CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2004-0022

WASTE DISCHARGE REQUIREMENTS FOR COUNTY OF NEVADA DEPARTMENT OF TRANSPORTATION AND SANITATION MCCOURTNEY ROAD LANDFILL CLASS II SURFACE IMPOUNDMENTS AND CLOSED CLASS III LANDFILL POST-CLOSURE MAINTENANCE AND CORRECTIVE ACTION NEVADA COUNTY

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

1. The McCourtney Road Landfill encompasses a 244-acre area and is owned and operated by the Nevada County Department of Transportation and Sanitation (hereafter referred to as Discharger) since 1973. The site consists of Assessor's parcel numbers 25-120-12, 25-13-46, 25-13-47, 53-20-41, 53-20-44, 53-31-15, 53-31-17, and 53-31-18 and is located at 14741 Wolf Mountain Road, approximately six miles southwest of Grass Valley, in Sections 5, 8, and 9, T15N, R8E, MDB&M, as shown in Attachment A, which is incorporated herein and made a part of this Order.

2. Waste management activities occurred over approximately 157 acres of the 244-acre site and included several waste management areas. The waste management areas of the site are known as the Burn Area; the White Metals Disposal Area (WMDA); the 1976 Disposal Area (76 Cell); the Old Landfill Mass (OLM); the Winter 1989 Disposal Area and the Summer 1990 Disposal Area (together referred to as the 89-90 Cell); the 1990-91 Disposal Area (90-91 Cell); Wood/Yard Waste Management Area; the Old Septage Pond Area (OSPA); and two Class II surface impoundments, including a 5.2 million gallon (MG) pond and a 1.3 MG pond. Other waste management areas include a front-end municipal waste transfer station and recycling facility and ancillary facilities consisting of three sedimentation basins, two leachate pump stations, and a landfill gas collection and treatment system. These areas are all shown on Attachment B, which is incorporated herein and made a part of this Order.

3. Pursuant to Title 23, Division 3, Chapter 15, California Code of Regulations (CCR), the Discharger submitted a Report of Waste Discharge (RWD) dated 15 May 1990 describing significant operational changes proposed for 1990-1993. Those changes included reclassification of the then-existing septage handling facilities; changes in leachate and septage disposal practices; a new landfill gas recovery system; implementation of an Evaluation Monitoring program (EMP); and other proposals. Waste Discharge Requirements (WDR) Order No. 91-229

was adopted by the Regional Board on 22 November 1991 to address the proposals in the RWD. On 30 November 1992, the site stopped taking municipal wastes for landfilling, and the 90-91 Cell became inactive. During the summer of 1995, the 76 Cell and the WMDA were exhumed and clean-closed as corrective actions to reduce the potential sources of groundwater pollution. Closure of the 90-91 Cell and the other older landfill cells were pending at that time. The septage facilities were no longer in use, and the Discharger proposed a change in the use of one of the surface impoundments. WDRs Order No. 96-027, adopted on 26 January 1996, updated Order No. 91-229 to address closure requirements and the need for corrective action and corrective action monitoring.

4. Monitoring and Reporting Program Order No. 96-027 was revised and issued on 16 October 2000 to reflect the following changes at the landfill: the landfill was closed in accordance with the *Final Closure Plan* dated 12 December 1996; leachate removal and disposal offsite; and corrective actions were implemented in the form of clean closure of the 76 Cell and closure of the entire landfill. The changes were based on a series of technical studies that included: the quarterly monitoring reports; the Detection, Evaluation, and Corrective Action monitoring programs designed by Anderson (1993, 1993) and updated by GeoLogic Associates (1995, 1996); the *Amended Report of Waste Discharge, Corrective Action Monitoring Proposal*, and *Water Quality Protection Standard* prepared by GeoLogic Associates (1996); the proposed protocol of statistical analysis prepared by Ferriz (1999); and the remedial action feasibility analysis and proposal for corrective action water quality goals prepared by Ferriz (2000).

5. A Corrective Action Plan (CAP) for landfill gas extraction was required by the Regional Board in a letter dated 6 June 2000. Volatile organic compounds (VOCs) have historically been detected in groundwater monitoring wells, however, remediation by groundwater extraction was considered to not be feasible by the Discharger. Therefore, the 6 June 2000 letter required that the Discharger implement landfill gas extraction to reduce the concentrations of gas-phase VOCs in the vadose zone that were significant enough to partition into groundwater and significantly degrade water quality. During a 12 January 2001 meeting, the Regional Board and Discharger agreed to a phased CAP approach that allowed for a site-wide landfill gas investigation to better define the extent of VOCs prior to the design of a long-term gas extraction system.

6. On 19 June 2002, the Discharger submitted the *Landfill Gas Control Corrective Action Plan (CAP), Phase 1 Report of Findings/Phase II Recommendations*, revised from the Discharger's 13 May 2002 report. The report confirmed that landfill gas was migrating outside the waste mass and threatening groundwater quality. The Discharger proposed to install an active landfill gas extraction system to collect and control the landfill gas migration; monitor the perimeter gas probes on a quarterly basis; and submit annual reports. Specific design plans were later submitted by SCS Engineers, the Discharger's consultant, on 24 April 2003. The final design plan was approved by the Regional Board on 5 May 2003. These WDRs reflect the current closed status of the landfill along with associated changes to the monitoring and reporting program for corrective action.

DESCRIPTION OF FACILITY

7. Between 1952 and 1973, the site was operated as a burn dump. In 1973, the Discharger assumed ownership and began municipal landfill operations. From 1973 through 1992, the facility operated primarily as a Class III landfill, using the cut and cover method, and as a liquid waste disposal site.

8. Of the 244-acre site, approximately 157 acres were designed for landfill operation, support operations, and a site entrance. In addition to the disposal area, there are two buffer zones with a combined area of 87 acres.

9. The 24.9-acre OLM was the principal location for disposal of refuse. The OLM was developed across a well defined drainage course at the head of a ravine. That drainage originally included several tributaries converging to French Ravine. Several springs and/or seeps were buried during early development of the landfill.

10. Refuse depth was probably about 80 feet near the center of the OLM in the deepest portion of the ravine. The highest elevation of refuse is approximately 2,300 feet mean sea level (MSL), nearly level with the pre-landfill ridge top to the north. The lowest elevation of refuse is near the eastern base of the OLM, at elevation approximately 2,165 feet MSL. Refuse placed in this area may be in direct contact with groundwater during certain times of the year.

11. In 1972 an embankment was constructed on the east side of the OLM. The embankment spans the original east-flowing drainage over which the 76 Cell was later constructed. The embankment is approximately 850 feet long, 240 feet wide at the base, 15 feet wide at the top, and approximately 100 feet high. Boring logs indicate that the embankment was built in two stages and that portions of the second stage embankment were built on or with refuse. During the fall of 1989, an embankment buttress, approximately 30 feet high and 50 feet wide was constructed. Anderson Geotechnical Consultants designed the buttress to achieve a safety factor of 1.34 under assumed worst-case conditions.

    In 1993, using new information developed by the Discharger for the closure plan, Anderson Geotechnical recalculated the factor of safety (FS) for the embankment. Based on a maximum probable earthquake of 6.0 on an unspecified fault in the Foothills Fault System, a design ground acceleration of 0.17g, and assuming no resonance and highest probable elevation of groundwater, the FS was calculated as 1.8. Theoretical failure would occur at an acceleration of 0.5g, considered unlikely in Nevada County. Other published sources have attributed a possible Richter 6.5 earthquake to the Foothills Fault Zone. The Discharger's consultant, GeoLogic Associates, performed additional static stability analyses and reported static factors of safety larger than 2.2, pseudo-static FS of 1.48, and worst-case dynamic deformations of less than 1 cm (assuming an earthquake similar to the 1952 Kern County earthquake, scaled to a local peak acceleration of 0.5g). This was summarized in the *Request for Waiver of Contingency Plans for Dewatering the Old Landfill Mass* dated 17 May 1996. The waiver was approved by the Regional Board in a letter dated 5 August 1996.

12. Geotechnical investigations have identified leachate mounds in the OLM behind the embankment. The mounds apparently resulted from groundwater inflow into unlined portions of the landfill mass and excessive infiltration through areas having poor intermediate cover. In 1989, five wells were installed within the OLM for measuring liquid levels and if necessary, for dewatering. However, these wells (hereafter leachate wells) became dry shortly after being installed.

13. Most of the flow into the original leachate collection and removal system (LCRS) in the OLM consists of water originating from a buried spring. This water was originally diverted to off-site drainage sources via a buried piping system that daylights near the upstream toe of the embankment. As filling of the waste management unit (WMU) progressed, the spring interceptor was connected to the leachate interceptor and both sources of water were handled as leachate and pumped to the 5.2 MG Class II surface impoundment via the main pump station. The spring appears to be several hundred feet west of the leachate pump station. There is flow from the buried piping system year round. The flow is typically between 5 and 10 gallons per minute (gpm). Water collected from the buttress subdrains also is diverted to the main leachate pump station. According to the 1993 *Site Background and Waste Characterization Reports* prepared by ACG, the Discharger's consultant, there is no record of a construction quality assurance plan or certification report to verify the construction of the LCRS and subdrain.

14. The 1993 *Site Background and Waste Characterization Report* states that there is no evidence of a base liner being constructed beneath the OLM. The Discharger has stated that the 1970 plans for the OLM indicated substantial formations of the clay under the site that were intended to serve as the bottom containment liner for the waste, i.e., that natural geologic materials were to be used.

15. The Winter 89 and Summer 90 cells are, respectively, approximately 6.2 acres and 1.9 acres in area. Both received municipal wastes. The Winter 89 area is next to the OLM and is partially overlain by the Summer 90 cell. Collectively these two areas are called the 89-90 Cell. The Winter 89 cell is unlined. The Summer 90 cell was designed and constructed next to and partially over both the Winter 89 cell and the OLM. According to certification reports filed by EMCON, the Summer 90 cell is compositely lined and includes an LCRS.

16. The 5.1 acre 90-91 cell was excavated west of the OLM, northwest of the 89-90 Cell. According to the engineering reports prepared by EMCON (1990 and 1992), liner components for this cell consist of one foot of compacted clay overlain by a 60-mil high density polyethylene (HDPE) liner and a blanket-type LCRS. The LCRS consists of 12 inches of gravel on the cell floor. The total capacity of this WMU was estimated at approximately 246,000 cubic yards. This capacity was expected to be reached by January 1993, but disposal had ceased before that date.

17. The 90-91 cell was originally sited and designed to provide greater than five feet of separation between wastes and underlying groundwater. During construction, groundwater was encountered 9.5 feet below the base liner. A subdrain was installed along the south toe of the excavation in an attempt to maintain adequate separation and prevent excessive uplift on the base liner. The subdrain is seven feet deep, with the pipe invert at least 6.5 feet below the base of the liner or 10 feet below the refuse. EMCON concluded that the 90-91 Cell was constructed in a manner

consistent with the intent of the "drawings and specifications, and consistent with good construction practices."

18. The Discharger designed and constructed a groundwater extraction system up-gradient from the 90-91 Cell for maintaining adequate separation between wastes and groundwater to ensure compliance with Title 27 and with the 28 February 1991 "Judgement Pursuant to Stipulation", which specified maximum allowable water elevations in adjacent piezometers. Well PW-1 was installed to control groundwater elevations. A contingency plan for maintaining adequate separation of groundwater from wastes was submitted by the Discharger's consultant, Holdrege & Kull, on 15 July 1996 entitled *Contingency Plan for Maintenance of Separation Between 90/91 Cell Base Liner and Groundwater*. The contingency plan was approved by the Regional Board on 5 August 1996. Water pumped from well PW-1 is discharged to surface drainages on site, to the 5.2 MG Class II surface impoundment, used for dust control, and to maintain the fire suppression reservoir. This well often goes dry in the summer months.

19. The Discharger discharges liquids from extraction of uncontaminated groundwater from the dewatering operation at the 90-91 Cell to the facility's south sedimentation basin under a National Pollutant Discharge Elimination System (NPDES) permit. The Discharger also discharges storm water diverted from the surface of the OLM cell, 89-90 Cell, and 90-91 Cell and diversion of waters flowing onto the site from off-site sources under an NPDES permit.

20. The *Final Closure Construction Quality Assurance Report* was prepared by Anderson Consulting Group in October 1998 for the entire landfill (OLM, 89-90 Cell, and 90-91 Cell). The final cover system constructed on less than or equal to 5H:1V (horizontal to vertical) slopes consisted of the following components, from top to bottom:

    - Minimum 6-inch thick top soil layer.
    - Minimum 12-inch-thick vegetative soil layer,
    - Geosynthetic clay liner (GCL) low-permeability layer with a maximum permeability of 1.0×10^{-9} centimeters per second (cm/s), and
    - Minimum 24-inch thick foundation soil layer.

