

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2010-0086

WASTE DISCHARGE REQUIREMENTS
FOR
COUNTY OF KERN
FOR
CLOSURE AND POST-CLOSURE MAINTENANCE
ARVIN SANITARY LANDFILL
KERN COUNTY

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

1. The County of Kern (hereafter Discharger) owns and maintains a municipal solid waste landfill approximately five miles west of the City of Arvin, in Sections 30 and 31, T31S, R29E, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order.
2. The waste management facility contains one existing unlined waste management unit (Unit) covering 128 acres, as shown in Attachment B, which is incorporated herein and made part of this order. The facility is comprised of Assessor's Parcel Numbers (APN) 189-300-08, 189-300-33, 189-330-02, 189-330-20, and 189-330-25.
3. On 14 August, 1992, the Central Valley Water Board adopted Order No. 92-163, which prescribed waste discharge requirements for the Unit. The Unit is classified as a Class III landfill which accepts municipal solid waste in accordance with Title 27, California Code of Regulations, §20005, et seq. (Title 27).
4. On 17 September 1993, the Central Valley Water Board adopted Order No. 93-200, amending Order No. 92-163 and implementing State Water Resources Control Board Resolution No. 93-62, Policy for Regulation of Discharges of Municipal Solid Waste.
5. On 28 January 2000, the Central Valley Water Board adopted Order No. 5-00-023, which removed the facility from Attachment 1 of Order No. 93-200, and addressed operation of the Unit and construction of any lateral expansion or new waste management unit.
6. Waste discharge ceased on 30 June 2003, when the Unit reached 97% of its designed capacity. A final cover was not constructed.

7. This Order revises Order No. 5-00-023 to provide for the construction of a final cover, regulated post-closure maintenance of the facility, and to regulate corrective action for groundwater degradation.

SITE DESCRIPTION

8. The measured hydraulic conductivity of the native soils underlying the Unit range between 9×10^{-4} and 4×10^{-7} centimeters per second (cm/sec).
9. The facility is not located within a fault hazard zone. The closest Holocene fault is the White Wolf Fault, approximately five miles to the south. A Richter scale magnitude 7.7 earthquake occurred along the White Wolf Fault in 1952. The peak horizontal ground acceleration is predicted to be 0.44g.
10. Land within 1,000 feet of the facility is used for aquaculture, cultivated crops, or is vacant land.
11. The facility receives an average of 6.1 inches of precipitation per year and the mean pan evaporation rate is 87 inches per year. Precipitation and evaporation data were reported in the Final Closure Plan.
12. The 100-year, 24-hour precipitation event for the facility is estimated to be 2.25 inches, based on *The Kern County Hydrology Manual* dated 1992.
13. The waste management facility is within a 100-year floodplain based on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, Community-Panel Number 060075 1825C, dated 29 September 1986.
14. There are fifteen irrigation wells within one mile of the facility, as stated in the 2009 Environmental Impact Report. No surface springs or other sources of groundwater supply have been observed.
15. The landfill water supply well (California State Well No. 31/29-31D1) is at the northwest corner of the waste management unit. The well was drilled to a total depth of 320 feet below ground surface. A surface seal reportedly exists to 50 feet below ground surface. The remainder of the borehole is gravel packed. The well needs to be destroyed because of the deteriorating condition of the well casing and because it is a potential conduit for vertical migration of waste constituents. In December 2005, the Discharger submitted the *Water Supply Well Decommissioning Work Plan* to the Central Valley Water Board. Central Valley Water Board staff approved the work plan in correspondence dated 11 June 2009. The Discharger intends to decommission the well during fiscal year 2010/2011.

16. A former residential domestic well (California State Well No. 31/29-30P01) is located approximately 150 feet north of the facility. This well is currently being used by the lessee of the property.
17. An abandoned non-hazardous oil field waste processing facility, formerly operated by VenVirotek, is on a five-acre parcel within the southwest corner of the waste management facility property. Waste Discharge Requirements Order No. 92-199 was adopted naming both VenVirotek and Kern County as co-dischargers for the waste processing facility. An estimated 100,000 cubic yards of processed waste material containing volatile and semi-volatile organic compounds, metals, and other inorganic compounds remain. The processed waste material is hereafter referred to as the "VenVirotek material."
18. The Discharger entered into a Voluntary Cleanup Agreement with the Department of Toxic Substances Control (DTSC) and has retained AMEC Geomatrix Consultants, Inc. to prepare a Removal Action Workplan (RAW) for DTSC review and approval. The RAW will detail a scope of work and methodology for removal of the VenVirotek material. The Discharger submitted a Draft Human Health Risk Assessment (HHRA) Report to the DTSC in December 2005. DTSC approved the HHRA component of the RAW process in May 2007. The RAW will be executed with extensive DTSC oversight and will include a comprehensive public review process and comment period prior to implementation.
19. Closure of the VenVirotek material stockpiles required Central Valley Water Board staff review and approval of the report entitled, *Proposed Soil Acceptance Criteria for Closure of the VenVirotek Soil Stockpiles*, prepared on behalf of the Discharger by AMEC Geomatrix and submitted for review in May 2005. This report proposed concentration limits for a variety of constituents of concern contained within the VenVirotek material, most notably soluble lead. Kern County Environmental Health Services Department, providing initial oversight as the local enforcement agency reviewed and formally approved the concentration limits proposed by AMEC Geomatrix in correspondence dated February 9, 2007. Central Valley Water Board staff concurred with the proposed concentration limits for these constituents in correspondence dated 11 June 2008. On behalf of the Discharger, AMEC Geomatrix is currently continuing the RAW process under DTSC oversight. The Discharger intends to move the VenVirotek material to the Arvin Landfill for treatment and use as construction materials during the landfill closure construction.

SURFACE AND GROUND WATER CONDITIONS

20. The *Water Quality Control Plan for the Tulare Lake Basin*, Second Edition, revised January 2004 (hereafter Basin Plan), designates beneficial uses, establishes narrative and numerical water quality objectives, contains implementation plans and policies for protecting all waters of the Basin, and incorporates, by reference,

plans and policies of the State Water Board. Pursuant to Section 13263(a) of the California Water Code (CWC), these requirements implement the Basin Plan.

21. Surface drainage is toward the Kern Lake Bed in the Kern Delta Hydrologic Area (557.10) of the Tulare Lake Basin.
22. The landfill is on the floor of the southern San Joaquin Valley. The designated beneficial uses of Valley Floor Waters, as specified in the Basin Plan, are agricultural supply; industrial service and process supply; water contact and non-contact water recreation; warm fresh water habitat; preservation of rare, threatened and endangered species; and groundwater recharge.
23. No springs, seeps or perennial surface flows or swampy areas are located within the boundaries of or adjacent to the landfill. Man-made ski lakes are located about one mile southwest from the landfill. Several irrigation sumps, three catfish farms, and reservoirs are located within one mile of the site.
24. The facility is in the Kern County Basin Hydrologic Unit, Detailed Analysis Unit (DAU) 254. The designated beneficial uses of the groundwater, as specified in the Basin Plan for DAU 254, are municipal and domestic water supply, agricultural supply, industrial service and process supply, preservation and enhancement of wildlife habitat, and water contact and non-contact water recreation.
25. The first encountered areal groundwater is approximately 60 to 85 feet below the native ground surface. Groundwater elevations range from 279 to 287 feet above mean sea level. Monitoring data indicate that the groundwater is unconfined. The depth to groundwater fluctuates seasonally as much as 11 feet.
26. Monitoring data indicate spatial variability in background groundwater quality. Groundwater from the lower portion of the aquifer tends to have lower specific electrical conductivity (EC) and lower concentrations of total dissolved solids (TDS). Background groundwater EC ranges between 414 and 5,240 micromhos per centimeter, with TDS ranges between 214 and 4,800 milligrams per liter.
27. The current direction of groundwater flow beneath the waste management facility is from the north toward the south. The average groundwater gradient is approximately 0.0025 feet per foot. The average groundwater velocity is approximately 14 feet per year. The direction of groundwater flow has varied between southeast and southwest.

