the following second calendar 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 frequencies specified in Table III. The quantity of leachate pumped from each sump shall be measured and reported in the semiannual monitoring reports as Leachate Flow Rate (in gallons/day).

The permanent leachate monitoring points include the following:

Leachate Monitoring Point ID	Location Description
Unit 1 Toe Drain System (Unit 1-TD)	At southern toe of Unit 1 beneath South Canyon Unit base liner
South Canyon Unit Leachate Sump (LC-SC)	Central west portion of cell

Leachate Monitoring Point ID	Location Description
Unit 4 Leachate Sump(s) (LC-4A, LC-4B, and LC-4C as cell development proceeds)	North central portion of each cell. Unit 4 sumps will be moved into the next cell during their construction. The sump in the previous cell will be decommissioned at that time
Future Unit 5 Leachate Sump (LC-5)	North central portion of Unit 5A near Class II surface impoundment

Note that during construction of Unit 4A, the LCRS sump for Unit 2Ba will be decommissioned and leachate from Unit 2Ba will be discharged to the LCRS for Unit 4.

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

F. CLASS II SURFACE IMPOUNDMENT MONITORING

Each Class II surface impoundment LCRS shall be monitored monthly for the presence of fluid in between the primary (upper) and secondary (lower) liners. Upon detection of fluid in the Class II surface impoundment LCRS, the Discharger shall comply with Facility Specifications C.12-14 of Order No. R5-2005-0118. The Discharger shall monitor the remaining portions of the Class II surface impoundment monthly and report the results semiannually according to the schedule in Section B of Monitoring and Reporting Program No. R5-2005-0118. Monitoring parameters shall include freeboard, fluid depth, total capacity, and capacity remaining. Leachate monitoring for Class II surface impoundments shall be limited to the "Field Parameters" shown on Table III, unless the Executive Officer requests additional monitoring.

G. SURFACE WATER AND SEDIMENT DETENTION POND MONITORING

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

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

Existing sediment detention ponds are located directly below and south of the South Canyon Unit (SED-1) and in the two drainages southeast of Unit 2Ba. A new sedimentation basin (SED-4) will be constructed during installation of Unit 4A. An

additional sediment detention pond (SED-5) will be constructed east of Unit 5 during construction of Unit 4C. Storm water from the site is or will be directed to these ponds prior to discharging off site to the south. The Discharger has proposed eliminating the South Canyon Sediment Detention Pond during closure of Unit 1. At that time, the pond would be filled and the channel lined with riprap. Additionally, during construction of Units 4 and 5, the two sediment detention ponds in the drainages southeast of Unit 2Ba will be eventually decommissioned as cell development proceeds. Sediment detention ponds SED-1 and SED-4 shall be monitored monthly for freeboard, fluid depth, flow rate (if applicable), and the Standard Observations described in Reporting Requirements Section B.4.g.3 of Monitoring and Reporting Program No. R5-2005-0118. Water quality testing of the liquids in the ponds shall be conducted semiannually. The collected samples shall be analyzed for the listed constituents in accordance with the methods and frequencies specified in Table IV. Future sedimentation pond SED-5 shall be monitored as described above once it is constructed.

During construction of Units 4 and 5, shallow perched groundwater will be collected in two different interceptor drains installed along cut slopes where the perching layer is encountered. The Unit 4 interceptor drain (IT-4) will be installed along the west side adjacent to Unit 1 and the Unit 5 interceptor drain (IT-4/5) will be installed along the north and eastern portion of Units 4 and 5. Liquids collected in IT-4 will be characterized in accordance with methods and frequencies listed in Table IV and stored in a liquid-tight below grade sump until sample results are available. After characterization, the collected liquids will be managed as leachate and discharged to the Class II surface impoundment, used as dust control over lined Units with LCRSs, or discharged in a manner approved by the Executive Officer. Liquids collected in IT-4/5 shall be characterized in accordance with the methods and frequencies list in Table IV prior to being discharged in a manner approved by the Executive Officer. Due to construction and necessary excavating required for completing the base grades of Units 4 and 5, the Discharger anticipates that the shallow perched groundwater zone will be greatly diminished or eliminated over time.

Waters that receive storm water discharges from the site shall be monitored in accordance with Anderson Landfill's Storm Water Pollution Prevention Plan and Industrial Storm Water Permit (WDID No. 5R45I005373).