    The final cover system constructed on greater than 5H:1V slopes consisted of the following components, from top to bottom:

    - Minimum 6-inch thick top soil layer,
    - Minimum 6-inch thick vegetative soil layer,
    - Minimum 12-inch thick low permeability layer with a maximum permeability of 1.0×10^{-6} cm/s, and
    - Minimum 24-inch thick foundation layer.

    The *Final Closure Construction Quality Assurance Report* was approved by the Regional Board on 27 August 1999.

21. In August 2002, the Discharger submitted a set of documents entitled *Bidding Documents, Specifications, and Contract Documents for McCourtney Road Landfill Leachate Collection System Expansion Project*. The documents included plans, specifications, and bidding and contract language for the installation of a drainage trench to collect leachate that seeps from the landfill cover along the northwest, north and northeastern perimeters of the OLM (approximately 4,300 linear feet) and eastern perimeter of the 90-91 Cell (approximately 1,500 linear feet). The design and documents were prepared in response to leachate seeps that were identified by the Regional Board during an inspection performed on 8 January 2002. All the Regional Board's comments in a letter dated 13 August 2002 were addressed by the Discharger in a letter dated 30 August 2002, therefore, the project was approved for construction. The project was completed in November 2002.

22. The existing 5.2 MG Class II surface impoundment is used for leachate disposal. Liner components for this impoundment consist of an 80-mil HDPE inner liner underlain by a blanket-type LCRS and four feet of compacted clay. The LCRS consists of a geofabric net on the sidewalls and 5 inches of gravel on the impoundment floor. The impoundment was first operated in 1987.

23. Since December 1989, liquids decanted from the 5.2 MG Class II surface impoundment have been transported to a permitted facility outside of Nevada County. The Discharger proposes to continue disposal of these liquids to the Lake Wildwood plant from November through April each winter season, as long as necessary for leachate management and freeboard control. The treatment plant is capable of receiving up to 150,000 gallons per day of partially treated liquids from the landfill during the November through April period.

24. Significant leakage through the liner system necessitated draining of the 5.2 MG Class II surface impoundment several times during the latter part of 1988. Defective seams in the primary liner were repaired. In June 1989, three surface aerators were installed for odor control and evaporation enhancement. Liquids are now re-circulated between aeration and sedimentation chambers within the impoundment. The LCRS is tested annually.

25. A 1.3 MG Class II surface impoundment adjacent to the 5.2 MG Class II surface impoundment was originally constructed for septage but was used for additional leachate containment. Liner components for this impoundment consist of a 60-mil HDPE inner liner underlain by a blanket-type LCRS, a second HDPE geomembrane, and two feet of compacted clay. The LCRS consists of 12 inches of gravel on the impoundment floor and HDPE drainage netting along the side slopes. The Discharger once used the 1.3 MG pond for secondary or emergency containment of contaminated liquids and leachate, but in 1994, the pond was drained. The pond has been emptied and cleaned and is now used for storage of fire suppression water. The pond will be emptied if necessary to restore it to use for leachate management.

26. Both Class II surface impoundments were constructed over abandoned unlined ponds which once received leachate and septage. Residual waste effects appear to be causing elevated inorganic constituent levels in lysimeter L-6, south of the 5.2 MG surface impoundment. Background soil pore liquid quality standards for these impoundments will be established using lysimeter(s) installed in other areas up-gradient from the landfill, since these standards were not established

prior to discharge to the impoundment. The Discharger has determined that soil types under the various waste management units will not significantly affect background soil pore liquid quality.

27. The McCourtney Road Recycling Facility (MRRF) includes the wood/yard waste diversion area; a recycling area for California deposit containers; a buyback area for limited metals and paper; a processing area for refrigerated appliances; and a temporary hazardous waste storage area. This facility is permitted under the existing permit for the transfer station.

28. The McCourtney Road Transfer Station (MRTS) began receiving municipal solid waste hauled to the site by the public in 1992. This activity continues under a separate permit from the Nevada County Local Enforcement Agency and the California Integrated Waste Management Board (CIWMB). Wastes received at the station are processed under a covered area and then hauled off-site. There is no permitted discharge of wastes to the McCourtney Road landfill site. The facility has a LCRS consisting of a leachate sump and a drain line that pumps wash down water from the MRTS to the 5.2 MG Class II surface impoundment.

WASTES AND UNIT CLASSIFICATION

29. From 1973 through 1993, Class III municipal wastes were discharged to several WMUs on site. When operating, the landfill received an average of 100 tons per day of refuse, 360 days per year. These wastes were classified as "nonhazardous solid waste" using the criteria set forth in Chapter 15. WMUs, all now inactive, that received these wastes are the OLM, the 76 Cell, the 89-90 Cell, and the 90-91 Cell. Filling of the OLM took place randomly between about 1972 and 1989. In addition, in 1986 the OLM also received septage pumped from septage ponds in the Burn Area into a small unlined pond constructed in the northwestern corner of the OLM. The contents of this pond seeped into the OLM.

30. The Discharger also proposed to discharge wastes containing greater than one percent friable asbestos in the Class III units. These wastes were classified as "hazardous" under Title 22 CCR. However, since these wastes were not considered to pose a threat to groundwater, Section 25143.7 of California Health and Safety code permitted their disposal to any landfill that had WDRs specifically permitting this discharge. Although the discharge was permitted under WDR Order No. 91-229, according to the Discharger's *Site Background and Waste Characterization Summary Reports* dated May 1993, the operators never knowingly accepted asbestos-containing wastes at the newer landfill cells. Wastes containing asbestos that were disposed to the OLM were tracked under manifest.

31. Beginning in about 1977, white metal refuse, tires and batteries were deposited on the ground surface in the WMDA, an area about 300 feet by 50 feet just inside the site entrance on the south side of the entry road. The area was used primarily to collect, store and bury scrap metal, household appliances, car parts, bed springs, and other metal wastes. Historically, larger white metal items were sold as scrap or buried with other refuse in the OLM. Smaller materials were buried in the area over a 4 month period in 1989. Geotechnical investigations and investigations of former household hazardous wastes, as reported in two reports dated 1991, found potentially hazardous materials in test trenches dug into the WMDA. As a result of these investigations, the Discharger proposed to exhume the WMDA, remove and characterize the wastes, and dispose of all Class III wastes in the 90-91 Cell and other wastes off-site as appropriate. The excavation

was complete in August 1995, with no hazardous wastes found. Confirmation sampling of the subsoils was performed on 1 September 1995 and final grading was completed in November 1995.

32. The Discharger also excavated the 76 Cell and disposed of its Class III wastes to the 90-91 Cell during the summer of 1995. Hazardous wastes were not found. Confirmation sampling of subsoils beneath the 76 Cell excavation was conducted during August 1995 and final grading was completed in November 1995. The WMDA was then graded to 3:1 slope and constructed to avoid ponding and to control drainage. Both this clean-closure and that of the WMDA were considered corrective actions by regulatory agencies, and the Discharger undertook corrective action monitoring to assess their effects.

33. Until October 1990, septage received at the site was discharged to approximately 18 small unlined ponds constructed on top of a broad east-west trending ridge north and adjacent to the OLM. This area is shown as the OSPA in Attachment B. Wastes received in these ponds were classified as "designated" using the criteria set forth in Chapter 15. Typical wastes discharged included leachate from the LCRS underlying the WMUs, sludge from wastewater treatment plants, septage from local haulers, and chemical toilet wastes from on-site facilities and from local haulers. After October 1990, to comply with the CIWMB's Amended Notice and Order (N&O) No. 89-01 requiring that all contaminated liquids be discharged to lined surface impoundments meeting Chapter 15 requirements, discharge of designated wastes to these ponds ceased. The sludge was removed from these ponds, tested and disposed of in the 90-91 Cell. The ponds were cleaned and decommissioned as approved by involved agencies.

34. After discharge to the old septage ponds ceased, an existing pond, the Microwave Pond in the OSPA, was used as a septage transfer facility. The septage transfer facility was designed as an additional and/or emergency containment facility for contaminated liquids such as leachate; extracted liquids from on-site well and piezometer installations; contaminated runoff; and seepage water. This facility contained a Baker tank in which septage and other liquids were stored before being transported off-site by a licensed hauler for disposal at the Sacramento County Wastewater Treatment Plant. The site ceased receiving septage in 1992 and the Baker tank was removed. The Microwave Pond is no longer used as a waste management unit and has not yet been closed or filled.

35. Leachate from the landfill units and surface impoundments LCRS is discharged to a 5.2 MG Class II surface impoundment, which was constructed in the OSPA. This discharge will continue for as long as leachate remains during the post-closure maintenance period. Leachate is a "designated" waste under the criteria set forth in Title 27. This impoundment also receives septage from the on-site septic tank and condensate from the landfill gas recovery system. A liquids balance report dated 22 March 1996 was submitted to the Regional Board by the Discharger's consultant, Minshew Engineering. The report was approved by the Regional Board in a letter dated 30 April 1996.

36. Solids removed from the Class II surface impoundment and dewatered sewage and water treatment sludge were disposed to the Class III landfill units under WDR Order Nos. 87-189 and 91-229. This disposal ceased in 1992. Since then, these wastes have been transported off-site.

37. Before 1972, wood and yard waste, including stumps and brush, were reportedly burned along with other burnable refuse in the northern third of the landfill site. Residual from the burned wood waste was buried in the landfill. After 1986, stumps were no longer accepted and brush was buried with refuse in the landfill. After Spring 1992, brush and other yard wastes were shredded. Wood waste and heavy brush are sold to cogeneration plants and other commercial users.

SURFACE WATER AND GROUNDWATER CONDITIONS

38. 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.

39. The site receives an average of 52.9 inches of precipitation per year as measured at Grass Valley (Department of Water Resources (DWR) bulletin entitled "Rainfall Depth-Duration-Frequency For California" Revised November 1982, updated August 1996). The mean Class A pan evaporation rate for this site is 46 inches per year as measured at Nevada City between the years 1949 and 1953. Assuming a pan coefficient of 0.8, the average annual net gain is 16.5 inches. Nevada City is approximately eight miles northeast of the site.

40. The 1,000 year, 24-hour precipitation event for the site is estimated to be 10.42 inches. The 100-year, 24-hour precipitation event for the site is estimated to be 8.25 inches based on rainfall data collected from Grass Valley by Department of Water Resources.

41. Drainage from the facility is routed to three sedimentation basins, as shown in Attachment B. The basins and associated sediment control structures were designed and constructed to reduce settleable matter and turbidity levels to appropriate background levels. The former 76 Cell, now closed, became part of the south sedimentation basin system.

42. Discharge from the sediment control structures is to two east-flowing ephemeral streams. Both streams flow into French Ravine, approximately two miles downstream from the site. French Ravine flows year round, receiving tail water from the Nevada Irrigation District's James and Cory ditches throughout most of the year.

43. French Ravine flows southeasterly for approximately two miles before joining Wolf Creek, below the Nevada Irrigation District's Tarr Ditch diversion. Wolf Creek is tributary to the Bear River and Camp Far West Reservoir.

44. The existing beneficial uses of the Bear River are municipal and domestic supply (MUN); agricultural supply (AGR); industrial power (POW); recreation; fresh water habitat (warm and cold); and wildlife habitat. Potential beneficial uses include migration and spawning.

45. The facility is not within a 100-year flood plain as shown by the Flood Insurance Rate Map for Nevada County (Community Parcel No. 060210 0625C, map revision dated 2 July 1987).

46. There are several private ponds within one mile of the site. However, the main surface water body is French Ravine.

47. Groundwater in the region surrounding an underlying the landfill occurs in fractured bedrock and is first encountered at depths ranging from 5 to 80 feet below ground surface. Most groundwater flow is thought to occur in a relatively shallow zone within approximately 250 feet from the surface.

48. Groundwater flow conditions are complex. There is some indication of water table conditions in granular soil media. However, there is also indication of confined and/or semi-confined conditions within certain areas, suggesting that groundwater movement is somewhat fracture-controlled. Complications such as considerable lateral transmissivity variations, steep vertical gradients in certain well pair(s), sudden rises in water elevations following periods of precipitation, and the possibility of one or more groundwater divides have been interpreted on-site. The Discharger's consultants have suggested that an important groundwater divide may extend across the northern part of the OLM.

49. Groundwater appears to flow across the site in one dominant direction, generally to the east at a gradient of approximately 0.08 feet per foot. Topography exercises a strong local influence on the water table, as the water surface generally slopes away from pre-landfill topographic highs toward valleys.