WASTE AND SITE CLASSIFICATION

28. The Discharger previously discharged municipal solid wastes, which are defined in §20164 of Title 27.
29. The site characteristics where the Unit is located (see Finding No. 8) do not meet the siting criteria for a new Class III landfill contained in §20260(a) and (b)(1) of Title 27. As such, the site is not suitable for the containment of Class III wastes without the construction of additional waste containment features in accordance with §20260(b)(2) of Title 27 and State Water Resources Control Board Resolution No. 93-62.

DETECTION MONITORING PROGRAM

30. The run-off of storm water at the facility constitutes a discharge of waste that has the potential to affect the quality of surface and ground waters of the state. To ensure compliance with State Water Resources Control Board Resolution No. 68-16 and Basin Plan Antidegradation requirements, Facility Specification C.6 of this Order requires compliance with Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements of the State Water Resources Control Board's General Industrial Storm Water Permit (Order No. 97-03-DWQ), Sections A and B. Compliance with Sections A and B of Order No. 97-03-DWQ satisfies the Best Practicable Treatment or Control requirement of Resolution No. 68-16 with respect to storm water discharges.
31. The groundwater detection monitoring system, initiated in September 1987, currently consists of 13 monitoring wells. Monitoring wells AR1-06, AR1-21, AR1-22, and AR1-25 are used to collect background water quality data. Monitoring wells AR1-05, AR1-23, AR1-24, AR1-26, AR1-27, and AR1-28 are used to collect water quality data on the point of compliance. Three additional wells (AR1-01, AR1-03, and AR1-04) are not used as appropriate point of compliance monitoring locations.
32. Prior to 2001, the vadose zone monitoring system for the unlined waste management unit consisted of two moisture block/gas probe clusters (AR1-07 and AR1-08), installed at the base of refuse. In January 2001, the Discharger submitted a work plan to destroy AR1-08. The Central Valley Water Board approved the work plan in February 2001, and the well was destroyed in March 2001. The discharger will submit specifications to destroy AR1-07 as a part of the closure construction documents.
33. The Discharger demonstrated that installation of unsaturated zone monitoring devices would require unreasonable dismantling or relocating of permanent

structures and is not feasible. Therefore, in accordance with Section 20415(d)(5) of Title 27, unsaturated zone monitoring is not required.

34. The landfill has an active landfill gas (LFG) collection and control system that has been operational since 2000. The system consists of a flare station, 17 vertical extraction wells installed in refuse, a condensate collection system, gas laterals, and a subsurface perimeter header pipe. Since the start-up of the LFG system in 2000, an average of 263,000 cubic feet per day of LFG has been extracted from the landfill. This equates to an average flow rate of 183 surface cubic feet per minute. Based on regular analytical laboratory measurements of LFG samples collected at the flare station, the system has removed and destroyed a total of approximately 25 tons (50,000 pounds) of nonmethane volatile organic compounds (VOCs) from the landfill since 2000.
35. Prior to 2008, the Discharger had installed nine multilevel LFG monitoring wells at the landfill. The wells were located at 1000-foot intervals around the perimeter of the landfill except for the southwest corner, where deep sumps were thought to preclude the migration of LFG to the perimeter. Following discussions with the LEA and input from CalRecycle (formerly the California Integrated Waste Management Board), the Discharger prepared a workplan for installing three new LFG monitoring wells. Two were located near the southwest corner of the site, and the third was to replace a well that was too shallow. The workplan was approved and the wells were installed in 2008. The eleven LFG monitoring wells meet the new Title 27 requirements for perimeter monitoring of LFG migration.
36. The Discharger's detection monitoring program for groundwater at the Unit satisfies the requirements contained in Title 27.
37. Volatile organic compounds are often detected in a release from a landfill, and are the primary waste constituents detected in groundwater beneath a municipal solid waste landfill. Since VOCs are not naturally occurring and thus have no background value, they are not amenable to the statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a Unit.
38. Sections 20415(e)(8) and (9) of Title 27 provide for the non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible detection of a release from a Unit in accordance with §20415(b)(1)(B)2.-4. of Title 27. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.
39. The Central Valley Water Board may specify a non-statistical data analysis method pursuant to Section 20080(a)(1) of Title 27. Section 13360(a)(1) of the California Water Code allows the Central Valley Water Board to specify requirements to protect underground or surface waters from leakage from a solid waste site, which

includes a method to provide the best assurance of determining the earliest possible detection of a release.

40. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a Unit, this Order specifies a non-statistical method for the evaluation of monitoring data.
41. The specified non-statistical method for evaluation of monitoring data provides two criteria (or triggers) for making the determination that there has been a release of non-naturally occurring waste constituents from a Unit. The presence of two non-naturally occurring waste constituents above their respective method detection limit (MDL), or one non-naturally occurring waste constituent detected above its practical quantitation limit (PQL), indicates that a release of waste from a Unit has occurred. Following an indication of a release, verification testing will be conducted to determine whether there has been a release from the Unit, or there is a source of the detected constituents other than the landfill, or the detection was a false detection. Although the detection of one non-naturally occurring waste constituent above its MDL is sufficient to provide for the earliest possible detection of a release, the detection of two non-naturally occurring waste constituents above the MDL as a trigger is appropriate due to the higher risk of false-positive analytical results and the corresponding increase in sampling and analytical expenses from the use of one non-naturally occurring waste constituent above its MDL as a trigger.

EVALUATION MONITORING PROGRAM

42. Organic compounds that are not naturally occurring have been detected in groundwater along the point of compliance. The following organic compounds have been regularly detected in compliance well samples at concentrations above water quality objectives (primary Maximum Contaminant Level): 1,1-dichloroethane (1,1-DCA), tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride. Other constituents regularly detected in compliance well samples at concentrations below maximum contaminant levels include: 1,1-dichloroethene (1,1-DCE), 1,2-dichloropropane, benzene, chloromethane, cis-1,2-dichloroethene, dichlorodifluoromethane (Freon 12), dichlorofluoromethane, and di-isopropyl ether (DIPE).
43. In April 2005, the Discharger completed an Evaluation Monitoring Program for the release of waste constituents to the groundwater. The Discharger submitted an Evaluation Monitoring Program Report on 6 May 2005. The nature of the release was demonstrated to be volatile organic compounds that originated from landfill gas. The extent of the release plume is limited to the shallow groundwater zone. The plume extends laterally approximately 800 feet from the Unit to the south and does not occur beyond the boundaries of the waste management facility property.

