

CALIFORNIA REGIONAL WATER QUALITY CONTROL REGIONAL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2010-0072

WASTE DISCHARGE REQUIREMENTS
FOR
COUNTY OF TULARE
FOR
POSTCLOSURE MAINTENANCE AND CORRECTIVE ACTION
EXETER MUNICIPAL SOLID WASTE LANDFILL
TULARE COUNTY

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

1. The County of Tulare (hereafter Discharger) owns a closed municipal solid waste landfill about 3.3 miles south of Exeter, in Section 34, T19S, R26E, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order.
2. The existing 42-acre waste management facility (facility) consists of one existing unlined waste management unit (Unit) covering 34 acres as shown in Attachment B, which is incorporated herein and made part of this Order. The Unit does not contain a leachate collection and removal system. The facility is comprised of Assessor's Parcel Number (APN) 153-210-25.
3. On 11 July 2003, the Central Valley Water Board issued Waste Discharge Requirements Order R5-2003-0114 (Order R5-2003-0114), for closure and postclosure maintenance. The facility was classified as a Class III waste disposal facility for the discharge of a variety of nonhazardous solid waste, including lesser amounts of municipal solid waste, and inert solid waste in accordance with Title 27, California Code of Regulations, §20005, et seq. (Title 27). The Unit received nonhazardous solid, municipal solid, and inert wastes from 1952 until 1989 when the facility ceased discharge. The facility and waste classification remain the same for this Order. Revised waste discharge requirements are needed to specify requirements for postclosure maintenance and a corrective action program.
4. The Discharger closed the existing Unit in February 2007 in accordance with Order R5-2003-0114 and does not plan to construct additional Units.

SITE DESCRIPTION

5. The Unit was constructed on a topographically flat region of the San Joaquin Valley. The native ground surface is approximately 335 feet above mean sea level (MSL). The native ground surface slopes approximately 10 feet per mile toward the west. The facility overlies Quaternary-age alluvial deposits from Lewis Creek, which consist of moderately to highly permeable, interbedded fluvial deposits of gravelly-sand, silty-sand, silt, and clay. Information is not available about the type of basement rocks directly underlying the facility. Granite, metagabbro, metasedimentary rock, and ultramafic rock outcrop approximately four miles east of the facility. The alluvium underlying the facility may be derived in part, from the weathering and erosion of some or all of the aforementioned igneous and metamorphic rocks.
6. The measured hydraulic conductivity of the native soils underlying the Unit ranges between 7×10^{-4} and 5×10^{-5} centimeters/second (cm/sec).
7. The Unit is not within a fault hazard zone. The closest known Holocene faults are approximately 15 to 20 miles to the southeast near Lake Success. Recorded magnitudes of seismic events along these faults range between 4.5 and 4.9 on the Richter Scale. The Coalinga Nose Fault, used to calculate the peak ground acceleration for the design of the Unit's containment structures, is approximately 68 miles northwest of the Unit. The 1983 seismic event along the Coalinga Nose Fault is the largest recorded seismic event nearest to the Unit, with a recorded magnitude of 6.7, and is considered to be the maximum probable earthquake associated with the Unit. The maximum ground acceleration associated with the maximum probable earthquake is estimated to be 0.03 g.
8. Land within 1,000 feet of the Unit is used mainly for agriculture. Land to the west (West Side Brine Ponds) and southeast (East Side Brine Ponds) of the Unit was previously used by the City of Lindsay and Lindsay Olive Growers for the discharge of olive processing brine water (see Attachment 1). Discharges of olive processing brine water to the West Side and East Side Brine Ponds ceased in 1992. The West Side Brine Ponds are regulated by closure and postclosure Waste Discharge Requirements Order R5-04-0084 (adopted on 4 June 2004) and Cleanup and Abatement Order R5-04-0703 (adopted on 13 July 2004). The East Side Brine Ponds are regulated by Cleanup and Abatement Order R5-04-0715 (adopted on 27 August 2004).
9. The Unit receives an average of 9.4 inches of precipitation per year as measured at the Lindsay Station. The mean pan evaporation is 78.6 inches per year as measured at the Delano Government Camp station.

10. The 100-year, 24-hour precipitation event is estimated to be 3.38 inches, based on observations at the Exeter Station.
11. The facility is not within a 100-year flood plain based on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, Community-Panel Number 065066, Panel 675. The facility is within the Lewis Creek floodplain and within a B Zone Federal Insurance Rate Map designated area. Areas designated as B Zones are areas between the limits of the 100-year flood and the 500-year flood.
12. There are 13 domestic and 7 agricultural groundwater supply wells within one mile of the Unit. Some of the 13 domestic supply wells may not be active since some of the domestic dwellings have been placed on a municipal water supply system. Some of the agricultural supply wells may not be active as a result of groundwater degradation due to previous olive processing operations at the City of Lindsay's West Side and East Side Brine Ponds. No surface springs or other sources of groundwater supply have been observed. A domestic well (well I.D. 19S/26E-34P1) is about 500 feet east of the Unit's southeast corner.