50. Water level data obtained from well pairs MW-4 and MW-4A and MW-6 and MW-6A indicate a downward vertical hydraulic gradient within the weathered bedrock zone.

51. Groundwater elevations vary from approximately 2,250 feet MSL near the southwest boundary to approximately 2,080 feet MSL at the easternmost end of the site. Seasonal groundwater fluctuations in existing monitoring wells range between 5 and 20 feet and are generally higher near the steep cut slope south of the landfill. The highest and lowest water level elevations are reached in the spring and late fall, respectively.

52. There are several springs and seeps within the permitted site boundary. These include the fracture springs in the vicinity of monitoring wells MW-4 and MW-4A, ephemeral seeps near the toe of the embankment, a buried perennial stream several hundred feet west of the embankment heel, and several buried springs or seeps near the southern edge of the existing landfill mass. There are also several springs on the Lausche property, adjacent to the northeastern corner of the permitted solid waste facility boundary. The combined year round flow from these springs varies between 5 and 25 gpm. These springs are down-gradient from the abandoned septage ponds. Inorganic constituent levels in these springs are similar to those found in monitoring wells MW-1 and MW-4A.

53. There are approximately 50 wells within a one-mile radius of the site that are used for domestic purposes. Adjacent private wells are reportedly screened between 150 and 300 feet below ground surface. Water yields for these wells are generally less than 18 gpm. The Hidden Valley subdivision, on the southern side of the site, depends on water wells for domestic supply.

54. The beneficial uses of the groundwater are municipal and domestic water supply (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial process supply (PRO).

GEOLOGY

55. The site is in the Sierra Nevada Western metamorphic belt. This region is characterized by structurally-controlled northwest-southeast trending ridges that are formed by steeply tilted metamorphosed sedimentary and igneous rocks.

56. The site is within the Bear Mountain-Melones Fault Zone. Faults near the site include the Swain Ravine Fault, about 12 miles west of the site, the Wolf Creek fault, about 0.5 mile east, and another unnamed northeast-trending fault that has recently been mapped by state geologists approximately one-half mile west. The north-trending Melones fault is approximately 17 miles east.

57. There is some evidence of additional on-site faults based on excavation activities near MW-10 and MW-11. At least two wide shear zones also transect the site. A wide shear zone trending N20E passes through the northeastern corner of the site. This shear zone is exposed southwest of the south sedimentation basin. Another shear zone trending N30W has been exposed from the cut slopes near the southern end of the landfill. Excavation of the 76 Cell revealed a 50-foot wide zone of soft talc-schist and clay parallel to a shear zone crossing the cell.

58. Major geologic units observed on-site include colluvium, alluvium, diabase, basic intrusives, amphibolite and amphibolite gneiss, and serpentine. All of these sheared, deformed, and jointed. Exposed materials are generally weak (crumbly) talc-schist and highly weathered serpentine with erratically distributed zones of yellow clay.

59. Site soils overlying the colluvium and alluvium are thin, eroded, and are generally classified as the Aiken stony clay loam. Underlying the colluvium and alluvium is a zone between 10 and 105 feet thick consisting of highly weathered and fractured rocks. Groundwater occurs within this zone. Below this weathered zone is slightly weathered to faintly fractured rock. This zone is typically greater than 30 feet thick. The lowermost zone consists of bedrock wherein permeability pathways are fracture-controlled. Fractures tend to close with increasing depth.

60. Surface exposures from excavation activities south and west of the existing landfill mass are highly fractured. Fractures occur in various orientations with general trends from N70W to N10E and from N60E to N80E. The fractures are generally steeply dipping with most fractures being oriented near vertical.

61. Land within 1,000 feet of the site is used for agriculture and rural housing. There is an abandoned burn dump previously operated by Grass Valley Disposal approximately one mile southwest of the site.

GROUNDWATER MONITORING

62. Volatile Organic Compounds (VOCs) and elevated inorganic water quality parameters have been found in monitoring wells at the facility since monitoring began in 1987. The Discharger undertook an investigation to characterize the nature and extent of the release and reported it in an *Amended Report of Waste Discharge* dated 26 August 1996, prepared by GeoLogic Associates. The Discharger has implemented corrective action measures including final closure

of the landfill, clean closure of the former 76 cell and white metals area, and clean closure of the former septage pond areas north of the OLM. Monitoring and Reporting Program 96-027 was revised in 2000 to reflect the changes as described in Finding 4.

63. Quarterly monitoring data since 1996 continue to show detections of VOCs in groundwater monitoring wells located to the north, east and south of the landfill. For example, during the fourth quarter 1999 monitoring event, carbon tetrachloride was detected in monitoring well MW-20A at 2.7 µg/L which exceeds the California Primary Drinking Water Maximum Contaminant Level (MCL) of 0.5 µg/L. Since closure of the landfill, VOC concentrations have also increased in well PZ-105 located near the southeastern edge of the 90-91 Cell.

64. VOCs have also been detected in private domestic wells located down-gradient to side-gradient of the landfill since 1993. Several of the impacted wells are located within 1,000 feet of the landfill and all of the owners are supplied with bottled drinking water by the Discharger.

65. On 22 February 2000, the Discharger's consultant, HF Geologic Engineering, submitted a report entitled *Assessment of Technical Feasibility of Direct Remediation of VOC Contamination* which discussed the feasibility of direct remediation of volatile organic compounds (VOCs) by groundwater extraction. The feasibility report described the costs and constraints associated with groundwater extraction but did not address the feasibility of implementing landfill gas extraction measures to decrease or eliminate the source of VOCs in the vadose zone.

66. On 24 April 2000, a representative from the CIWMB collected landfill gas samples from piezometers PZ-100 and PZ-101, lysimeter 2, and the flare inlet. The samples were analyzed for VOCs, oxygen, nitrogen, methane and carbon dioxide. Samples from PZ-100 and PZ-101 contained 29% and 39% methane by volume, respectively, and elevated concentrations of VOCs. For example, vinyl chloride and cis-1,2-dichloroethene were detected in piezometer PZ-101 at concentration of 1,960 parts per billion by volume (ppbv) and 202 ppbv, respectively. As such, the presence of low level VOCs in groundwater may, in part, be attributable to gas phase VOCs partitioning into groundwater.

67. In a letter dated 6 June 2000, the Regional Board required additional corrective action measures to reduce the concentrations of VOCs and methane in the vadose zone by landfill gas extraction. The concentrations of VOCs detected in the gas phase were high enough to partition into groundwater and significantly degrade water quality. Therefore, by removing the landfill gas may significantly reduce VOC concentrations in groundwater.

68. The Discharger submitted their initial proposal CAP on 31 August 2000. In a letter dated 4 October 2000, the Regional Board stated that the proposed monitoring probes would monitor a relatively small area between the old unlined landfill and the 90-91 Cell and not landfill gas trapped underneath the landfill cap. The Regional Board requested a revised CAP describing the proposed design, spacing and installation of a site-wide landfill gas extraction system. During a 12 January 2001 meeting, the Regional Board and Discharger agreed to a phased CAP approach that allowed for a site-wide landfill gas investigation to better define the extent of VOCs in landfill gas prior to the design of a long-term gas extraction system. The revised CAP consisted of two phases. Phase 1 included an evaluation of the possible sources of the landfill gas and migration pathways and the implementation of temporary controls to remove landfill gas from

piezometers (PZ-100, PZ-101, PZ-102, and PZ-116) that contain VOCs and elevated methane concentrations. The evaluation of possible sources of landfill gas included the installation of twelve (12) landfill gas monitoring probes around the limits of the old unlined landfill and the 89-90 and 90-91 Cells and the installation of six extraction probes within the landfill waste. Phase 2 included the design of a long-term gas extraction system based on the findings of Phase 1. A conditional approval letter was released by the Regional Board for this work on 19 March 2001.

69. On 19 June 2002, the Discharger submitted the *Landfill Gas Control Corrective Action Plan (CAP), Phase 1 Report of Findings/Phase II Recommendations*, revised from the 13 May 2002 report. The report confirmed that landfill gas was migrating outside the waste mass and threatening groundwater quality. The Discharger proposed to install an active landfill gas extraction system to collect and control the landfill gas migration; monitor the perimeter gas probes on a quarterly basis; and submit annual reports. Specific design plans were later submitted by SCS Engineers on 24 April 2003. The final design plan was approved by the Regional Board on 5 May 2003. These WDRs include a revised Monitoring and Reporting Program that reflect the new landfill gas monitoring probes and changes to the corrective action program to include landfill gas monitoring.

CEQA AND OTHER CONSIDERATIONS

70. This action to revise WDRs for this facility is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.), in accordance with Title 14, CCR, Section 15301.

71. On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated regulation (Title 40, Code of Federal Regulations, Parts 257 and 258, "federal municipal solid waste (MSW) regulations" or "Subtitle D") that apply, in California, to dischargers who own or operate Class II or Class III landfill units at which municipal solid waste (MSWLF) is discharged. The majority of the federal MSW regulations became effective on the "Federal Deadline", which is 9 October 1993.

72. This order implements:

    a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*;

    b. The prescriptive standards and performance goals of Chapters 1 through 7, Subdivision 1, Division 2, Title 27, of the California Code of Regulations, effective 18 July 1997, and subsequent revisions;

    c. The prescriptive standards and performance criteria of RCRA Subtitle D, Part 258; and

    d. State Water Resources Control Board Resolution No. 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993.

73. Section 13267(b) of California Water Code provides that: "In conducting an investigation specified in subdivision (a), the Board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of discharging, or who proposed to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. The monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program Order No. R5-2004-0022 are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

PROCEDURAL REQUIREMENTS

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

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 96-027 is rescinded, and that the County of Nevada, Department of Transportation and Sanitation, and 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 any waste at this site is prohibited.

2. The discharge of "hazardous wastes" at this site is prohibited. The discharge of "designated wastes" at this facility is prohibited, except for the discharge of leachate from the landfill unit and surface impoundment LCRS, septage, and chemical toilet waste, to the Class II surface impoundments. For the purposes of this Order, the term "hazardous waste" is as defined in Title 23, California Code of Regulations, Section 2510 et seq., and "designated waste" is as defined in Title 27 CCR.

3. The discharge shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the Unit if such waste constituents could migrate to waters of the State — in either the liquid or the gaseous phase — and cause a condition of nuisance, degradation, contamination, or pollution.

4. The discharge shall not cause the release of pollutants, or waste constituents in a manner which could cause a condition of nuisance, degradation, contamination, or pollution of groundwater to occur, as indicated by the most appropriate statistical or non-statistical data analysis method and retest method listed in this Order, the Monitoring and Reporting Program, or the Standard Provisions and Reporting Requirements.

5. The ponding of any liquid on any landfill module is prohibited.

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

7. The discharge of groundwater, storm water, or wastewater to surface water or any surface water drainage courses is prohibited without an NPDES permit authorizing the discharge.

8. The discharge of waste within 100 feet of surface waters is prohibited.

B. FACILITY SPECIFICATIONS

General Specifications

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

2. The Discharger shall immediately notify the Regional Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions

which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.

3. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.

4. All wells within 500 feet of a waste management unit shall be sealed or abandoned to the satisfaction of the Nevada County Department of Environmental Health. A record of the sealing and/or abandonment of such wells shall be sent to the Regional Board and to the State Department of Water Resources.

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

6. A minimum separation of 5 feet shall be maintained between wastes or leachate and the highest anticipated elevation of underlying groundwater including the capillary fringe.

Protection from Storm Events

7. Precipitation and drainage control systems shall be designed, constructed and maintained to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 100-year, 24-hour precipitation conditions.

8. Precipitation and drainage control system for Class II surface impoundments shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 1,000-year, 24-hour precipitation conditions.

9. Closed landfill units shall be maintained to promote runoff and to prevent ponding.

10. Surface drainage from on-site and off-site tributary areas and internal site drainage from surface or subsurface sources shall not contact or percolate through wastes.

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

12. The Discharger shall maintain a *Storm Water Pollution Prevention Plan* and *Monitoring Program and Reporting Requirements* in accordance with State Water Resources Control Board Order No. 97-03-DWG, NPDES No. CAS000001 or retain all storm water on-site.

Landfill Specifications

13. Methane and other landfill gases shall be adequately vented, removed from the landfill units, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, or the

impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.

14. Condensate from the landfill gas collection system shall be discharged to the 5.2 MG Class II surface impoundment, or other appropriate storage device, prior to disposal to approved off-site facilities capable of receiving these wastes. An alternative disposal method may be used if approved by the Regional Board.