44. The groundwater evaluation monitoring system consists of eight monitoring wells: AR2-01 through AR2-08.
45. Occasionally, 1,1-dichloroethane (1,1-DCA) has been detected in evaluation monitoring well samples at concentrations above Maximum Contaminant Levels. Other constituents regularly detected in evaluation monitoring well samples at concentrations below Maximum Contaminant Levels include: 1,1-dichloroethene (1,1-DCE), chloromethane, dichlorodifluoromethane (Freon 12), dichlorofluoromethane, di-isopropyl ether (DIPE), and tetrachloroethene (PCE).
46. In June 2006, the Discharger submitted an Engineering Feasibility Study in accordance with Section 20425(c) of Title 27. The Engineering Feasibility Study concluded that the most technically and economically feasible corrective action alternative is monitored natural attenuation in conjunction with an LFG control system, drainage improvements and erosion protection.

CORRECTIVE ACTION

47. In October 2007, the Discharger submitted an amended Report of Waste Discharge to establish corrective action. The amended Report of Waste Discharge proposed monitored natural attenuation in conjunction with a landfill gas control system, drainage improvements and erosion protection.
48. Monitoring and Reporting Program No. R5-2010-0086 requires the Discharger to monitor the release of waste constituents and the progress of corrective action in accordance with a Corrective Action Plan.

FINAL COVER CONSTRUCTION AND ENGINEERED ALTERNATIVE

49. The current interim cover on the landfill consists of a minimum of one foot of soil placed on top of refuse. The current cover does not meet the final cover system requirements of Title 27.
50. Closure and post-closure maintenance requirements for landfills are contained in §21090 of Title 27. The prescriptive standard for the final cover is contained in §21090(a) of Title 27.
51. Section 20080(b) of Title 27 allows the Central Valley Water Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with §20080(c)(1) and (2), the Discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in §20080(b), or would be impractical and would not promote attainment of applicable performance standards. The

Discharger must also demonstrate that the proposed engineered alternative cover system is consistent with the performance goals addressed by the particular prescriptive standard, and provides protection against water quality impairment equivalent to the prescriptive standard in accordance with §20080(b)(2) of Title 27.

52. Section 13360(a)(1) of the California Water Code allows the Central Valley Water Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.
53. The Discharger submitted a design plan for the proposed closure of the landfill in a Final Closure Plan dated April 2006. The Final Closure and Post-Closure Maintenance Plans were determined to be adequate in a letter from Central Valley Water Board staff dated 9 June 2006. The plan proposed the construction of an engineered alternative in lieu of the prescriptive cover design specified in §21090(a) of Title 27. The proposed engineered alternative is an evapo-transpirative design consisting of a vegetated soil layer.
54. The Discharger adequately demonstrated that construction of a Title 27 prescriptive standard cover would be unreasonable and unnecessarily burdensome when compared to the proposed engineered alternative design. There is no clay source on-site or nearby and the cost of importing clay from off-site or mixing on-site soils with bentonite would cost substantially more than the alternative design.
55. The performance of an evapo-transpirative cover design can be adequately predicted by using a computer model that utilizes the Richards Equation and laboratory-derived parameters from samples of soil that will be used in the construction of the cover.
56. An evapo-transpirative final cover constructed according to a design derived in the above manner can be monitored to observe its actual performance. Adjustments can be made to the vegetation or thickness of the soil layer if a trend of under-performance is observed as part of the post-closure maintenance of the cover.
57. The Discharger proposed an evapo-transpirative cover design that was derived using the computer model UNSAT-H. The proposed design utilizes a three-foot thick vegetated soil layer.
58. Section 21090(a)(4)(A) of Title 27 requires that a periodic leak search, including a method for identifying and repairing breaches in "the low-hydraulic conductivity layer," be a component of the cover maintenance plan.

59. A common way to conduct a leak search on a cover that utilizes a low-hydraulic conductivity layer as part of its design is to monitor the surface of the cover for landfill gas emissions.
60. In an evapo-transpirative cover design, the low-hydraulic conductivity layer is replaced by a vegetated soil layer that is engineered and constructed to absorb moisture during precipitation events and expel moisture by evaporation and transpiration before it flows through the bottom of the cover.
61. Landfill gas emissions do not definitely indicate a leak in an evapo-transpirative cover. A leak in this kind of cover will be detected by using a device that directly measures moisture flux through the cover, such as a pan lysimeter. This Order requires the Discharger to construct a pan lysimeter(s) beneath the final cover.
62. The Discharger must submit the final construction and design plans for the final cover, and the Construction Quality Assurance Plan prior to construction of the final cover. Construction will not proceed until all applicable construction quality assurance plans have been approved by the Executive Officer.

CEQA AND OTHER CONSIDERATIONS

63. In June of 2009, the Discharger circulated for a 45-day public review period a Recirculated Draft EIR for the Arvin Sanitary Landfill Closure Construction Project. Two public hearings were held: one before the Kern County Planning Commission on 13 August 2009; and the other before the Kern County Board of Supervisors on 29 September 2009. Both hearings were open to the public for comment, and were publicly noticed in newspapers of general circulation. The Final EIR for the Arvin Sanitary Landfill Closure Construction Project was approved at the 29 September 2009 Board of Supervisors hearing.
64. The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code §21000, et seq., and the CEQA guidelines, in accordance with Title 14, CCR, §15301.
65. This order implements:
 - a. *The Water Quality Control Plan for the Tulare Lake Basin*, Second Edition, revised January 2004;
 - 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. State Water Resources Control Board Resolution No. 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993.

66. This order requires full containment of wastes and does not permit degradation of surface water or groundwater. Further antidegradation analysis is therefore not needed. The discharge is consistent with the antidegradation provisions of State Water Resources Control Board Resolution No. 68.16.

PROCEDURAL REQUIREMENTS

67. 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.

68. The Central Valley Water 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.

69. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

70. Any person affected by this action of the Central Valley Water 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.waterboards.ca.gov/laws_regulations/index.shtml and will be provided on request.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 5-00-023 is rescinded, and that the County of Kern, 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. With the exception of the VenVirotek material from the abandoned non-hazardous oil field waste processing facility located on waste management facility property, any additional waste at this facility is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The discharged wastes shall not cause the release of pollutants, or waste constituents in a manner which could cause a condition of nuisance, degradation, contamination, or pollution of groundwater to occur, as indicated by the most appropriate statistical or nonstatistical data analysis method and retest method listed in this Order, the Monitoring and Reporting Program, or the Standard Provisions and Reporting Requirements.
2. The discharge of solid waste, liquid waste, leachate, or waste constituents shall neither cause nor contribute to any degradation, contamination, pollution, or nuisance to surface waters, ponded water, or surface water drainage courses.
3. The discharged wastes 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 Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order.

C. FACILITY SPECIFICATIONS

1. The Discharger shall immediately notify the Central Valley Water Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions that could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
2. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control, fire suppression, and construction.

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. Methane and other landfill gases shall be adequately vented, removed from the Unit, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.
5. Surface drainage within the waste management facility shall either be contained on-site or be discharged in accordance with applicable storm water regulations.
6. The Discharger shall maintain a *Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements* in accordance with State Water Resources Control Board Order No. 97-03-DWQ, or retain all storm water on-site, until closure of the landfill is complete and approved.