H. FACILITY AND STORM EVENT MONITORING

By 15 September annually, the Discharger shall develop and submit for Executive Officer review and approval, a Winterization Plan that describes any necessary erosion control measures; construction, maintenance, or repair of precipitation and drainage control facilities; and any other measures to prevent erosion or flooding at the facility, and to prevent surface drainage from contacting or percolating through wastes. The Winterization Plan shall be implemented **prior to 15 October each year**. The second

semiannual monitoring report submitted each year shall describe all repairs and measures implemented in accordance with the approved Winterization Plan.

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage within 2 days following **major storm events**. The inspection shall include the Standard Observations required pursuant to Reporting Requirements Section B.4.g. of Monitoring and Reporting Program No. R5-2005-0118. Major storm events are defined as 1.5 inches of precipitation within a 24-hour period. Necessary repairs shall be completed within 30 days of the inspection. The Discharger shall report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs. The Discharger shall include storm event inspection dates, the person conducting the inspection, the amount of precipitation received within the 24-hour period, and the results of the inspection(s) in each semiannual monitoring report. If no precipitation events of 1.5 inches or more within a 24-hour period occur during the reporting period, then the semiannual monitoring report shall state such.

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

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

5 August 2005
(Date)

DPS/KLC: sae: 08/10/2005

TABLE I

GROUNDWATER DETECTION MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Groundwater Elevation	Ft. & hundredths, M.S.L.	Quarterly
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 V)	µg/L	Semiannual
5-Year Constituents of Concern (see Table VI)		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

TABLE II

UNSATURATED ZONE DETECTION MONITORING PROGRAM

SOIL-PORE GAS

Parameter	Units	Frequency
Monitoring Parameters		
Volatile Organic Compounds (USEPA Method TO-14)	µg/cm^3	As Required by the Executive Officer
Methane	%	Quarterly

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 V)	µg/L	Semiannual
5-Year Constituents of Concern (see Table VI)		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

TABLE III

LEACHATE MONITORING PROGRAM

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

TABLE IV

SURFACE WATER 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
Oil and Grease	µg/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
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
Atrazine
Chlorpyrifos
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)
Diazinon
Dimethoate
Disulfoton
Ethion
Methyl parathion (Parathion methyl)
Parathion
Phorate
Simazine

INFORMATION SHEET

ORDER NO. R5-2005-0118
ANDERSON LANDFILL, INC.
FOR OPERATION AND PARTIAL CLOSURE OF
ANDERSON CLASS III LANDFILL AND
CLASS II SURFACE IMPOUNDMENT
SHASTA COUNTY

Anderson Landfill, Inc. (ALI), hereafter Discharger, owns and operates a Class III landfill approximately 3.5 miles southwest of the City of Anderson in Shasta County. The total permitted area of the site is 246 acres. Waste disposal is allowed on 130 acres. The site consists of six unlined Units and two compositely lined Units covering approximately 66 acres.

Unlined Unit 1 covering 39.7 acres has received municipal solid waste (MSW) and wood waste in the past, and is near capacity. Unlined Units 2A, 2B, and 2C cover 4.7 acres, 6.8 acres, and 6.0 acres, respectively. Units 2A and 2B have been used for disposal of various inorganic wastes including asbestos, cogeneration ash, and byproducts of titanium dioxide manufacturing. Unit 2C has received shredded tires only and is scheduled for clean-closure over the next three to ten years. The shredded tires from this Unit are and will be used for alternative daily cover during dry weather. Two other pre-1980 unlined Units are also scheduled for clean-closure over the next two years. The designated waste trench Unit covering less than one acre, which has received wastes impacted with volatile and semi-volatile organic compounds should have the clean-closure process completed by fall 2005. Another approximately two acre unlined Unit located across Cambridge Road was used for disposal of petroleum contaminated wastes and wood wastes. This Unit is scheduled for clean-closure during 2006.