15. Landfill leachate shall be discharged to the 5.2 MG Class II surface impoundment prior to disposal to approved off-site facilities capable of receiving these wastes.

16. Leachate generation from any WMU shall not exceed 85% of the LCRS design capacity or the sump pump(s) capacity, whichever is lower. If leachate generation exceeds the minimum needed for efficient pump operation, then the Discharger shall notify the Regional Board in writing within seven (7) days. Notification shall include a time table for corrective action necessary to reduce leachate generation.

17. LCRS shall be designed, constructed, and maintained to collect twice the anticipated daily volume of leachate generated by the WMU and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of fluid in any LCRS sump shall be kept at or below six (6) inches, or the minimum needed to ensure efficient pump operation.

18. Vegetation shall be planted and maintained over each closed landfill unit. Vegetation shall be selected to require a minimum of irrigation and maintenance and shall have a rooting depth not in excess of the vegetative layer thickness.

19. Closed landfill units shall be graded to at least a three percent (3%) slope and maintained to prevent ponding.

20. Areas with slopes greater than ten percent (10%), surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion.

21. Repair of existing closure construction must, at a minimum, comply with the existing approved *Final Closure Plan* and construction quality assurance plans and specifications.

Surface Impoundment Specifications

22. The Class II surface impoundments shall have a composite liner system consisting, at a minimum, of a 60-mil minimum thickness HDPE underlain by a gravel blanket-type LCRS and two feet of clay material compacted to a maximum hydraulic conductivity of 1×10^{-6} cm/s.

23. The surface impoundments shall be operated to maintain a freeboard of 2.87 feet (2 feet plus the 1,000 year, 24 hour storm event) incorporating, at a minimum, the design criteria specified in Title 27.

24. Any direct-line discharge to a surface impoundment shall have a fail-safe equipment or operating procedures to prevent overfilling.

25. The surface impoundment shall be maintained to prevent scouring and/or erosion of the liner(s) and other containment features at the point of discharge the impoundments and by wave action at the waterline.

26. Leachate removed from a surface impoundment LCRS shall be discharged to the impoundment from which it originated.

27. Leachate generation from any surface impoundment shall not exceed 85% of the LCRS design capacity or the sump pump(s) capacity, whichever is lower. If leachate generation exceeds the minimum needed for efficient pump operation, then the Discharger shall notify the Regional Board in writing within seven (7) days. Notification shall include a time table for remedial action to repair the upper liner of the impoundment or other action to reduce leachate production.

28. Solids which accumulate in the surface impoundments shall be periodically removed to maintain minimum freeboard requirements and to maintain sufficient capacity for landfill and surface impoundment leachate and for the discharge of wastes. Prior to removal of these solids, sufficient samples shall be taken for the characterization and classification pursuant to Article 2 of Title 27. The solids shall be discharged to appropriate landfill units off-site.

29. At closure, the surface impoundment shall be closed in accordance with Title 27 CCR Section 21400.

C. DETECTION MONITORING SPECIFICATIONS

1. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, and in accordance with Monitoring and Reporting Program No. R5-2004-0022.

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

3. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, Monitoring and Reporting Program No. R5-2004-0022, and the Standard Provisions and Reporting Requirements, dated August 1997.

4. The Water Quality Protection Standard for organic compounds which are not naturally occurring and not detected in background groundwater samples shall be taken as the detection

limit of the analytical method used (i.e., US-EPA methods 8260 and 8270). The 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.

5. The concentrations of the constituents of concern in waters passing the Point of Compliance shall not exceed the concentration limits established pursuant to Monitoring and Reporting Program No. R5-2004-0022.

6. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the Water Quality Protection Standard using procedures specified in Monitoring and Reporting Program No.R5-2004-0022 and Title 27 CCR Section 20415(e).

7. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless the Executive Officer approves a longer time period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) Methods for the Analysis of Organics in Water and Wastewater (USEPA 600 Series), (2) Test Methods for Evaluating Solid Waste (SW-846, latest edition), and (3) Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan.

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

9. 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.

10. **"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.

11. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.

12. 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.

13. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.

14. 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.

15. The statistical method shall account for data below the PQL with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Title 27 CCR Section 20415(e)(7) that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs for routine laboratory operating conditions that are available to the facility. The Discharger's technical report, pursuant to Title 27 CCR Section 20415(e)(7), shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, CCR, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or down-gradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or nonstatistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".

16. Background for water samples or soil-pore gas samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point). The Discharger may propose an alternate statistical method [to the methods listed under Title 27 CCR Section 20415(e)(8)(A-

D)] in accordance with Title 27 CCR Section 20415(e)(8)(E), for review and approval by the Executive Officer.

17. 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 [or, for a retest, provides measurably significant evidence] 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 analyte that equals or exceeds its PQL.

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

        1) In the event that the Discharger concludes (pursuant to paragraph 17.a., above) that there is a preliminary indication of a release, then the Discharger shall immediately notify Regional Board staff by phone or e-mail and, within 30 days of such indication, shall collect **two** new (retest) samples from the monitoring point where the release is preliminarily indicated.

        2) For any given retest sample, the Discharger shall include, in the retest analysis, only the laboratory analytical results for those analytes detected in the original sample. As soon as the retest data are available, the Discharger shall apply the same test [under 17.a.], to separately analyze each of the two suites of retest data at the monitoring point where the release is preliminarily indicated.

        3) If either (or both) of the retest samples trips either (or both) of the triggers under 17.a., then the Discharger shall conclude that there is measurably significant evidence of a release at that monitoring point for the analyte(s) indicated in the validating retest sample(s) and shall:

            a) **Immediately** notify the Regional Board about the constituent 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 18, below.

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

18. If the Discharger determines that there is measurably significant evidence of a release from the Unit at any monitoring point, the Discharger shall **immediately** implement the requirements of **Response To A Release**, contained in the Standard Provisions and Reporting Requirements.

D. REPORTING REQUIREMENTS

1. The Discharger shall comply with the reporting requirements specified in this Order, in Monitoring and Reporting Program Order No. R5-2004-0022 and in the Standard Provisions and Reporting Requirements dated August 1997.

2. The Discharger shall submit a report on the effectiveness of the corrective action program in accordance with Title 27 CCR Section 20430(h) to the Regional Board **semi-annually**. This report may be included in the Semi-Annual Monitoring Report submitted under Monitoring and Reporting Program No. R5-2004-0022.

3. Annually, prior to the anticipated rainy season, but no later than **15 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess damage to the drainage control system and groundwater monitoring equipment (including wells, etc.). By **1 October of each year**, the Discharger shall submit to the Regional Board the Inspection Report describing measures planned to prepare the site for the wet season. Any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the facility and to prevent surface drainage from contacting or percolating through wastes by **15 November**.

4. The Discharger shall submit a status report regarding the financial assurances for corrective action and post-closure maintenance **annually** after the date of adoption of these requirements that either validates the ongoing viability of the financial instrument or proposes and substantiates any needed changes.

5. 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 D.6 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.

6. 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;

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

      3) 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

      4) 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."

E. 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 CCR and 40 Code of Federal Regulations Part 258 (Subtitle D) that are not specifically referred to in this Order.

3. The Discharger shall comply with Monitoring and Reporting Program No. R5-2004-0022, which is incorporated into and made part of this Order.

4. The Discharger shall comply with the *Standard Provisions and Reporting Requirements for Title 27 (27 CCR 20005, et seq.) and Part 258 (40 CFR 258)*, dated August 1997, which are hereby incorporated into this Order.

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

6. The Discharger shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and post-closure maintenance period of the Unit(s) as long as the wastes pose a threat to water quality.

7. 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.

8. The Regional Board will review this Order periodically and may revise requirements when necessary.

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 30 January 2004.

Original signed by

_____

THOMAS R. PINKOS, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2004-0022

MONITORING AND REPORTING PROGRAM FOR COUNTY OF NEVADA DEPARTMENT OF TRANSPORTATION AND SANITATION MCCOURTNEY ROAD LANDFILL CLASS II SURFACE IMPOUNDMENTS AND CLOSED CLASS III LANDFILL POST-CLOSURE MAINTENANCE AND CORRECTIVE ACTION NEVADA COUNTY

The County of Nevada, Department of Transportation and Sanitation (Discharger) shall maintain water quality monitoring systems that are appropriate for detection monitoring and corrective action and that comply with the provisions of Title 27, California Code of Regulations (CCR), Division 2, Subdivision 1, Chapter 3, Subchapter 3.

Monitoring data indicated a release from the landfill. A Corrective Action Plan (CAP) for landfill gas extraction was required by the Regional Water Quality Control Board (Regional Board) in a letter dated 6 June 2000. The letter required that the CAP be designed to reduce the concentrations of volatile organic compounds (VOCs) and methane in the vadose zone that were significant enough to partition into groundwater and significantly degrade water quality. During a 12 January 2001 meeting, the Regional Board and Discharger agreed to a phased CAP approach that allowed for a site-wide landfill gas investigation to better define the extent of VOCs prior to the design of a long-term gas extraction system. On 19 June 2002, the Discharger submitted the *Landfill Gas Control Corrective Action Plan (CAP), Phase 1 Report of Findings/Phase II Recommendations*, revised from the 13 May 2002 report. The report confirmed that landfill gas was migrating outside the waste mass and threatening groundwater quality. The Discharger proposed to install an active landfill gas extraction system to collect and control the landfill gas migration; monitor the perimeter gas probes on a quarterly basis; and submit annual reports. Specific design plans were later submitted by SCS Engineers on 24 April 2003. The final design plan was approved by the Regional Board on 5 May 2003. Changes to the system and associated monitoring are included in this revised Monitoring and Reporting Program.

Compliance with this Monitoring and Reporting Program, with Title 27 CCR, Section 20005, et seq. (hereafter Title 27), and with the *Standard Provisions and Reporting Requirements for Title 27 (27 CCR §20005, et seq.) and Part 258 (40 CFR 258)*, dated August 1997, is ordered by Waste Discharge Requirements (WDRs) Order No. R5-2004-0022. Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements, constitutes non-compliance with the WDRs and with the California Water Code, which can result in the imposition of civil monetary liability.

A. REQUIRED MONITORING PROGRAMS

1.	Groundwater Monitoring (Section D.1)	**See Table I**
2.	Unsaturated Zone Monitoring (Section D.2)	**See Table II**
3.	Leachate Monitoring (Section D.3)	**See Table III**
4.	Surface Water Monitoring (Section D.4)	**See Table IV**
5.	Landfill Gas Monitoring (Section D.6)	**See Table V**
6.	Class II Surface Impoundment (Section D.7)	**See Table VI**
7.	90-90 Cell Subdrain Monitoring (Section D.8)	**Monthly**
8.	Standard Observations (Section D.9.c)	**Weekly**
9.	Facility Monitoring (Section D.9)	**As necessary**
10.	Response to a Release (Standard Provisions and Reporting Requirements)	**As necessary**

B. REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in Order No. R5-2004-0022 and the Standard Provisions and Reporting Requirements, August 1997. Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the WDRs Order No. R5-2004-0022.

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, the units, method detection limits, practical quantitation limits and concentration limits are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with WDRs or the lack thereof. Data shall also be submitted in a digital format acceptable to the Executive Officer.

Each monitoring report shall include a **Compliance Evaluation Summary** as specified in the Standard Provisions and Reporting Requirements, August 1997. As part of the summary, the Discharger shall report the effectiveness of the corrective action program in accordance with Title 27 CCR Section 20430(h).

Field and laboratory tests shall be reported in each monitoring report. Monthly, quarterly, semiannual, and annual monitoring reports shall be submitted to the Regional Board in

accordance with the following schedule for the calendar period in which samples were taken or observations made.

Sampling Frequency	Reporting Frequency	Reporting Periods End	Report Date Due
Monthly	Quarterly	Last Day of Month	**by Semiannual Schedule**
Quarterly	Quarterly	31 March	**by Semiannual Schedule**
		30 June	**by Semiannual Schedule**
		30 September	**by Semiannual Schedule**
		31 December	**by Semiannual Schedule**
Semiannually	Semiannually	30 June	**31 July**
		31 December	**31 January**
Annually	Annually	31 December	**31 January**

The Discharger shall submit an **Annual Monitoring Summary Report** to the Regional Board covering the previous monitoring year. The annual report shall contain the information specified under *Reports to be Filed with the Board*, Item 4 in the Standard Provisions and Reporting Requirements, August 1997, and a discussion of compliance with the WDRs and the Water Quality Protection Standard.

The results of **all monitoring** conducted at the site shall be reported to the Regional Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

1. Water Quality Protection Standard Report

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

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

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

Water Quality Protection Standard.