D. CONSTRUCTION SPECIFICATIONS

1. The VenVirotek material placed beneath the final cover must meet the following conditions:
 - a. The VenVirotek material shall be placed above the interim cover.
 - b. The VenVirotek material shall be managed in accordance with a Removal Action Workplan that has been reviewed and approved by the Department of Toxic Substances Control, and the report entitled, *Proposed Soil Acceptance Criteria for Closure of the VenVirotek Soil Stockpiles*, dated May 2005.
 - c. At least one of the pan lysimeters used to monitor the effectiveness of the final cover (see Construction Specification D.4) shall be constructed in the area where the VenVirotek material is placed.
 - d. The final cover shall be constructed over the VenVirotek material as soon as practicable.
2. The Discharger shall submit for Executive Officer review and approval at least **120 days prior to** construction, design plans and specifications for

a final cover system that includes a Construction Quality Assurance Plan meeting the requirements of §20324 of Title 27.

3. **Within 30 months of approval of the RAW by DTSC**, the final cover system shall be constructed with an engineered alternative design known as an evapo-transpirative or monolithic design. The cover shall, at a minimum, consist of a three-foot thick vegetated soil layer. The soil layer shall be placed in such a manner that vegetative growth is assured while structural integrity is maintained.
4. One or more pan lysimeters shall be constructed on the upper deck of the Unit beneath the vegetated soil layer to monitor the effectiveness of the final cover in accordance with a plan approved by Central Valley Water Board staff.
5. The Discharger may propose changes to the final cover system design prior to construction, provided that approved components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed final cover system results in the protection of water quality equal to or greater than the design prescribed by Title 27 and this Order. The proposed changes may be made following approval by the Executive Officer. Substantive changes to the design require reevaluation as an engineered alternative and approval by the Central Valley Water Board.
6. Construction shall proceed only after all applicable construction quality assurance plans have been approved by the Executive Officer.
7. **Within 90 days** following the completion of construction of the final cover system, the final documentation required in §20324(d)(1)(C) of Title 27 shall be submitted to the Executive Officer for review and approval. The report shall be certified by a registered civil engineer or a certified engineering geologist. It shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, with this order, and with the standards and performance goals of Title 27.
8. A third party independent of both the Discharger and the construction contractor shall perform all of the construction quality assurance (CQA) monitoring and testing during the construction of a liner system. The CQA program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer.

E. MONITORING SPECIFICATIONS

1. The Discharger shall comply with Monitoring and Reporting Program No. R5-2010-0086, which is incorporated into and made part of this Order. Groundwater monitoring shall include corrective action monitoring.
2. The Discharger shall provide Central Valley Water Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation, repair, or abandonment of monitoring devices. At the beginning of each sampling period, in accordance with Section B. Reporting of Monitoring and Reporting Program No. R5-2010-0086, a schedule shall be submitted listing anticipated sampling dates for that reporting period.
3. The Discharger shall comply with the Water Quality Protection Standard (as defined in §20390 of Title 27) which is specified in Monitoring and Reporting Program No. R5-2010-0086 and the Standard Provisions and Reporting Requirements, dated April 2000.
4. The Water Quality Protection Standard for organic compounds which are not naturally occurring shall be taken as the detection limit of the analytical method used (i.e., US-EPA methods 8260 and 8270). The presence of non-naturally occurring organic compounds in samples from detection monitoring wells is evidence of a release from the Unit unless the Discharger can demonstrate that the Unit is not the cause pursuant to §20420(k)(7) of Title 27.
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. R5-2010-0086.
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. R5-2010-00865 and §20415(e) of Title 27.
7. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless the Executive Officer approves a

8. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) *Methods for the Analysis of Organics in Water and Wastewater* (USEPA 600 Series), (2) *Test Methods for Evaluating Solid Waste* (SW-846, latest edition), and (3) *Methods for Chemical Analysis of Water and Wastes* (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan.
9. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology shall be submitted for review and approval by the Executive Officer prior to use.
10. **The methods of analysis and the detection limits used** shall be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from Background Monitoring Points for that medium, the analytical method having the lowest method detection limit (MDL) shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.
11. **"Trace" results** - results falling between the MDL and the practical quantitation limit (PQL) - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
12. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.
13. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with estimates of the detection limit and quantitation limit actually achieved. **The MDL shall**

always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.

The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.

14. The Quality Assurance/Quality Control (**QA/QC**) **data** shall be reported, along with the sample results to which they apply, including the method, equipment, and analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.
15. **Unknown chromatographic peaks** shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.
16. The statistical method shall account for data below the PQL with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to §20415(e)(7) of Title 27 that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in this Order for routine laboratory operating conditions that are available to the facility. The Discharger's technical report, pursuant to §20415(e)(7) of Title 27, shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, California Code of Regulations, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or nonstatistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set,

the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties."

17. The Discharger may propose an alternate statistical method [to the methods listed under 27 CCR §20415(e)(8)(A-D)] in accordance with §20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer. Upon receiving written approval from the Executive Officer, alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate). The analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Central Valley Water Board staff.
18. The Discharger shall use the following nonstatistical method specified in Detection Monitoring Specification E.19 for all constituents which are not amenable to the statistical tests above (i.e., less than 10% of the data from background samples that equal or exceed their respective MDL). This includes all constituents in the Monitoring Parameters and for all Constituents of Concern (COC) found in groundwater and unsaturated zone (in soil-pore liquid or gas). Each constituent at a monitoring point shall be determined to meet this criterion based on either:
 - a. The results from a single sample for that constituent, taken during that reporting period from that monitoring point; or
 - b. If more than one sample has been taken during a reporting period from a monitoring point, the results from the sample which contains the largest number of qualifying constituents shall be used.

Background for water samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point). The Discharger may propose an alternate statistical method [to the methods listed under 27 CCR §20415(e)(8)(A-D)] in accordance with §20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer.

19. The nonstatistical method shall be implemented as follows:
 - a. For every compliance well, regardless of the monitoring program, the Discharger shall use this data analysis method, jointly, for all monitoring parameters and COCs that are detected in less than 10%

of background samples. Any COC that triggers a discrete retest per this method shall be added to the monitoring parameter list.

Triggers — From the monitoring parameters and COC list identify each constituent 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, provide a measurably significant indication] of a change in the nature or extent of the release, at that well, if either:

- 1) The data contains two or more qualifying monitoring parameters and/or COCs that are detected in less than 10% of background samples that equal or exceed their respective MDLs; or
- 2) The data contains one qualifying monitoring parameter and/or COC that equals or exceeds its PQL.

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

- 1) In the event that the Discharger concludes (pursuant to paragraph 19.a., above) that there is a preliminary indication, then the Discharger shall immediately notify Central Valley Water Board staff by phone or e-mail and, within 30 days of such indication, shall collect two new (retest) samples from the indicating compliance well.
 - 2) For any given compliance well retest sample, the Discharger shall include, in the retest analysis, only the laboratory analytical results for those constituents indicated in that well's original test. As soon as the retest data are available, the Discharger shall apply the same test [under 19.a.], to separately analyze each of the two suites of retest data at that compliance well.
 - 3) If either (or both) of the retest samples meets either (or both) of the triggers under 19.a., then the Discharger shall conclude that there is a measurably significant increase at that well for the constituent(s) indicated in the validating retest sample(s).
20. If the Executive Officer determines, after reviewing the submitted report, that the detected constituent(s) most likely originated from the Unit(s), the Discharger shall **immediately** implement the requirements of Section XI. Response To A Release, C. Release Has Been Verified, contained in the Standard Provisions and Reporting Requirements.