The first lined Unit, 5.8 acre Unit 2Ba, was constructed in 2002 over existing inorganic wastes in Unit 2B. The liner for this Unit consists of, in ascending order, a one foot thick low permeability layer with a hydraulic conductivity of 1×10^{-6} cm/sec, a geocomposite clay liner, and a 60-mil high density polyethylene geomembrane. A leachate collection and removal system (LCRS) is constructed over the liner system. In 2004, the Discharger constructed the 7.0 acre South Canyon Unit, wholly within the permitted footprint of Unit 1. Wastes at the southern toe of unlined Unit 1 were excavated and relocated to the upper north portions of Unit 1 to make room for the new lined Unit. The liner system for South Canyon Unit is similar to the liner system in Unit 2Ba. Unit 2Ba and South Canyon Unit have received MSW exclusively, with Unit 2Ba at capacity and South Canyon Unit nearly full. Two additional Subtitle D lined Units covering 72.8 acres are proposed to be constructed over the next 27 years, with the first cell, Unit 4A, being constructed during summer/fall 2005. Unit 4A will have a liner system similar to Units 2Ba and South Canyon Unit.

Leachate that collects in the LCRSs of the lined Units has historically been stored in above ground storage tanks and used for dust control over the lined Units during periods of dry weather. The Discharger constructed a Class II surface impoundment for storage and evaporation of leachate at the same time that South Canyon Unit was constructed. During construction of Unit 4A, a main leachate conveyance pipe will be installed to transmit leachate directly from the LCRS sump to the Class II surface impoundment. Leachate collected in the Unit 2Ba LCRS will also be directly connected to the main leachate conveyance pipe in Unit 4 for direct discharge to the Class II surface impoundment. Leachate generated in South Canyon

Unit will still be stored in above ground tanks and eventually trucked to the Class II surface impoundment by the Discharger.

Precipitation that falls on the site is handled in one of two ways. Undiverted precipitation that contacts waste is kept on-site. All other precipitation is diverted away from waste areas and off-site by means of conveyance structures and holding ponds. This precipitation, also known as stormwater, eventually enters an unnamed tributary to Cottonwood Creek to the south and anther unnamed tributary to Anderson Creek to the north. Both Cottonwood Creek and Anderson Creek are tributaries of the Sacramento River. ALI is under a statewide general permit for discharge of industrial storm water (No. 97-03-DWQ/NPDES CAS000001). Day-to-day management of storm water is done in accordance with an approved Storm Water Pollution Prevention Plan, last updated on 22 April 2005.