2. Constituents of Concern

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

The last 5-year COC monitoring event was conducted during the **fourth quarter of 2001**; therefore, the next COC event is scheduled to take place in the **fourth quarter of the year 2006**.

a**. Monitoring Parameters**

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

3. Concentration Limits

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

i. By calculation in accordance with a statistical method pursuant to Title 27 CCR Section 20415; or

ii. By an alternate statistical method acceptable to the Executive Officer in accordance with Title 27 CCR Section 20415.

1. Groundwater - With the exception of VOCs (for which a non-statistical method is used to determine concentration limits), the concentration limits for groundwater monitoring shall be based on a statistical evaluation of monitoring data. The Discharger's consultant, HF Geologic Engineering, submitted a report entitled *Design of the Protocol of Statistical Analysis Task 3 Report* dated 15 December 1999. In a letter dated 10 February 2000, the Regional Board approved the use of intrawell analysis for corrective action wells. The detection monitoring wells shall be evaluated using interwell analysis.

2. Unsaturated Zone – With the exception of VOCs (for which a non-statistical method is used to determine concentration limits), the concentration limits for field parameters and monitoring parameters in the unsaturated zone shall be based on statistical evaluation of historical monitoring data for each monitoring point, as

proposed by the Discharger. These concentration limits shall be updated semi-annually and included in each monitoring report.

3. Surface Water - With the exception of VOCs (for which a non-statistical method is used to determine concentration limits), the concentration limits for surface water monitoring shall be based on historical water quality data at each upstream monitoring point, but shall take into consideration seasonality.

4. Point of Compliance

The point of compliance for the water standard at each Unit or portion of a Unit is a vertical surface located at the hydraulically down-gradient limit of the Unit that extends through the uppermost aquifer underlying the Unit. All point of compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard.

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 post-closure period. The monitoring program shall continue throughout the post-closure maintenance period and shall extend as long as the wastes pose a threat to water quality.

D. MONITORING

The Discharger shall comply with the detection and corrective action monitoring program provisions of Title 27 CCR for groundwater, surface water, and the unsaturated zone, in accordance with Detection Monitoring Specification C.1 of WDRs Order No. R5-2004-0022.

All point of compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard. All detection and corrective action groundwater monitoring wells, unsaturated zone monitoring devices, landfill gas, leachate, and surface water monitoring points shall be sampled and analyzed for monitoring parameters and COCs as indicated and listed in Tables I through VI.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those which cannot be quantified and/or specifically identified. Metals shall be analyzed in accordance with the methods listed in Table VII.

The Discharger may, with the approval of the Executive Officer, use alternative analytical test methods, including new United States Environmental Protection Agency's (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.

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

1. Groundwater

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with the applicable provisions of Title 27 CCR Sections 20415 and 20420 in accordance with a 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 monitoring network shall consist of background monitoring wells MW-19, DW-2 and PZ-115; detection monitoring wells MW-3 and MW-9; and corrective action monitoring wells DW-1, MW-A, MW-2, MW-4, MW-4A, MW-5, MW-6, MW-6A, MW-11, MW-13, MW-14, MW-16, MW-17, MW-20A, MW-20B, MW-22, and PZ-105. Monitoring wells MW-7, MW-8, MW-10, MW-12, MW-15, and MW-21 have been abandoned or were never constructed. Piezometers MW-1, MW-18, PZ-100, PZ-101, PZ-102, PZ-103, PZ-104, PZ-107, PZ-109, PZ-110, PZ-111, PZ-112, PZ-113, PZ-114, and PZ-116 are monitored for groundwater elevation only. The current groundwater monitoring program is shown in Attachment C.

In addition, VOCs and other probable leachate indicators have been detected in several off-site domestic wells located southeast of the facility on Wolf Mountain Road and Hidden Valley Road. Therefore, at minimum, the following listed domestic wells shall be sampled on a semi-annual basis as part of the Corrective Action Monitoring Program in order to monitor the status of the contaminant plume:

Wolf Mountain Road:	Hidden Valley Road:
25-130-39 (lot 15431)	53-280-14 (lot 13585)
25-130-40 (lot 15483)	
25-140-14 (lot 15552)	
25-140-32 (lot 15719)	
25-140-33 (lot 15779)	
25-140-39 (lot 15543)	
25-140-40 (lot 15605)	
25-140-41 (lot 15653)	

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

The Discharger shall determine the separation of groundwater from the lowest point of each unit and/or module.

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

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

2. Unsaturated Zone Monitoring

The Discharger shall operate and maintain an unsaturated zone detection monitoring system that complies with the applicable provisions of Title 27 CCR Sections 20415 and 20420 in accordance with a detection monitoring plan approved by the Executive Officer. The Discharger shall collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in the approved Sample Collection and Analysis Plan.

Unsaturated zone samples shall be collected from the monitoring devices of the approved unsaturated zone monitoring system (Attachment C). The monitoring network shall consist of background lysimeter L-1 and the following detection monitoring lysimeters. Located adjacent to or beneath the 5.2 MG surface impoundment are L-2, L-3, L-5 through L-15, and L-17 through L-19. Located near the 89-90 Cell are LV-1 through LV-4. LV-13 is located below the sump of the 1.3 MG surface impoundment. LV-14 is located between the 1.3 and 5.2 MG surface impoundments. LY-1 is located directly south of PS-1. LY-2 and LY-4 are located at the south and north central toe of the landfill embankment, respectively. And LY-3 is located directly west of DW-1. The following lysimeters are nonfunctional and were abandoned: L-16 and LV-5 through LV-12.

The collected samples shall be analyzed for the listed constituents in accordance with the frequency specified in Table II and methods specified in Table VII. All monitoring parameters shall be graphed so as to show historical trends at each monitoring point. .

Unsaturated zone monitoring reports shall be included with the corresponding semi-annual groundwater monitoring and shall include an evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

3. Leachate Monitoring

All unit leachate collection and removal system (LCRS) sumps shall be inspected monthly for leachate generation. Upon detection of leachate in a previously dry LCRS, leachate shall be sampled **immediately** and analyzed for the constituents listed in Table III. Leachate shall then be sample and analyzed annually during the fourth quarter thereafter, with a retest during the following second quarter if constituents are detected that have not been previously detected. Leachate samples shall be collected and analyzed for the listed constituents in accordance with the frequency specified in Table III and methods specified in Table VII. The quantity of leachate pumped from each sump shall be measured and reported monthly as Leachate Flow Rate (in gallons).

The two LCRS sumps (PS-1 for the Old Landfill Mass and PS-2 for the 90-91 Cell) produce leachate on a regular basis. Samples from PS-1 shall be obtained from the hose bib off of the pump line to the Class II surface impoundment. PS-2 does not have a sampling port at the pump station, so samples shall be obtained from the outlet pipe where leachate discharges to the Class II surface impoundment. Results shall be included in the corresponding semi-annual reports.

The Discharger shall monitor liquid levels in the five leachate level monitoring wells installed near the landfill embankment (EW-1 through EW-5) monthly during the period 15 December through 15 April, once in June and once in September. All water level data for these wells shall be reported in the respective semi-annual monitoring reports.

Leachate which seeps to the surface from the Unit shall be sampled an analyzed for the constituents listed in Table III upon detection and recorded in Standard Observations. The quantity of leachate shall be estimated and reported as Leachate Flow Rate (in gallons/day). Notification and repairs shall be made in accordance with the Standard Provisions and Reporting Requirements.

4. Surface Water Monitoring

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

For all monitoring points assigned to surface water detection monitoring, samples shall be collected and analyzed for the monitoring parameters in accordance with the frequency specified in Table IV and methods specified in Table VII. The surface water monitoring points shall consist of background monitoring point SW-105 and discharge points SW-101 through SW-104.

All monitoring parameters shall be graphed so as to show historical trends at each sample location.

Surface water samples shall also be collected when leachate seeps are observed that may have impacted surface water quality. If leachate seeps are identified extending out of the disposal area or that potentially impact on-site drainages, those drainages shall be sampled as close to the leachate as possible.

5. Storm Water Monitoring

Storm water monitoring shall be conducted in accordance with the NPDES General Permit for Storm Water Discharges Associated with Industrial Activities (Water Quality Order No. 97-03-DWG, NPDES No. CAS000001). The Discharger shall submit a copy of the storm water Annual Report with the first semi-annual monitoring report for each year submitted under this program.

6. Landfill Gas Monitoring

Landfill gas samples shall be also collected from all landfill gas monitoring probes shown in Attachment D to evaluate the effectiveness of the landfill gas extraction system as a corrective action measure. Probes will be monitored for all constituents specified in Table V. Results shall be evaluated and reported semi-annually.

Landfill gas monitoring probes include OP-1 through OP-12; PZ-100 through PZ-102; PZ-105; PZ-113; and PZ-116.

If the photoionization detector indicates the presence of organic vapors in a monitoring probe or pan lysimeter, then a gas sample shall be obtained and analyzed for VOCs using EPA Method TO-15. All monitoring parameters shall be graphed so as to show historical trends at each sample location.

7. Class II Surface Impoundment Monitoring

The Discharger shall monitor all wastes discharged to the Class II surface impoundment in accordance with the methods and frequency specified in Table VI. The Discharger shall report on a semi-annual basis the type and quantity of all chemicals added to the surface impoundment for enhancing settling or for odor control purposes. The depth and location of where the sample was taken shall be specified.

All visible portions of the synthetic liner of the Class II surface impoundment shall be inspected monthly and their condition reported semi-annually to the Regional Board.

The 5.2 MG Class II surface impoundment LCRS shall be tested annually to demonstrate operation in conformance with WDRs. The results of these annual tests shall be reported to the Regional Board by **31 January** and shall include comparisons with earlier tests made under similar conditions. The LCRS monitoring results shall be incorporated into the second semi-annual/annual monitoring report.

8. 90-91 Cell Subdrain Monitoring

The groundwater subdrain constructed below the 90-91 Cell base liner empties into a closed sump from which an automated pump conveys the collected water directly to the Class II surface impoundment. The pump has a flow meter, which is checked on a monthly basis to see if the pump has been activated. The subdrain has not collected liquid since it was constructed, and the pump has never been activated by collected leachate since its construction. The Discharger shall continue the monthly check of the flow meter, and maintain records of the flow rate (if any).

9. Facility Monitoring

a. Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **15 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess damage to the drainage control system and groundwater monitoring equipment (including wells, etc.). By **1 October of each year**, the Discharger shall submit to the Regional Board the Inspection Report describing measures planned to prepare the site for the wet season.

Any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the facility and to prevent surface drainage from contacting or percolating through wastes by **15 November**.

b. Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following *major storm events*. Necessary interim repairs shall be completed **within 10 days** of the inspection and permanent repairs shall be completed when feasible. 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.

c. Standard Observations

Each monitoring report shall include a summary and certification of completion of all Standard Observations for the waste management unit, for the perimeter of the landfill module, and for the receiving waters. The standard observations shall be performed on a weekly basis and shall include those elements identified in the Standard Provisions and Reporting Requirements.