F. FINAL COVER MAINTENANCE AND MONITORING

1. The Discharger shall monitor the final cover in accordance with the Post-Closure Maintenance Plan and Monitoring and Reporting Program No. R5-2010-0086.
2. Monitoring of the final cover shall include inspecting and recording the volume of moisture collected by the pan lysimeter(s) (see Construction Specification D.4).
3. The Discharger shall submit a report for Executive Officer review and approval within 90 days following construction proposing the amount of moisture that would constitute significant infiltration through the final cover as measured by the pan lysimeter(s) with supporting documentation.
4. In the event the pan lysimeter(s) detect significant moisture infiltration, then, **within 120 days**, the Discharger shall submit a plan and time schedule, for Executive Officer review and approval, to evaluate the problem, and recommend and implement corrective measures.

G. PROVISIONS

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Central Valley Water Board office by telephone **as soon as** it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.
2. The Discharger shall maintain a copy of this Order at the offices of the County of Kern Waste Management Department, and make it available during working hours to facility maintenance personnel, who shall be familiar with its contents, and to regulatory agency personnel.
3. The Discharger shall comply with all applicable provisions of Title 27 that are not specifically referred to in this Order.
4. The Discharger shall comply with the applicable portions of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by*

Title 27 and/or Subtitle D (27 CCR §20005 et seq. and 40 CFR 258 et seq.), dated April 2000, which is hereby incorporated into this Order.

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

“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”
6. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as

necessary to determine the nature, extent, and impact of the noncompliance.

7. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and post-closure maintenance period of the Unit(s) and during subsequent use of the property for other purposes.
8. If the Discharger or the Central Valley Water Board determines that the corrective action program is not adequate (i.e. does not satisfy the provisions of Section 20430 of Title 27), the Discharger shall, within 90 days of making the determination, or of receiving written notification from the Central Valley Water Board of such determination, submit an amended report of waste discharge (RWD) to make appropriate changes to the program. The amended RWD shall include the following:
 - a. A discussion as to why existing corrective action measures have been ineffective or insufficient.
 - b. A revised evaluation monitoring plan if necessary to further assess the nature and extent of the release.
 - c. A discussion of corrective action needs and options.
 - d. Proposed additional corrective action measures, as necessary, for:
 - 1) Source control,
 - 2) Groundwater cleanup, and/or
 - 3) Landfill gas control
 - e. A plan to monitor the progress of corrective action measures consistent with Monitoring and Reporting Program No. R5-2010-0086.
 - f. Cost estimates for implementing additional corrective action, including monitoring.
 - g. An implementation schedule.
9. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall

not be regarded as a defense for the Discharger's violations of the Order.

10. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Central Valley Water 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 Central Valley Water Board, and a statement. The statement shall comply with the signatory requirements contained in Provision G.5 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer of this Order shall be approved or disapproved by the Central Valley Water Board.
11. The Discharger shall conduct an annual review of the financial assurance for initiating and completing corrective action, and submit a report for Executive Officer review and approval by **30 June of each year**. The assurances of financial responsibility shall provide that funds for corrective action shall be available to the Central Valley Water Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.
12. The Discharger shall conduct an annual review of the financial assurance for closure and post-closure maintenance, and submit a report for Executive Officer review and approval by **30 June of each year**. The assurances of financial responsibility shall provide that funds for closure and post-closure maintenance shall be available to the Central Valley Water Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.
13. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule:

<u>Task</u>	<u>Compliance Date</u>
A. Construction Plans	
Submit construction and design plans for Executive Officer review and approval. (see Construction Specification D.2)	At Least 120 Days Prior to Construction
B. Final Cover Construction	
Complete final cover construction in accordance with approved construction plans. (see Construction Specification D.3)	Within 30 months of approval of the RAW by DTSC
C. Construction Report	
Submit a construction report upon completion demonstrating construction was in accordance with approved construction plans for Executive Officer review and approval. (see Construction Specification D.7)	Within 90 days following completion of construction

<u>Task</u>	<u>Compliance Date</u>
D. Infiltration Report	
Submit a report proposing what amount of moisture would constitute significant infiltration through the final cover as measured by the pan lysimeter(s) for Executive Officer review and approval. (See Monitoring Specification F.3)	Within 90 days following completion of construction
E. Financial Assurance Review	
1. Annual Review of Financial Assurance for initiating and completing corrective action (see Provision G.11.)	30 June each year

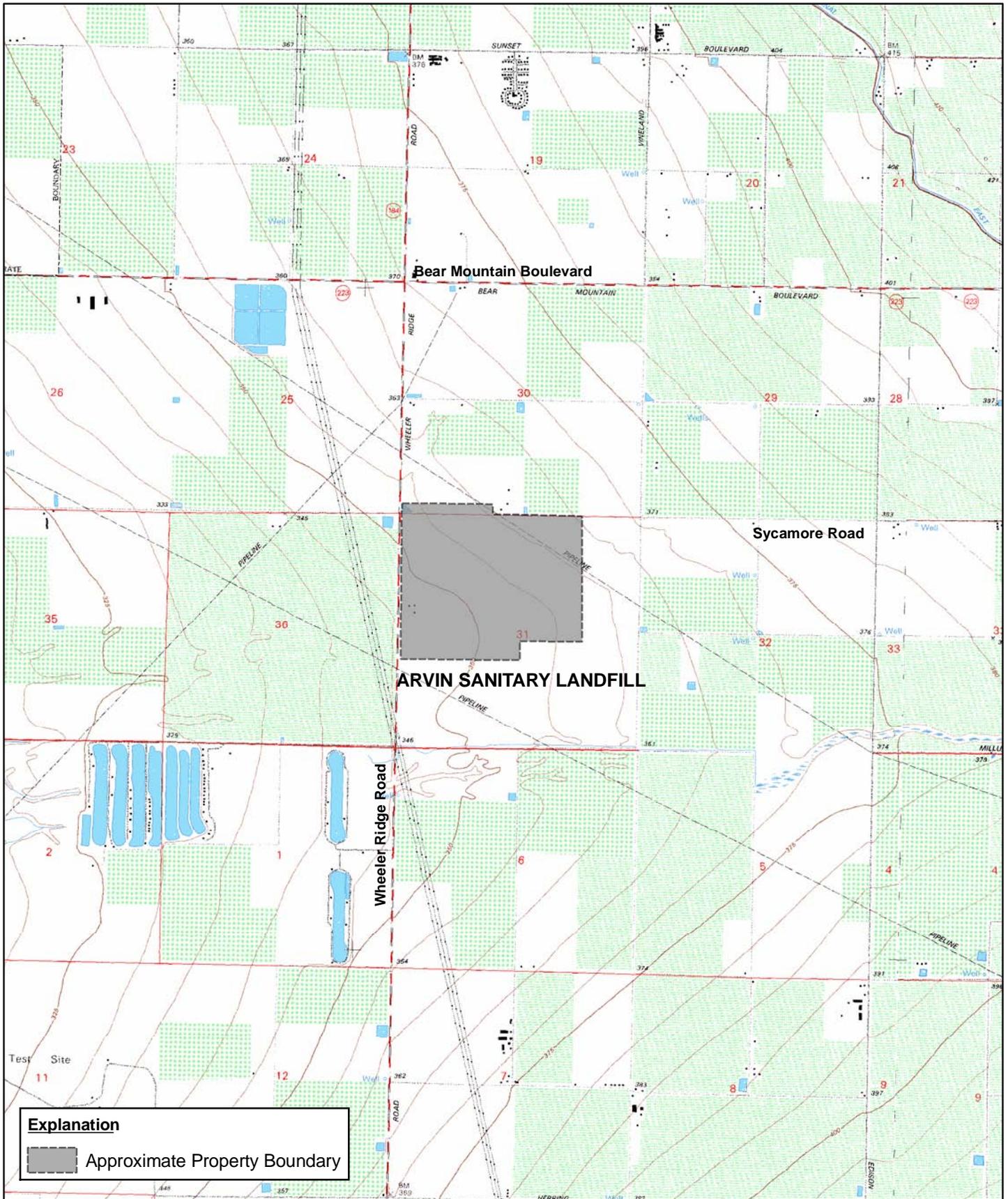
2. Annual Review of Financial Assurance for closure and post-closure maintenance (see Provision G.12.) **30 June each year**