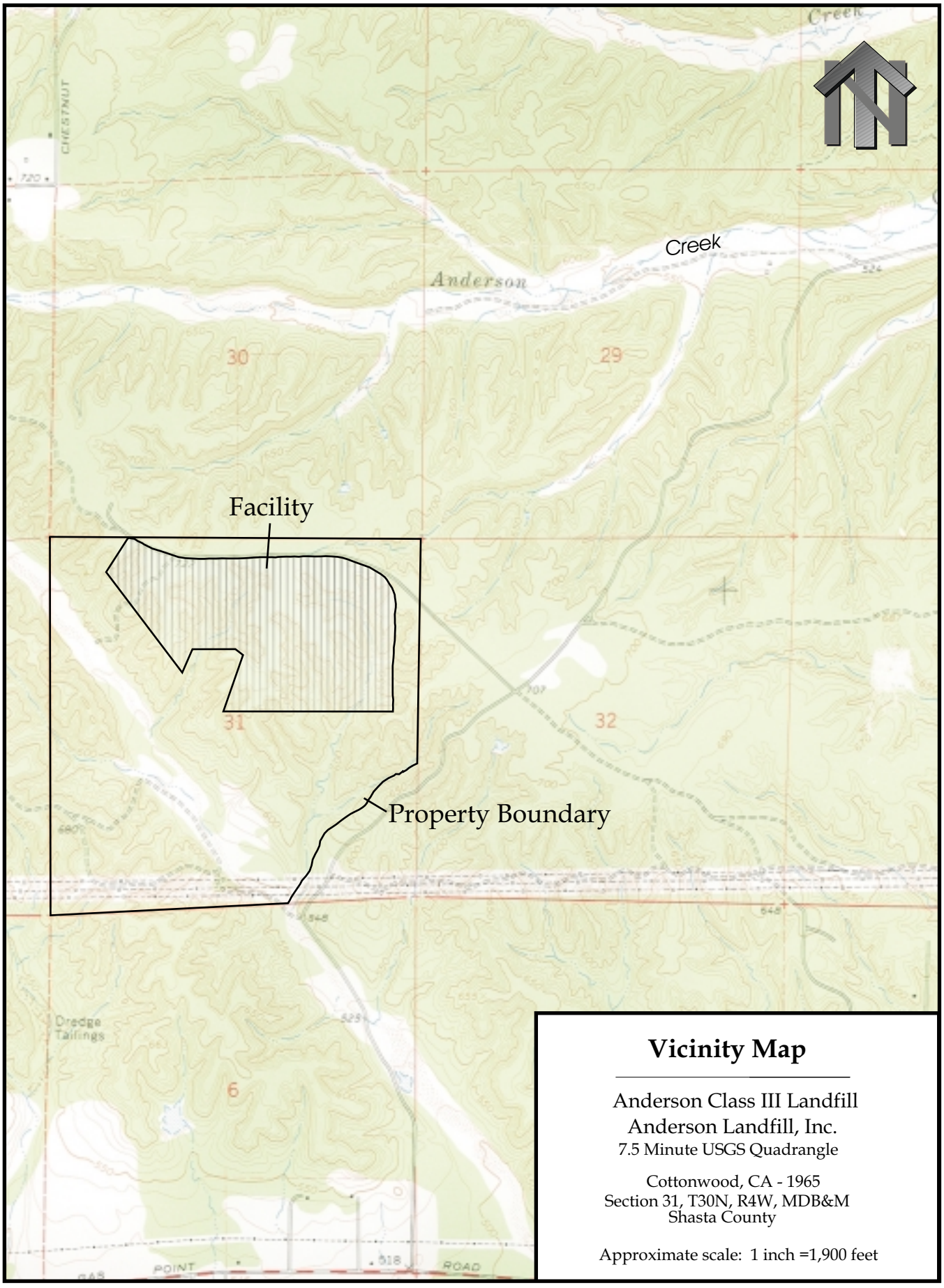
The site is in the southwestern part of the Redding groundwater basin and is underlain by the Red Bluff and Tehama formations. The Red Bluff Formation outcrops on the north edge of the site and ranges from 2 to 40 feet in thickness. The Tehama Formation underlies the majority of the filled areas. It consists of dense silt and clay interbedded with sand and gravel. Older (and deeper) pre-Tertiary units have not been encountered while drilling at the site.

Two water bearing zones are known to occur at the site. First groundwater is found from 55 to 70 feet below the ground surface and is thought to be perched and not laterally continuous. The first groundwater zone known to be laterally continuous is encountered from 270 to 300 feet below the ground surface and is confined. Water quality in both the shallow and deeper water bearing zones is monitored semiannually. The quality of confined groundwater is good; it has a total dissolved solids content of about 150 mg/L. Confined groundwater flows to the northeast. The shallow perched groundwater flows northeast also, with a northwest flow direction observed near the northwest corner of the facility.

Shallow and deep groundwater is sampled through a system of seven groundwater monitoring wells and two gas monitoring wells that are screened across the shallow water bearing formation. An unsaturated zone detection monitoring system is also in place at the landfill. The unsaturated zone monitoring system consists of pan lysimeters beneath LCRS sumps in Unit 2Ba, South Canyon Unit, and the east Class II surface impoundment. Additional pan lysimeters will be installed beneath LCRS sumps in Units 4 and 5. A gas collection pipe will also be installed beneath the Unit 4 liner adjacent to Units 1 and 2Ba. This monitoring point will be assessed quarterly for the presence of methane. If methane concentrations exceed 5% by volume, then the gas collection pipe will be connected to the facility perimeter gas extraction system. Additional facilities that are or will be monitored at the site include the Class II surface impoundment leak detection/LCRS and the Unit 1 leachate toe drain system. A landfill gas perimeter extraction system is also in place at the site to control gas migration. An infill gas extraction system will be installed as Units close, with the first phase scheduled for installation during closure of Units 1, 2Ba, and South Canyon Unit in 2007.

This Order revises existing Waste Discharge Requirements Order No. 05-01-152 to incorporate the construction design of proposed Units 4 and 5 (specifically Unit 4A), closure of three existing Units (Unit 1, Unit 2Ba, and South Canyon Unit), and clean-closure of three existing Units (Unit 2C, Unit north of Cambridge Road, and the designated waste trench Unit).