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

Original signed by

Ordered by:_____
THOMAS R. PINKOS, Executive Officer

30 January 2004
(Date)

TABLE I

GROUNDWATER MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Groundwater Elevation	Ft. & hundredths, M.S.L.	Semi-Annual
Temperature	^{o}C	Semi-Annual
Electrical Conductivity	µmhos/cm	Semi-Annual
pH	pH units	Semi-Annual
Turbidity	Turbidity units	Semi-Annual
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Semi-Annual
Chloride	mg/L	Semi-Annual
Sulfate	mg/L	Semi-Annual
Nitrate as Nitrogen	mg/L	Semi-Annual
Bicarbonate	mg/L	Semi-Annual
Volatile Organic Compounds[1]	µg/L	Semi-Annual
Constituents of Concern		
Bromide	mg/L	5 years
Carbonate	mg/L	5 years
Total Alkalinity	mg/L	5 years
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)[1]	mg/L	5 years
Semi-Volatile Organic Compounds[1]	µg/L	5 years
Organochlorine Pesticides[1]	µg/L	5 years
Polychlorinated Biphenyls (PCBs)[1]	µg/L	5 years
Organophosphorus Compounds[1]	µg/L	5 years

Notes:

1 See Table VII

TABLE II

UNSATURATED ZONE MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Electrical Conductivity	µmhos/cm	Semi-Annual
pH	pH units	Semi-Annual
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Semi-Annual
Chloride	mg/L	Semi-Annual
Sulfate	mg/L	Semi-Annual
Nitrate as Nitrogen	mg/L	Semi-Annual
Volatile Organic Compounds[1]	µg/L	Semi-Annual
Constituents of Concern		
Bromide	mg/L	5 years
Carbonate	mg/L	5 years
Bicarbonate	mg/L	5 years
Total Alkalinity	mg/L	5 years
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)[1]	mg/L	5 years
Semi-Volatile Organic Compounds[1]	µg/L	5 years
Organochlorine Pesticides[1]	µg/L	5 years
Polychlorinated Biphenyls (PCBs)[1]	µg/L	5 years
Organophosphorus Compounds[1]	µg/L	5 years

Notes:

1 See Table VII

TABLE III

LEACHATE MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Total Flow	gallons	Monthly
Flow Rate	gallons/day	Monthly
Electrical Conductivity	µmhos/cm	Semi-Annual
pH	pH units	Semi-Annual
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Semi-Annual
Chloride	mg/L	Semi-Annual
Sulfate	mg/L	Semi-Annual
Nitrate as Nitrogen	mg/L	Semi-Annual
Constituents of Concern		
Bicarbonate	mg/L	Annual
Carbonate	mg/L	Annual
Total Alkalinity	mg/L	Annual
Total Organic Carbon	mg/L	Annual
Inorganics (dissolved)[1]	mg/L	Annual
Volatile Organic Compounds[1]	µg/L	Annual
Semi-Volatile Organic Compounds[1]	µg/L	Annual
Organochlorine Pesticides[1]	µg/L	Annual
Polychlorinated Biphenyls (PCBs)[1]	µg/L	Annual
Organophosphorus Compounds[1]	µg/L	Annual

Notes:

1 See Table VII

TABLE IV

SURFACE WATER MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Temperature	^{o}C	Twice each winter[1]
Electrical Conductivity	µmhos/cm	Twice each winter[1]
pH	pH units	Twice each winter[1]
Turbidity	Turbidity units	Twice each winter[1]
Monitoring Parameters		
Total Suspended Solids		
Total Dissolved Solids (TDS)	mg/L	Twice each winter[1]
Chloride	mg/L	Twice each winter[1]
Sulfate	mg/L	Twice each winter[1]
Nitrate as Nitrogen	mg/L	Twice each winter[1]
Bicarbonate Alkalinity	mg/L	Twice each winter[1]
Constituents of Concern		
Carbonate	mg/L	5 years
Chemical Oxygen Demand	mg/L	5 years
Total Organic Carbon	mg/L	5 years
Dissolved Oxygen	mg/L	5 years
Oil and Grease	mg/L	5 years
Inorganics (dissolved)[2]	mg/L	5 years

Notes:

1 The Discharger shall collect surface water samples after the first storm of the rainy season which produces significant flow and during at least one other storm event in the wet season.

2 See Table VII

TABLE V

LANDFILL GAS CORRECTIVE ACTION MONITORING PROGRAM

Location	Landfill Gas Monitoring Parameters				VOCs By EPA TO-15
	Methane	Carbon Dioxide	Oxygen	Organic vapors	
OP-1 through OP-12 PZ-100, PZ-101, PZ-102, PZ-105, PZ-113, PZ-116	Quarterly	Quarterly	Quarterly	Quarterly	If detected[1]

Notes:

LFG Field Monitoring using GEM 500 (or approved equivalent) for LFG and portable Photo Ionization Detector (PID) Meter for VOCs. The PID shall be calibrated and results presented as benzene equivalents.

1 If the photoionization detector indicates the presence of organic vapors in a monitoring probe, then a landfill gas sample shall be obtained and analyzed for speciated VOCs using EPA Method TO-15. For multi-level probes, a TO-15 sample shall be taken from the probe with the highest concentration of VOCs.

TABLE VI

CLASS II SURFACE IMPOUNDMENT MONITORING PROGRAM

Parameter	Units	Frequency
Minimum Freeboard[1]	tenths of foot	Weekly
Quantity of liquids received	gallons/day	Monthly
Quantity of liquids transported Off site[2]	gallons/day	Monthly
Depth of Sludge	tenths of foot	Semi-Annual

Constituent	Units	Frequency
pH (field)	Standard pH units	Semi-Annual
Temperature (field)	^{o}C	Semi-Annual
Electrical Conductivity	umhos/cm	Semi-Annual
Dissolved Oxygen	mg/L	Semi-Annual
Sulfides	mg/L	Semi-Annual
Chemical Oxygen Demand	mg/L	Semi-Annual
Volatile Organic Compounds[3]	µg/L	Semi-Annual
Semi-Volatile Organic Compounds[3]	µg/L	Semi-Annual
LCRS Testing		Annual

Notes:

1 Freeboard, as defined in WDR Order No. R5-2004-0022
2 Report all disposal areas and methods
3 See Table VII____

TABLE VII

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Field Parameters	**Method**
pH	150.1
Electrical Conductivity	2510

General Minerals	**Method**
Bicarbonate	2310B
Bromide	300.0 (anion)
Chloride	300 (anion scan)
Nitrate – Nitrogen	300 (anion scan)
Sulfate	300 (anion scan)
Total Dissolved Solids (TDS)	2540C

Inorganics (dissolved):	**Method**
Aluminum	200.7/6010
Antimony	200.7/7041
Barium	200.7/6010
Beryllium	200.7/6010
Cadmium	200.7/7131A
Chromium	200.7/6010
Cobalt	200.7/6010
Copper	200.7/6010
Silver	200.7/6010
Tin	200.7/6010
Vanadium	200.7/6010
Zinc	200.7/6010
Iron	200.7/6010
Manganese	200.7/6010
Arsenic	200.9/200.8
Lead	200.9/200.8
Mercury	7470A
Nickel	200.9/200.8
Selenium	200.9/200.8
Thallium	200.9/200.8
Cyanide	9010
Sulfide	9030

Other Parameters	**Method**
Total Organic Carbon	415.1
Total Alkalinity	310.1
Total Suspended Solids	160.1
Bicarbonate Alkalinity	130.2
Chemical Oxygen Demand	410.4
Dissolved Oxygen	360.1/360.2
Oil and Grease	5520/1664

Volatile Organic Compounds (Method 8260B):

Acetone
Acetonitrile
Acrolein
Acrylonitrile
Allyl chloride (3-Chloropropene)
Tert-Amyl ethyl ether
Tert-Amyl methyl ether
Benzene
Bromobenzene
Bromochloromethane
Bromodichloromethane
Bromoform (Tribromomethane)
Tert-Butyl alcohol
n-Butlybenzene
sec-Butlybenzene
tert-Butlybenzene
tert-Butyl ethyl ether
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Chloroprene
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- 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)
1,3-Dichloropropane
2,2-Dichloropropene
1,1-Dichloropropene
cis- 1,3-Dichloropropene
trans- 1,3-Dichloropropene
Ethylbenzene
Ethyl methacrylate
Hexachlorobutadiene
Hexachloroethane
2-Hexanone (Methyl butyl ketone)
Iodomethane (Methyl iodide)
Isobutyl alcohol
di-Isopropyl ether

Methacrylonitrile
Methyl bromide (Bromomethene)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK: 2-Butanone)
4-Methyl-2-pentanone (Methyl isobutylketone)
Methyl tert-butyl ether (MtBE)
Naphthalene
2-Nitropropane
n-Propylbenzene
Propionitrile
Styrene
1,1,1,2-Tetrachloroethane
1,1.2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloethane (Methylchloroforrn)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
Vinyl chloride
Xylenes (total)

Semi-Volatile Organic Compounds (Method 8270 - base, neutral, & acid extractables):

Acenaphthene
Acenaphthylene
Acetophenone
2-Acetylaminofluorene (2-AAF)
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
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)
p-Chloroaniline
p-Chloro-m-cresol (4-Chloro-3-methylphenol)
2-Chloronaphthalene

2-Chlorophenol
4-Chlorophenyl phenyl ether
Chrysene
o-Cresol (2-methylphenol)
m-Cresol (3-methylphenol)
p-Cresol (4-methylphenol)
Dibenz[a,h]anthracene
Dibenzofuran
Di-n-butyl phthalate
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
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
Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachloropropene
Indeno(1,2,3-c,d)pyrene
Isophorone
Isosafrole
Kepone
Methapyrilene
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
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
o-Toluidine
2,4,5-Trichlorophenol
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene

Organochlorine Pesticides (Method 8081A):

Aldrin
α-BHC
β-BHC
γ-BHC (Lindane)
δ-BHC
Chlorobenzilate
α-Chlordane
γ-Chlordane
Chlodane – not otherwise specified
DBCP
4,4'-DDD
4,4'-DDE
4,4'-DDT
Diallate
Dieldrin
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Endrin ketone
Heptachlor
Heptachlor epoxide
Hexachlorocyclopentadiene
Isodrin
Methoxychlor
Toxaphene

Polychlorinated Biphenyls (PCBs) (Method 8082):

Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260
2-Chlorobiphenyl
2,3-Dichlorobiphenyl
2,2',5-Trichlorobiphenyl
2,4',5-Trichlorobiphenyl
2,2'3,5-Tetrachlorobiphenyl
2,2',5,5'-Tetrachlorobiphenyl
2,3',4,4'-Tetrachlorobiphenyl
2,2',3,4,5'-Pentachlorobiphenyl
2,2',4,5,5'-Pentachlorobiphenyl
2,3,3',4',6-Pentachlorobiphenyl
2,2',3,4,4',5'-Hexachlorobiphenyl
2,2',3,5,5',6-Hexachlorobiphenyl
2,2',4,4',5,5'-Hexachlorobiphenyl
2,2',3,3',4,4',5-Hexachlorobiphenyl
2,2',3,4,4',5,5'-Hexachlorobiphenyl
2,2',3,4,4',5',6-Hexachlorobiphenyl
2,2',3,4',5,5',6-Hexachlorobiphenyl
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl

Organophosphorus Compounds (Method 8141A):

Chlorpyrifos
Diazinon
Dimethioate
Disulfoton
Ethion
Famphur
Malathion
Parathion
Parathion-ethyl
Parathion-methyl
Phorate

INFORMATION SHEET

ORDER NO. R5-2004-0022
NEVADA COUNTY DEPARTMENT OF TRANSPORTATION AND SANITATION
MCCOURTNEY ROAD LANDFILL
CLASS II SURFACE IMPOUNDMENTS AND CLOSED CLASS III LANDFILL
POST-CLOSURE MAINTENANCE AND CORRECTIVE ACTION

SITE DESCRIPTION

The Nevada County Department of Transportation and Sanitation (Discharger) is the owner and permitted operator of the McCourtney Road Landfill. The site consists of 244 acres located at 14741 Wolf Mountain Road in an incorporated area of Nevada County, California, approximately six miles southwest of the City of Grass Valley. The 244 acres consist of the following areas: Old Landfill Mass (OLM) – 24.9 acres; 89-90 Disposal Area (89-90 Cell) – 6.3 acres; 90-91 Disposal Area (90-91 Cell) – 5.1 acres; clean closure activities – 2 acres; liquid management facilities – 2.4 acres; storm water management facilities – 0.4 acres; ancillary facilities – 3.4 acres; buffer zones – 86.6 acres; unused permitted area – 42.2 acres; and miscellaneous unused areas (roads, parking areas, ditches, etc.) – 71 acres. These features are described in the Waste Discharge Requirements (WDRs) and are shown in Attachment B.

The site has been owned and operated as a municipal landfill by the Discharger since 1973. Before that, the site was used as a burn dump from 1965-1973. It is now closed for use as a municipal landfill, but the Discharger still operates a municipal refuse transfer station and a wood/yard waste management operation. The 157-acre site has several older landfill cells that were constructed and used between the early 1970s and 1990, and a newer cell, the 90-91 cell, which was in use until landfill operations ceased in November 1992. The Discharger now disposes its municipal wastes out of the county.

The clean closure areas include the 76 Cell and the White Metals Disposal Area (WMDA). These areas were clean-closed during the summer of 1995 and were undertaken with the approval of regulatory agencies as corrective actions responding to concerns about hazardous wastes being present and about possible leakage of leachate from these areas. Waste exhumed from the 76 cell and the WMDA was classified and Class III materials were placed on top of the 90-91 cell. No hazardous materials were found. Sampling confirmed clean-closure of the two former WMUs. The 76 cell was graded to drain and is now part of the south sedimentation and surface drainage control system. The WMDA was backfilled and graded to drain without ponding. During the clean-closure process, the Discharger placed a Chapter 15 foundation layer on the 90-91 cell and the south slope of the OLM adjacent to the 76 area. These operations were performed as part of the winter preparations of the site and were planned to function also as the first steps of final closure of the site.