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provision of this Order, the Executive Officer may apply to the Attorney General for judicial enforcement or issue a complaint for Administrative Civil Liability.

I, PAMELA CREEDON, 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 29 July 2010.

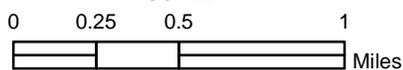
REH: 29 July 2010

PAMELA CREEDON, Executive Officer



Explanation
 [Shaded Gray Box] Approximate Property Boundary

Map Source:
 WEED PATCH 7.5 Minute USGS Quadrangle
 Sections 30 & 31 T31S R29E, MDB&M



LOCATION MAP

Order No. R5-2010-0086
 Waste Discharge Requirements
 For
 County of Kern
 for Closure and Post-Closure Maintenance
 Arvin Sanitary Landfill
 Kern County



VenVirotek

Waste Management Unit

Sycamore Road

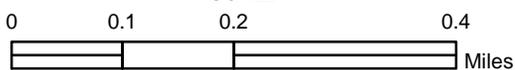
Wheeler Ridge Road

Explanation	
	Groundwater Monitoring Well
	Landfill Gas Monitoring Well
	Approximate VenVirotek Boundary
	Approximate Waste Management Unit Boundary
	Approximate Property Boundary

Map Source:
WEED PATCH 7.5 Minute USGS Quadrangle
Sections 30 & 31 T31S R29E, MDB&M



SCALE



SITE MAP

Order No. R5-2010-0086
Waste Discharge Requirements
For
County of Kern
for Closure and Post-Closure Maintenance
Arvin Sanitary Landfill
Kern County

ATTACHMENT B

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2010-0086
FOR
COUNTY OF KERN
FOR
CLOSURE AND POST-CLOSURE MAINTENANCE
ARVIN SANITARY LANDFILL
KERN COUNTY

The Discharger shall comply with this Monitoring and Reporting Program, with Title 27, California Code of Regulations, Section 20005, et seq. (hereafter Title 27), and with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Title 27 and/or Subtitle D (27 CCR §20005 et seq. and 40 CFR 258)*, dated April 2000, pursuant to Waste Discharge Requirements Order No. R5-2010-0086.

A. REQUIRED MONITORING REPORTS

<u>Report</u>	<u>Due</u>
1. Groundwater Monitoring (Section D.1)	See Table I
2. Corrective Action Monitoring (Section D.2)	With Groundwater Monitoring
3. Annual Monitoring Summary Report (Section E.5.)	Annually
4. Leachate Monitoring (Section D.3)	See Table II
5. Facility Monitoring (Section D.4)	As necessary
6. 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. R5-2010-0086 and the Standard Provisions and Reporting Requirements. Reports which do not comply

with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the waste discharge requirements. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format acceptable to the Executive Officer.

Each monitoring report shall include a compliance evaluation summary as specified in Section E. Reporting Requirements, below.

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

<u>Sampling Frequency</u>	<u>Reporting Frequency</u>	<u>Reporting Periods End</u>	<u>Report Date Due</u>
Monthly	Quarterly	Last Day of Month	by Semiannual Schedule
Quarterly	Quarterly	31 March	31 August
		30 June	31 August
		30 September	28 February
		31 December	28 February
Semiannually	Semiannually	30 June	31 August
		31 December	28 February
Annually	Annually	31 December	30 April
5-Year	Every 5 years	31 December	30 April

The Discharger shall submit an **Annual Monitoring Summary Report** to the Central Valley Water Board covering the previous monitoring year. The annual report shall contain the information specified in Section E.5 Reporting Requirements, below, and a discussion of compliance with the waste discharge requirements and the Water Quality Protection Standard.

The results of **all monitoring** conducted at the site shall be reported to the Central Valley Water 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 for each monitored medium. The Water Quality Protection Standard, or any modification thereto, shall be submitted in a report for review and approval.

The report shall:

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

The Water Quality Protection Standard shall be certified by a California-registered civil engineer or geologist as meeting the requirements of Title 27. If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of the Water Quality Protection Standard.

2. Constituents of Concern

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

a. **Monitoring Parameters**

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

3. Concentration Limits

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

- a. By calculation in accordance with a statistical method pursuant to §20415 of Title 27(e)(8); or
- b. By an alternate statistical method meeting the requirements of §20415(e)(8)(E) of Title 27.

The concentration limits for naturally occurring constituents of concern shall be reassessed annually in accordance with the Water Quality Protection Standard Report dated September 2004 and shall be listed in the Annual Monitoring Summary Report.

4. Point of Compliance

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

5. Compliance Period

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

D. MONITORING

The Discharger shall comply with the detection monitoring program provisions of

Title 27 for groundwater in accordance with Monitoring Specifications E.1 and E.3 of Waste Discharge Requirements, Order No. R5-2010-0086. All monitoring shall be conducted in accordance with a Sample Collection and Analysis Plan, which includes quality assurance/quality control standards, that shall be submitted for review and approval.

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

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

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

1. Groundwater

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with the applicable provisions of §20415 and §20420 of Title 27 in accordance with an approved Detection Monitoring Program. The detection monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

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

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

Groundwater samples shall be collected from the point-of-compliance wells,

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

The monitoring parameters shall also be evaluated each reporting period with regards to the cation/anion balance, and the results shall be graphically presented using a Stiff diagram, a Piper graph, or a Schoeller plot. Samples for the constituents of concern specified in Table I shall be collected and analyzed in accordance with the methods listed in Table IV every five years.

2. Corrective Action

The Discharger shall operate and maintain a groundwater corrective action monitoring system for the purpose of monitoring the nature and extent of the release and the progress of corrective action. Sample collection and analysis shall coincide with Groundwater Detection Monitoring.