DPS/KLC: sae: 08/08/2005

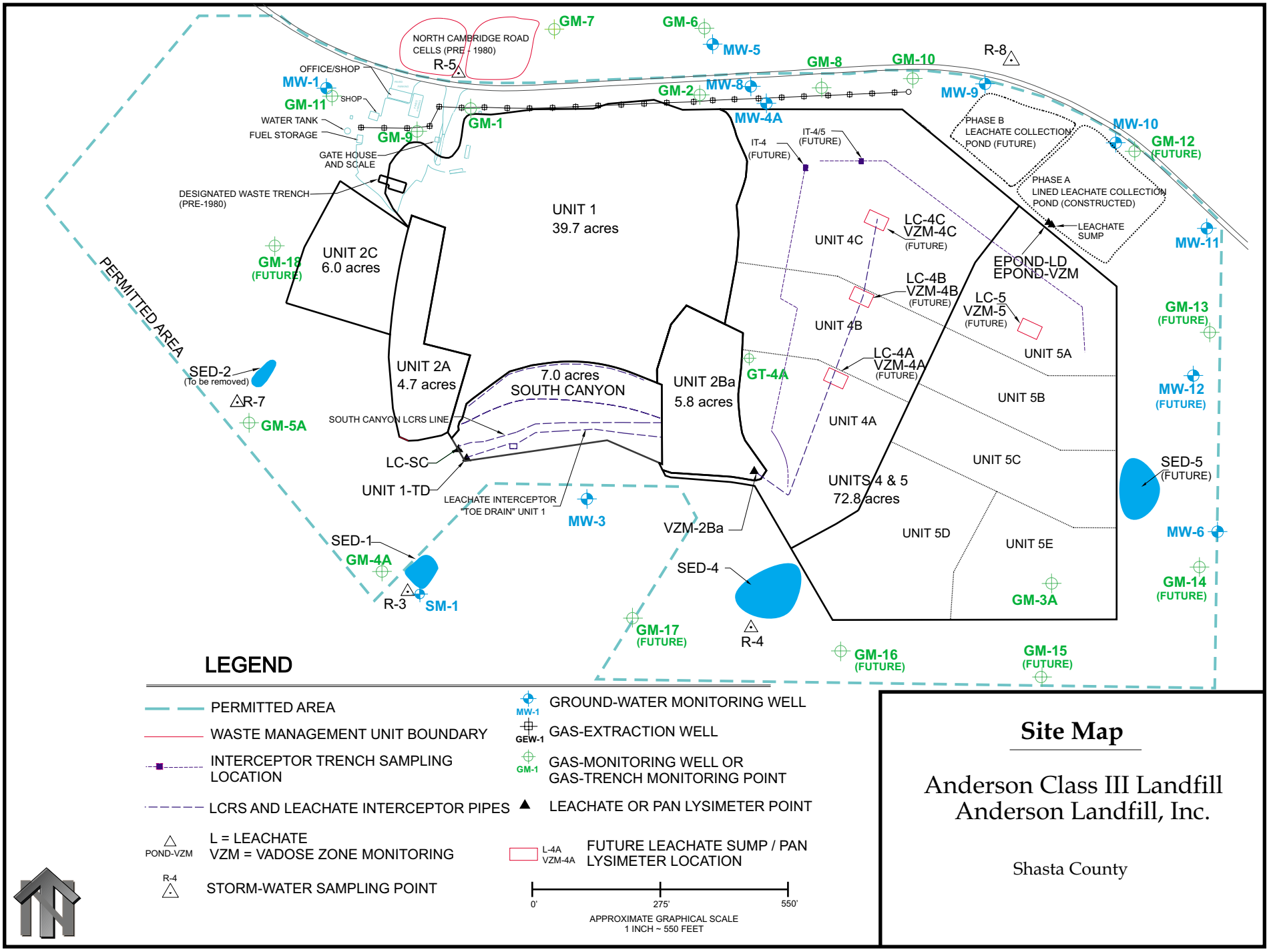


Vicinity Map

Anderson Class III Landfill
Anderson Landfill, Inc.
7.5 Minute USGS Quadrangle

Cottonwood, CA - 1965
Section 31, T30N, R4W, MDB&M
Shasta County

Approximate scale: 1 inch =1,900 feet



Site Map

Anderson Class III Landfill
Anderson Landfill, Inc.

Shasta County