The site also has two Class II surface impoundments, a 1.3 million gallon (MG) impoundment and a 5.2 MG impoundment. These impoundments were constructed over former septage ponds and have been used for leachate management. The 1.3 MG surface impoundment has been cleaned and converted to storage of water for fire suppression, but the Discharger intends to continue operation of the 5.2 MG pond for leachate management throughout the closure and post-closure maintenance period, as necessary.

HISTORY

In May 1989, the California Integrated Waste Management Board (CIWMB) issued a Notice and Order (N&O) for numerous violations of Nevada County's Solid Waste Facilities Permit (SWFP) and for failing to meet the State's minimum standards contained in Title 14, Chapter 3, California Code of Regulations (CCR). In January 1990, due to subsequent violations of the previous N&O, the CIWMB took further enforcement action through an amended N&O. The amended N&O included a provision for seeking injunctive relief for failure to complete required work. The CIWMB later pursued a lawsuit against the Discharger and on 28 February 1991, a Stipulated Agreement or "Judgment Pursuant to Stipulation" was signed between representatives of the CIWMB and the Discharger. The Stipulated Agreement was filed in Superior Court on 4 March 1991.

In compliance with Title 23, Division 3, Chapter 15 CCR, the Discharger submitted a Report of Waste Discharge (RWD) dated 15 May 1990 describing significant operational changes proposed for 1990-1993. Those changes included reclassification of the then-existing septage handling facilities; changes in leachate and septage disposal practices; a new landfill gas recovery system; implementation of an evaluation monitoring program; and other proposals. WDRs Order No. 91-229 was adopted by the Regional Board on 22 November 1991 to address the proposals in the RWD.

Under the terms of the Stipulated Agreement and WDR Order No. 91-229 additional technical reports were required. The Discharger submitted: a *Phase II Hydrogeology Report* dated November 1991; *Site Background and Waste Characterization Summary Reports, Volumes I and II*, date May 1993; a *Surface Hydrology Summary Report* dated May 1993; a *Liquids Management Plan* dated May 1993; a *Site Hydrogeology Summary Report* dated June 1993; a *Soil and Sediment Conditions Summary Report* dated August 1993; and other reports and work plans for closure of the former unlined septage ponds and assessment of other site conditions. In 1995, as part of site assessment for closure and corrective actions, the Discharger submitted a *Review of the Detection Monitoring Proposal and the Evaluation Monitoring Proposal* documents dated 25 July 1995; a *Review of Previous Slope Stability Analyses* dated July 1995; and a *Review of Existing Cover Conditions and Alternatives* dated October 1995. Information contained in these documents summarizes and updates existing knowledge of site hydrogeologic, engineering, and operational conditions.

WDRs Order No. 91-229 also described the present operation of the Class II surface impoundments, and required the Discharger to be prepared to drain the 1.3 MG pond and reconvert it to leachate management if needed. This precaution was necessary because the site had an average annual net liquid gain of approximately 17 inches. This situation frequently necessitated the use of both surface impoundment as well as the hauling of hundred of thousands of gallons of mixed storm water and leachate annually off-site to the Lake Wildwood treatment plant. The Discharger hoped that with the closure of the two units, the revamped drainage controls, and the placement of compacted cover on the 90-91 cell, leachate generation will decrease. The WDRs required the Discharger to submit a leachate balance by 28 March 1996 showing that the 5.2 MG pond combined with off-site disposal would be sufficient to manage leachate without freeboard violations and without the 1.3 MG pond.

On 22 March 1996, the Discharger submitted the *Liquids Balance Analysis for the 5.2 MG Class II Surface Impoundment* prepared by Minshew Engineering. The report concluded that the 5.2 MG Class II surface impoundment cannot dispose of sufficient quantities of liquid through solar evaporation alone. The Discharger recommended the use of administrative controls to monitor the impoundment volume and selectively pump and haul excess liquids to a permitted off-site treatment and disposal facility as well as performing an economic evaluation of the costs to construct a removable cover or roof structure of the surface impoundments versus off-site treatment. To date, the Discharger has secured the services of EMCON to develop an alternative leachate handling strategy.

On 30 November 1992, the site ceased taking municipal wastes for landfilling, and the 90-91 Cell became inactive. During the summer of 1995, the 76 Cell and the WMDA were exhumed and clean-closed as corrective actions to reduce the potential sources of groundwater pollution. Closure of the 90-91 Cell and the other older landfill cells were pending at that time. The septage facilities were no longer in use, and the Discharger proposed a change in the use of one of the surface impoundments. WDRs Order No. 96-027, adopted on 26 January 1996, updated Order No. 91-229 to address closure requirements and the need for corrective action and corrective action monitoring.

Monitoring and Reporting Program Order No. 96-027 was revised and adopted on 16 October 2000 to reflect the following changes at the landfill: the landfill was closed in accordance with the *Final Closure Plan* dated 12 December 1996; leachate removal and disposal offsite; and corrective actions were implemented in the form of clean closure of the 76 Cell and closure of the entire landfill. The changes were based on a series of technical studies that included: the quarterly monitoring reports; the Detection, Evaluation, and Corrective Action monitoring programs designed by Anderson (1993, 1993) and updated by GeoLogic Associates (1995, 1996); the *Amended Report of Waste Discharge, Corrective Action Monitoring Proposal*, and *Water Quality Protection Standard* prepared by GeoLogic Associates (1996); the proposed protocol of statistical analysis prepared by Ferriz (1999); and the remedial action feasibility analysis and proposal for corrective action water quality goals prepared by Ferriz (2000).

CLOSURE

The landfill had been scheduled for closure in the year 2005. The Stipulated Agreement contained several provisions regarding closure, including a requirement that the Discharger begin work by 1 February 1992 on a study evaluating alternative landfill sites. Although specific dates for the site closure were not stipulated in the Stipulated Agreement, submittal of a *Final Closure and Post-Closure Maintenance Plan* was required if the Discharger did not submit a complete application for a revised SWFP by 31 December 1992. This application was not submitted. Instead, the Discharger submitted a *Draft Final Closure and Post-Closure Maintenance Plan* dated December 1992. The Stipulated Agreement further stipulated that if a completed application for a Revised SWFP was not submitted by 30 September 1993, closure of the landfill must be completed by 1 October 1994. The landfill ceased taking municipal Class III wastes on 30 November 1992, but the Discharger did not, at that time, submit an acceptable closure plan, and was in violation of the Stipulated Agreement.

The Discharger's *Final Closure and Post-Closure Maintenance Plan*, dated January 1994, was found to be inadequate by the reviewing agencies. A revised *Final Closure and Post-Closure Maintenance Plan* addressing the concerns of the agencies was to have been submitted in November 1994, but was overdue. As such, WDR Order No. 96-027 required the Discharger to submit an acceptable revised Closure and Post-Closure Maintenance Plan by 15 March 1996. The *Final Closure Plan* was submitted on 12 December 1996. The *Final Closure Construction Quality Assurance Report* for the entire landfill was approved by the Regional Board on 27 August 1999.

GROUNDWATER

On 22 February 2000, the Discharger's consultant, HF Geologic Engineering, submitted a report entitled *Assessment of Technical Feasibility of Direct Remediation of VOC Contamination* which discussed the feasibility of direct remediation of volatile organic compounds (VOCs) by groundwater extraction. The feasibility report described the costs and constraints associated with groundwater extraction but did not address the feasibility of implementing landfill gas extraction measures to decrease or eliminate the source of VOCs in the vadose zone.

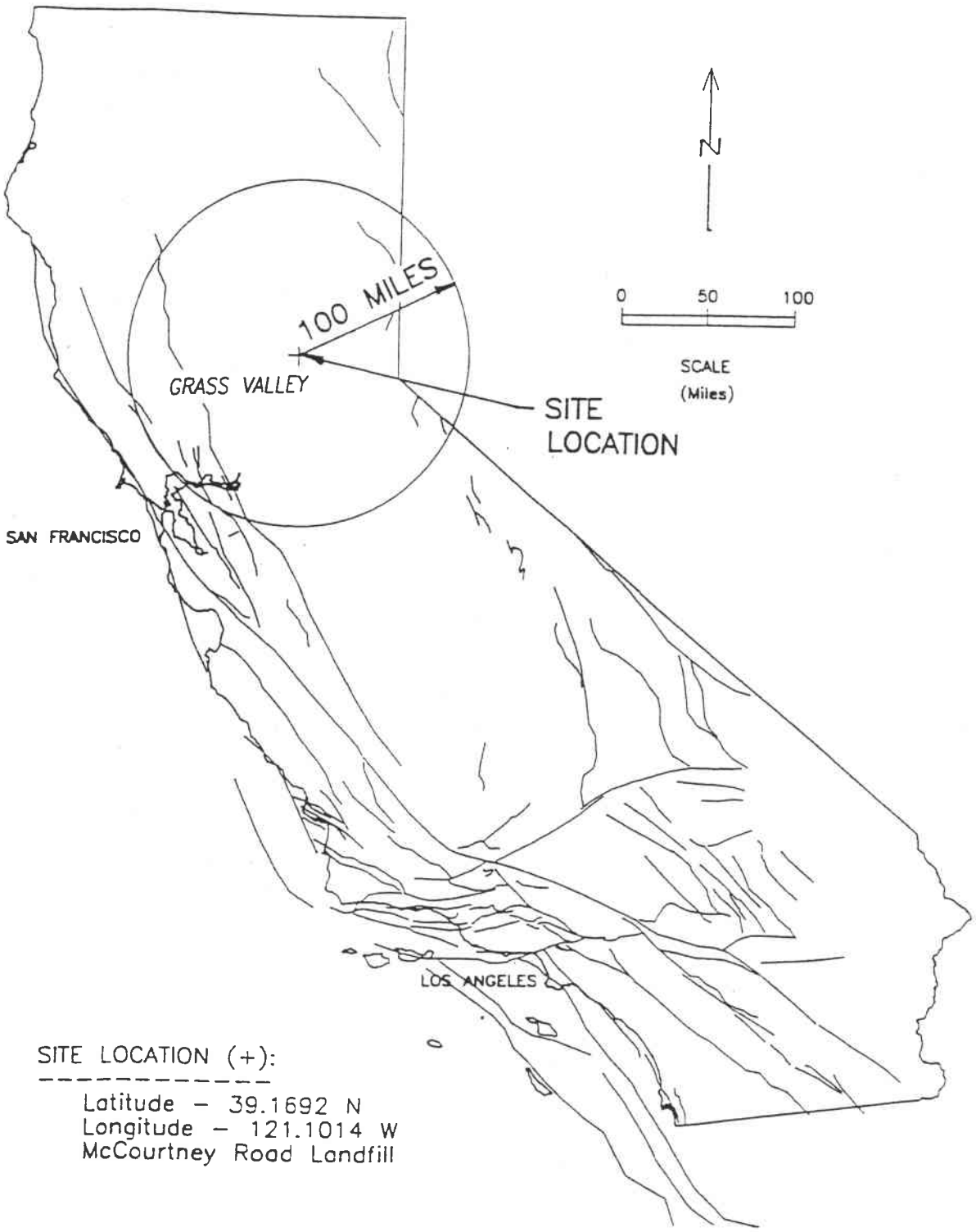
On 24 April 2000, a representative from the CIWMB collected landfill gas samples from piezometers PZ-100 and PZ-101, lysimeter 2, and the flare inlet. The samples were analyzed for VOCs, oxygen, nitrogen, methane and carbon dioxide. Samples from PZ-100 and PZ-101 contained 29% and 39% methane by volume, respectively, and elevated concentrations of VOCs. For example, vinyl chloride and cis-1,2-dichloroethene were detected in piezometer PZ-101 at concentration of 1,960 parts per billion by volume (ppbv) and 202 ppbv, respectively. As such, the presence of low level VOCs may, in part, be attributable to gas phase partitioning into groundwater.

In a letter dated 6 June 2000, the Regional Board required additional corrective action measures to reduce the concentrations of VOCs and methane in the vadose zone by landfill gas extraction. The concentrations of VOCs detected in the gas phase were high enough to partition into groundwater and significantly degrade water quality. Therefore, removing the landfill gas may significantly reduce VOC concentrations in groundwater.

The Discharger submitted their initial proposal CAP on 31 August 2000. In a letter dated 4 October 2000, the Regional Board stated that the proposed monitoring probes would monitor a relatively small area between the old unlined landfill and the 90-91 Cell and not landfill gas trapped underneath the landfill cap. The Regional Board requested a revised CAP describing the proposed design, spacing and installation of a site-wide landfill gas extraction system. During a 12 January 2001 meeting, the Regional Board and Discharger agreed to a phased CAP approach that allowed for a site-wide landfill gas investigation to better define the extent of VOCs in landfill gas prior to the design of a long-term gas extraction system. The revised CAP consisted of two phases. Phase 1 included an evaluation of the possible sources of the landfill gas and migration pathways and the implementation of temporary controls to remove landfill gas from piezometers (PZ-100, PZ-101, PZ-102, and PZ-116) that contain VOCs and elevated methane concentrations. The evaluation of possible sources of landfill gas included the installation of twelve (12) landfill gas monitoring probes around the limits of the old unlined landfill and the 89-90 and 90-91 Cells and the installation of six extraction probes within the

landfill waste. Phase 2 included the design of a long-term gas extraction system based on the findings of Phase 1. A conditional approval letter was released by the Regional Board for this work on 19 March 2001.