Corrective Action monitoring data analysis shall include the following:

- a. Nature and Extent
 - 1) Comparisons with concentration limit to identify any new or previously undetected constituents at a monitoring point.
- b. Effectiveness of Corrective Action
 - 1) Preparation of time series plots for representative constituents.
 - 2) Trend analysis for each constituent.
 - 3) The need for additional corrective action measures and/or monitoring wells.

The results of the above analysis, including a narrative discussion, shall be included in each semiannual report and summarized in the Annual Report, as specified under reporting Section B above. The semiannual monitoring reports shall also include a discussion of the progress of corrective action toward returning to compliance with the Water Quality Protection Standard, as specified in Section 20430(h) of Title 27.

3. Leachate/Seep Monitoring

Leachate which seeps to the surface from the Unit shall be sampled and analyzed for the Monitoring Parameters and Constituents of Concern listed in Table III upon detection. The quantity of leachate shall be *estimated* and

reported as Leachate Flow Rate (in gallons/day). Also, refer to Section E.4, below.

4. Facility Monitoring

a. Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess damage to the drainage control system, groundwater monitoring equipment (including wells, etc.), and shall include the Standard Observations contained in Section E.3.f., below. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. By **15 November** of each year, the Discharger shall submit an annual report describing the results of the inspection and the repair measures implemented, including photographs of the problem and the repairs.

b. Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following *major storm events* (i.e., a storm that causes continuous runoff for at least one hour). Necessary repairs shall be completed **within 30 days** of the inspection. The Discharger shall report any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions that could impair the integrity of waste containment facilities and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs. Minor damage and subsequent repairs shall be reported in the next self-monitoring report.

E. REPORTING REQUIREMENTS

1. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the facility including the postclosure period.

Such legible records shall show the following for each sample:

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

- 5) A statement that the sampling procedure was conducted in accordance with the approved Sampling and Analysis Plan.
- b. A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
- c. For each groundwater body, a description and graphical presentation of the gradient and direction of groundwater flow under/around the Unit, and the groundwater flow rate, based upon water level elevations taken prior to the collection of the water quality data submitted in the report.
- d. Laboratory statements of results of all analyses evaluating compliance with requirements.
- e. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.
- f. A summary and certification of completion of all **Standard Observations** for the Unit(s), for the perimeter of the Unit, and for the receiving waters. Standard observations for ACTIVE landfill units shall be conducted **weekly** during the wet season (1 October to 30 April) and **monthly** during the dry season (1 May to 30 September). Standard observations for INACTIVE or CLOSED landfill units shall be conducted **monthly** during the wet season (1 October to 30 April) and **quarterly** during the dry season (1 May to 30 September). The Standard Observations shall include:
 - 1) For the Unit:
 - a) Evidence of ponded water at any point on the facility (show affected area on map);
 - b) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and
 - c) Evidence of erosion and/or of day-lighted refuse.
 - 2) Along the perimeter of the Unit:
 - a) Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map);
 - b) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and
 - c) Evidence of erosion and/or of day-lighted refuse.

4. The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Central Valley Water Board **within seven days**, containing at least the following information:
 - a. A map showing the location(s) of seepage;
 - b. An estimate of the flow rate;
 - c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);
 - d. Verification that samples have been submitted for analyses of the Monitoring Parameters and Constituents of Concern listed in Table III of this MRP, and an estimated date that the results will be submitted to the Central Valley Water Board; and
 - e. Corrective measures underway or proposed, and corresponding time schedule.
5. The Discharger shall submit an **Annual Monitoring Summary Report** to the Central Valley Water Board covering the reporting period of the previous monitoring year. This report shall contain:
 - a. All monitoring parameters and constituents of concern shall be graphed so as to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
 - b. All historical monitoring data, including data for the previous year, shall be submitted in tabular form as well as in a digital file format. The Central Valley Water Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Title 27 CCR Section 20420(h)], in that this facilitates periodic review by the Central Valley Water Board.
 - c. The list of naturally occurring constituents of concern that is reassessed annually in accordance with the Water Quality Protection Standard Report dated September 2004.

- d. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.
- e. A map showing the area and elevations in which filling has been completed during the previous calendar year and a comparison to final closure design contours.
- f. A written summary of the monitoring results, indicating any changes made or observed since the previous annual report.
- g. An evaluation of the effectiveness of the leachate monitoring/control facilities including the results of the annual testing of leachate collection and removal systems required under VIII.P of the Standard Provisions and Reporting Requirements.

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

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

(Date)

REH: 29 July 2010

TABLE I
GROUNDWATER DETECTION MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Groundwater Elevation	Ft. & hundredths, M.S.L.	Quarterly
Temperature	°C	Semiannual
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
Turbidity	Turbidity units	Semiannual
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Semiannual
Chloride	mg/L	Semiannual
Carbonate	mg/L	Semiannual
Bicarbonate	mg/L	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual
Sulfate	mg/L	Semiannual
Calcium	mg/L	Semiannual
Magnesium	mg/L	Semiannual
Potassium	mg/L	Semiannual
Sodium	mg/L	Semiannual
Volatile Organic Compounds (USEPA Method 8260, see Table III)	µg/L	Semiannual
Constituents of Concern (see Table IV)		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141)	µg/L	5 years

TABLE II
LEACHATE DETECTION MONITORING PROGRAM

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

TABLE III

MONITORING PARAMETERS FOR DETECTION MONITORING

Surrogates for Metallic Constituents:

pH
Total Dissolved Solids
Electrical Conductivity
Chloride
Sulfate
Nitrate nitrogen

Constituents included in VOC:

USEPA Method 8260

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

TABLE III
MONITORING PARAMETERS FOR DETECTION MONITORING
Continued

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

TABLE IV
CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

<u>Inorganics (dissolved):</u>	<u>USEPA Method</u>
Aluminum	6010
Antimony	7041
Barium	6010
Beryllium	6010
Cadmium	6010
Chromium	6010
Cobalt	6010
Copper	6010
Silver	6010
Tin	200.8
Vanadium	6010
Zinc	6010
Iron	6010
Manganese	6010
Arsenic	200.8
Lead	200.8
Mercury	7470
Nickel	6010
Selenium	200.8
Thallium	200.8
Cyanide	E335.4
Sulfide	376.2

Volatile Organic Compounds:

USEPA Method 8260

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

TABLE IV

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

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

TABLE IV

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

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

Semi-Volatile Organic Compounds:

USEPA Method 8270 - base, neutral, & acid extractables

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

TABLE IV

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

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

TABLE IV

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

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

TABLE IV

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

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

Chlorophenoxy Herbicides:

USEPA Method 8151

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

Organophosphorus Compounds:

USEPA Method 8141

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

INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2010-0086
FOR COUNTY OF KERN
FOR CLOSURE AND POST-CLOSURE MAINTENANCE
ARVIN SANITARY LANDFILL
KERN COUNTY

The County of Kern (Discharger) owns and maintains the Arvin Sanitary Landfill about five miles west of the City of Arvin. The facility is currently regulated by Waste Discharge Requirements Order No. 5-00-023. The 170-acre facility contains one 128-acre waste management unit (Unit) that accepted municipal solid waste until 30 June 2003. This order revises the existing Waste Discharge Requirements to provide for the construction of a final cover, regulate post-closure maintenance of the Unit, and regulate corrective action for groundwater degradation.