On 19 June 2002, the Discharger submitted the *Landfill Gas Control Corrective Action Plan (CAP), Phase 1 Report of Findings/Phase II Recommendations*, revised from the 13 May 2002 report. The report confirmed that landfill gas was migrating outside the waste mass and threatening groundwater quality. The Discharger proposed to install an active landfill gas extraction system to collect and control the landfill gas migration; monitor the perimeter gas probes on a quarterly basis; and submit annual reports. Specific design plans were later submitted by SCS Engineers on 24 April 2003. The final design plan was approved by the Regional Board on 5 May 2003. These WDRs include a revised Monitoring and Reporting Program that reflect the new landfill gas monitoring probes and changes to the corrective action program to include landfill gas monitoring.



ATTACHMENT A: SITE LOCATION MAP
MCCOURTNEY ROAD LANDFILL
NEVADA COUNTY

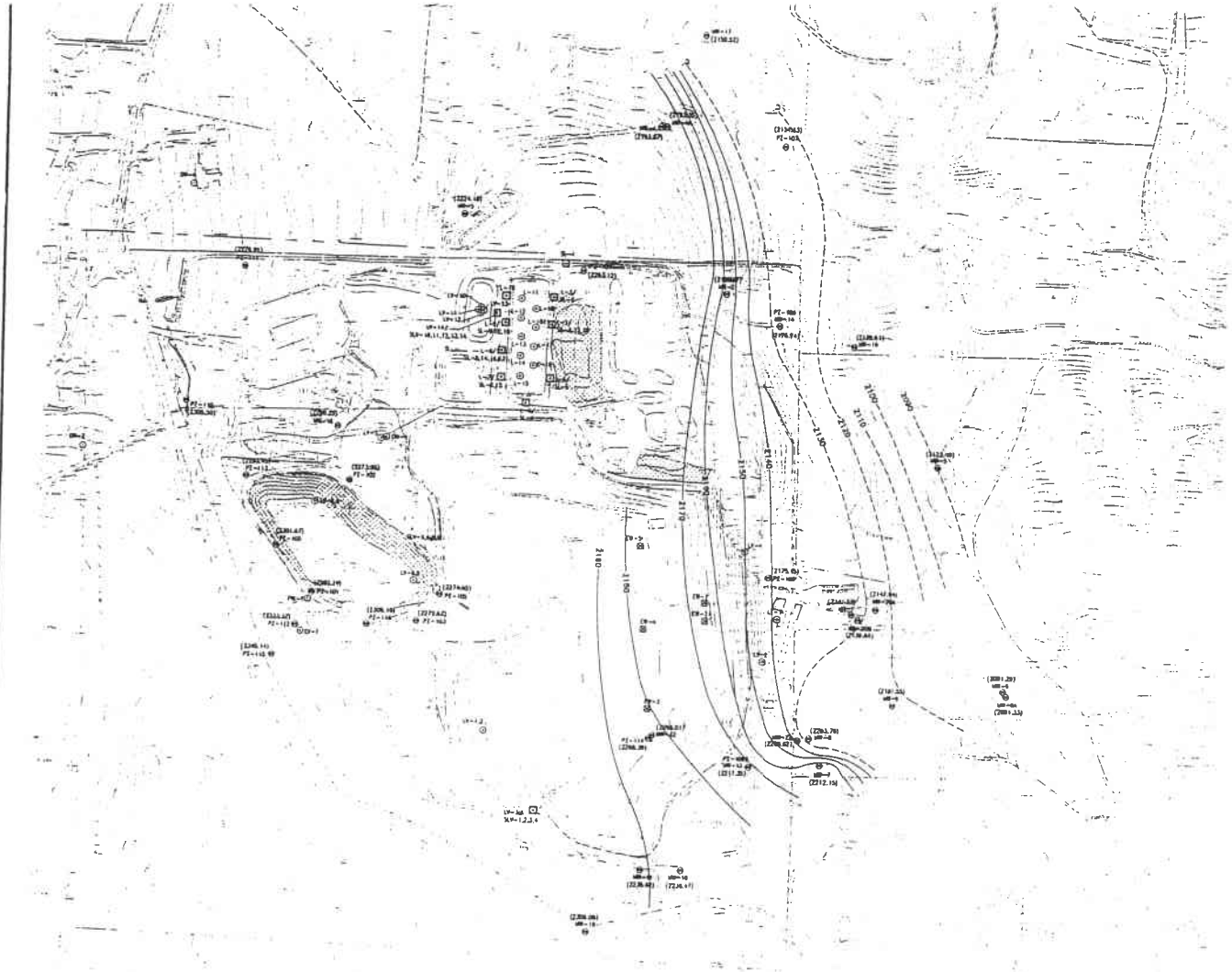
WDRS ORDER NO. R5-2004-0022

FACILITY LEGEND

1. BURN AREA
2. WHITE METALS DISPOSAL AREA
3. 1976 DISPOSAL AREA
4. OLD LANDFILL MASS
5. WINTER 1989 DISPOSAL AREA
6. SUMMER 1990 DISPOSAL AREA
7. 1990-91 DISPOSAL AREA
8. WOOD WASTE MANAGEMENT AREA
9. OLD SEPTAGE POND
10. TWO CLASS II SURFACE IMPOUND
    5.2 MG POND
    1.3 MG POND
11. FRONT END MUNICIPAL WASTE TRANSFER STATION
12. RECYCLING FACILITY
13. SEDIMENTATION BASINS
14. 2 LEACHATE PUMP STATIONS
15a. EXISTING LANDFILL GAS FLARE SYSTEM
15b. LANDFILL GAS FLARE SYSTEM UNDER CONSTRUCTION

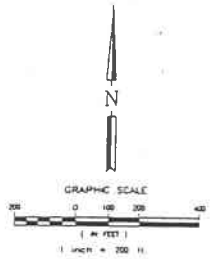
ATTACHMENT B: FACILITY MAP
MCCOURTNEY ROAD LANDFILL
NEVADA COUNTY

WDRS ORDER NO. R5-2004-0022



	INTERMEDIATE ELEVATION SCREENS		
Well	TC Elev.	Screen Elev.	Water Level Elev.
PZ-10	2175.45	2150.95 - 2140.95	2144.77
MW-2	2189.67	2164.67 - 2134.67	2164.95
MW-4/A4	2183.67	2175.33 - 2155.57	2177.42
MW-7	2212.15	2182.00 - 2162.75	2161.90
MW-11	2230.83	2209.42 - 2179.42	2192.42
MW-12	2268.01	2181.01 - 2164.51	2185.41
MW-13	2217.35	2177.35 - 2157.35	2177.23
MW-22	2206.62	2146.62 - 2126.62	2144.27
	LOWER ELEVATION SCREENS		
Well ID	TC Elev.	Screen Elev.	Water Level Elev.
PZ-107/MW-15	2134.13	2116.13 - 2106.13	2125.11
MW-1	2141.25	2116.33 - 2088.33	2134.86
MW-3	2123.49	2104.99 - 2084.99	2090.16
MW-5	2263.76	2113.76 - 2073.76	2125.47
MW-6	2181.53	2134.73 - 2104.73	2128.61
MW-14	2178.74	2127.14 - 2107.14	2129.85
MW-17	2190.52	2125.52 - 2105.52	2088.21
MW-20R	2138.84	2129.84 - 2109.84	2133.01

All water levels were measured on 3/18/02 prior to purge testing at the site. Values agree within 2 feet of the 1/02 measurements shown previously.

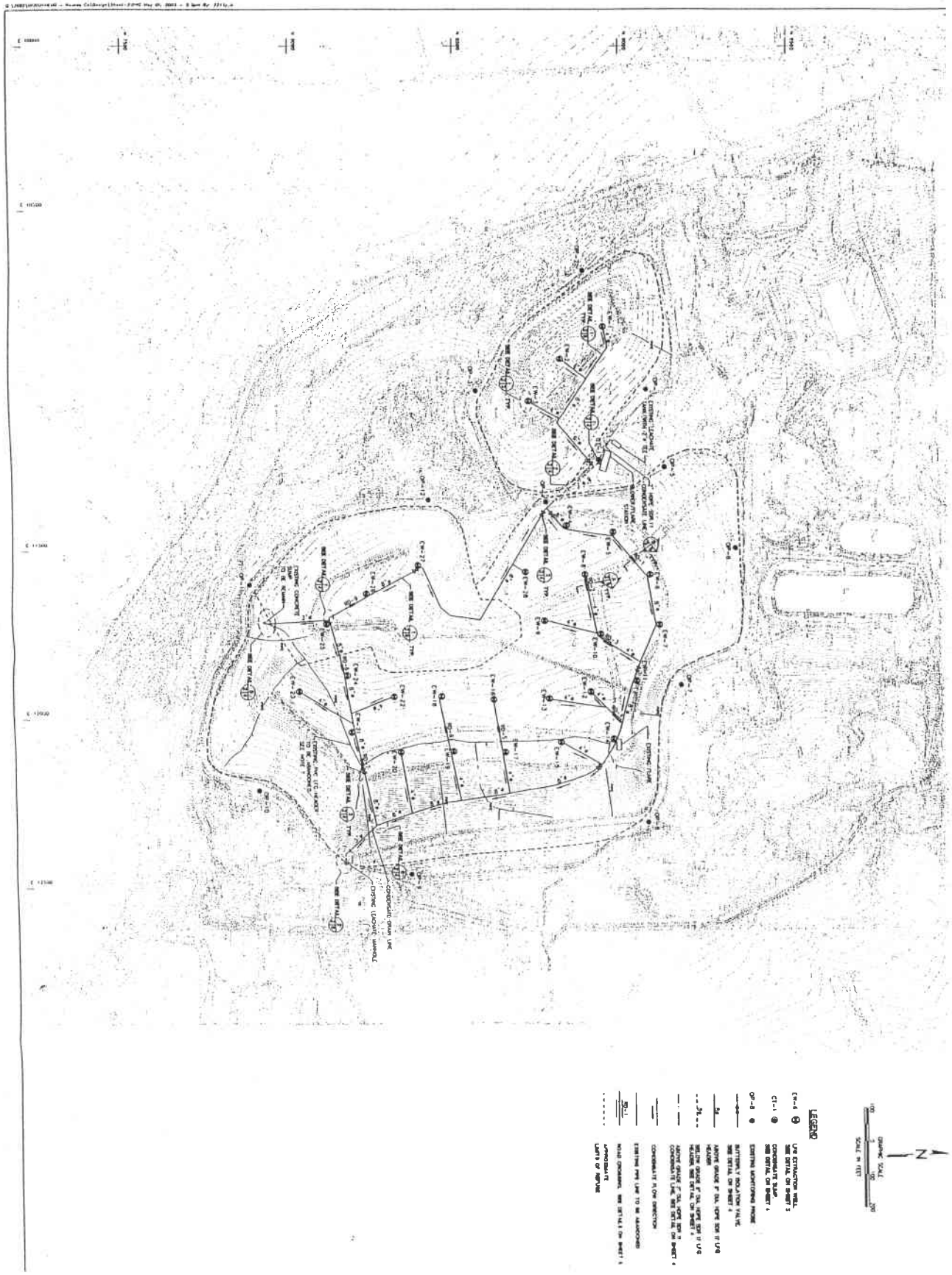


LEGEND:

- ⊕ MONITORING WELL LOCATION
- ⊙ LYSIMETER LOCATION
- —2180— WATER LEVEL ELEVATION (2190 - 2140 feet) - INTERMEDIATE ELEVATION SCREENS (GROUP II)
- --2130-- WATER LEVEL ELEVATION (2130 - 2090 feet) - LOWER ELEVATION SCREENS (GROUP III)

ATTACHMENT C
WATER QUALITY MONITORING LOCATIONS
MCCOURTNEY ROAD LANDFILL
NEVADA COUNTY

WDRS ORDER NO. R5-2004-0022



ATTACHMENT D: LANDFILL GAS COLLECTION SYSTEM
MCCOURTNEY ROAD LANDFILL
NEVADA COUNTY

WDRS ORDER NO. R5-2004-0022