The Unit is located on the floor of the San Joaquin Valley in the Kern Lake bed southwest of Bakersfield. The climate is semi-arid, with hot, dry summers and cool winters. The average annual precipitation is 8.2 inches, with an annual average pan evaporation of 60.6 inches. The site is within a 100-year floodplain according to FEMA maps.

The facility is in an area of known seismic activity. The Maximum Probable Earthquake is derived from a historic event of magnitude 7.7 that occurred in 1952 along the White Wolf Fault. The expected peak ground acceleration produced from this event is 0.44g. The site is not within a known fault hazard zone.

The Discharger adequately demonstrated that construction of a Title 27 prescriptive standard cover would be unreasonable and unnecessarily burdensome when compared to the proposed engineered alternative design. There is no clay source on-site or nearby and the cost of importing clay from off-site or mixing on-site soils with bentonite would cost substantially more than the alternative design. The Discharger demonstrated that an evapotranspirative cover utilizing soil from a nearby borrow source would be an appropriate engineered alternative to the prescriptive design. This Order requires the Discharger to install a pan lysimeter(s) beneath the final cover for the long-term monitoring of cover integrity.

An abandoned non-hazardous oil field waste processing facility, formerly operated by VenVirotek, is on a five-acre parcel within the southwest corner of the waste management facility property. Waste Discharge Requirements Order No. 92-199 was adopted naming both VenVirotek and Kern County as co-dischargers for the waste processing facility. An estimated 100,000 cubic yards

of processed waste material (VenVirotek material) containing volatile and semi-volatile organic compounds, metals, and other inorganic compounds remain. The County of Kern intends to move the VenVirotek material to the Arvin Landfill and place it above the existing interim soil cover and beneath the final cover in accordance with a Removal Action Workplan approved by the Department of Toxic Substances Control.

This Order provides a time period of 30 months after the Removal Action Workplan is approved to construct the final cover. This amount of time is required to allow the Discharger, a government entity, to include the project in a fiscal budget; process and place the VenVirotek material; and construct a 128-acre final cover.

Surface drainage is toward the Kern Lake Bed in the Kern Delta Hydrologic Area (557.10) of the Tulare Lake Basin. There are fifteen irrigation wells within one mile of the facility. Land within 1,000 feet of the facility is used for aquaculture, cultivated crops, or is vacant land.

The first encountered areal groundwater is approximately 60 to 85 feet below the native ground surface. Groundwater elevations range from 279 to 287 feet above mean sea level. Monitoring data indicate that the groundwater is unconfined. The depth to groundwater fluctuates seasonally by as much as 11 feet. Monitoring data indicate spatial variability in background groundwater quality. Groundwater from the lower portion of the aquifer tends to have lower specific electrical conductivity (EC) and lower concentrations of total dissolved solids (TDS). Background groundwater EC ranges between 414 and 5,240 micromhos per centimeter, with TDS ranges between 214 and 4,800 milligrams per liter.

The groundwater detection monitoring system, initiated in September 1987, currently consists of 13 monitoring wells. Monitoring wells AR1-06, AR1-21, AR1-22, and AR1-25 are used to collect background water quality data. Monitoring wells AR1-05, AR1-23, AR1-24, AR1-26, AR1-27, and AR1-28 are used to collect water quality data on the point of compliance.

Volatile organic compounds are often detected in a release from a landfill, and are the primary waste constituents detected in groundwater beneath a municipal solid waste landfill. Since volatile organic compounds are not naturally occurring, and thus have no background value, they are not amenable to the statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a Unit. Title 27 does provide for the non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible

detection of a release from a Unit. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.

The Central Valley Water Board may specify a non-statistical data analysis method pursuant to Section 20080(a)(1) of Title 27. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a Unit, this Order specifies a non-statistical method for the evaluation of monitoring data.

The specified non-statistical method for evaluation of monitoring data in this Order provides two criteria (or triggers) for making the determination that there has been a release of waste constituents from a Unit. The presence of two waste constituents above their respective method detection limit (MDL), or one waste constituent detected above its practical quantitation limit (PQL), indicates that a release of waste from a Unit has occurred. Following an indication of a release, verification testing will be conducted to determine whether there has been a release from the Unit, or there is a source of the detected constituents other than the landfill, or the detection was a false detection. Although the detection of one waste constituent above its MDL is sufficient to provide for the earliest possible detection of a release in accordance with Title 27, the detection of two waste constituents above the MDL as a trigger is appropriate due to the higher risk of false-positive analytical results and the corresponding increase in sampling and analytical expenses from the use of detecting one waste constituent above its MDL as a trigger.

Organic compounds that are not naturally occurring have been detected in groundwater along the point of compliance. The following organic compounds have been regularly detected in compliance well samples at concentrations above water quality objectives (primary Maximum Contaminant Level): 1,1-dichloroethane (1,1-DCA), tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride. Other constituents regularly detected in compliance well samples at concentrations below Maximum Contaminant Levels include: 1,1-dichloroethene (1,1-DCE), 1,2-dichloropropane, benzene, chloromethane, cis-1,2-dichloroethene, dichlorodifluoromethane (Freon 12), dichlorofluoromethane, and di-isopropyl ether (DIPE).

The nature of the release was demonstrated to be volatile organic compounds that originated from landfill gas. The extent of the release plume is limited to the shallow groundwater zone. The plume extends laterally approximately 800 feet from the Unit to the south and does not occur beyond the boundaries of the waste management facility property.

The Discharger completed an Engineering Feasibility Study in accordance with Section 20425(c) of Title 27. The Engineering Feasibility Study concluded that the most technically and economically feasible corrective action alternative is monitored natural attenuation in conjunction with landfill gas extraction. This Order requires the Discharger to maintain the integrity and effectiveness of containment structures as necessary to correct the effects of settlement, erosion, and other adverse factors and maintain groundwater and leachate monitoring throughout the post-closure maintenance period of the Unit. Additionally, the proposed corrective action program will monitor the waste constituent plume in the groundwater to determine whether its concentrations remain static, are reducing, or are expanding.

The provisions of Title 27 require that waste be contained to protect the beneficial uses water resources and to remediate any release of waste constituents to groundwater or surface water. This Order does not allow degradation of groundwater or surface water. Therefore, further antidegradation analysis is not needed.

On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated regulations (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 is discharged. The majority of the federal MSW regulations became effective on the "Federal Deadline," which was on 9 October 1993. With the issuance of Resolution No. 93-62, the State Water Resources Control Board established a statewide policy for the regulation of discharges of municipal solid wastes consistent with Subtitle D. Following the issuance of Resolution No. 93-62, the USEPA deemed the State of California to be an approved state, meaning that compliance with the applicable state regulations constitutes compliance with the corresponding portions of the federal Subtitle D regulations. These requirements are consistent with Resolution No. 93-62 and Subtitle D, and implement the appropriate state regulations in lieu of Subtitle D. The Discharger also needs to comply with all applicable provisions of Subtitle D that are not implemented through compliance with this Order or Title 27.

The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code §21000, et seq., and the CEQA guidelines, in accordance with Title 14, CCR, §15301. Revision of the waste discharge requirements updates them to conform with the California Water Code and Title 27, California Code of Regulations, §20005 et seq.