WASTE AND SITE CLASSIFICATION

13. A variety of nonhazardous solid waste, as defined by §20220(a) of Title 27, including lesser amounts of municipal solid waste, as defined by 40 Code of Federal Regulations (CFR) Part 258.2, and inert solid waste, as defined by §20230(a) of Title 27, were discharged until September 1989.
14. The site characteristics where the Unit is located [including depth to groundwater (see Finding No. 20) and the measured hydraulic conductivity of the native materials underlying the Unit (see Finding No. 6)] do not meet the siting criteria for a Class III landfill contained in §20260(a) and (b)(1) of Title 27. As such, the site is not suitable for operating new Units or lateral expansions of existing Units for the discharge and containment of Class III wastes as described in Finding No.13, 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, Policy for Regulation of Discharges of Municipal Solid Waste.

SURFACE WATER AND GROUNDWATER CONDITIONS

15. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition* (hereafter Basin Plan), designates beneficial uses, establishes water quality

objectives, and contains implementation plans and policies for all waters of the Tulare Lake Basin.

16. The facility is on the floor of the San Joaquin Valley. Surface drainage is toward Elk Bayou, which is a tributary to the Tule River in the Kaweah Hydrologic Area (558.10) of the Tulare Lake Hydrologic Basin Planning Area.
17. The designated beneficial uses of the Tule River, as specified in the Basin Plan, are municipal supply, agricultural supply, industrial service and industrial process supply; recreation-1 and recreation-2, warm fresh water habitat, wildlife habitat, and groundwater recharge. The closest surface water body to the facility is Lewis Creek, which passes from east to west along the northern boundary of the facility. Lewis Creek is an intermittent surface water body.
18. Monitoring data indicate that the background surface water quality of Lewis Creek has an electrical conductivity (E.C.) of approximately 450 micromhos per centimeter ($\mu\text{mhos/cm}$), and a total dissolved solids (TDS) content of approximately 370 milligrams per liter (mg/l).
19. Lewis Creek has been monitored when water is present since 2005. Monitoring has not detected waste constituents in the water within Lewis Creek.
20. Three groundwater zones exist beneath the Unit. Unconfined groundwater [from approximately 64 feet below ground surface (bgs) to 135 feet bgs] flows predominantly to the west, but varies seasonally with periodic flow directions to the southwest and northwest. The elevation of unconfined groundwater ranges from approximately 266 to 195 feet MSL. A 90-foot thick confining layer separates the unconfined groundwater zone from the upper semi-confined groundwater zone. The upper semi-confined groundwater zone (from approximately 225 feet bgs to 305 feet bgs) flows toward the southwest. The elevation of the upper semi-unconfined groundwater zone ranges from approximately 105 to 135 feet MSL. Information on the groundwater flow direction for the lower semi-confined groundwater zone (below 305 feet bgs or an elevation of 25 feet MSL) is not available.
21. The unconfined groundwater elevation generally fluctuates between five and seven feet on a seasonal basis. On rare occasions, the depth to unconfined groundwater may fluctuate as much as 20 feet in the northernmost monitoring wells due to heavier than normal storm water flows in Lewis Creek.
22. Background groundwater in the unconfined groundwater zone has an E.C. that ranges from 1,500 to 3,600 $\mu\text{mhos/cm}$ and a TDS concentration that ranges from 1,000 to 2,700 mg/l. Background groundwater in the upper semi-confined

groundwater zone has an E.C. that ranges from 1,600 to 1,700 $\mu\text{mhos/cm}$ and a TDS concentration that ranges from 1,000 to 1,100 mg/l. Background water quality data are not available for the lower semi-confined groundwater zone.

23. Inorganic waste constituents in groundwater beneath the facility are derived from the olive brine waste water previously discharged to the City of Lindsay and Lindsay Olive Growers olive brine ponds located southeast and west of the facility (see Attachment 1). The inorganic waste constituents in groundwater that have originated from the West Side Brine Ponds and East Side Brine Ponds are regulated by separate orders (see Finding No. 8). Additionally, granite, metagabbro, metasedimentary rock, and ultramafic rock outcrop approximately four miles east of the facility. The alluvium underlying the facility may be derived in part, from the weathering and erosion of some or all of the aforementioned igneous and metamorphic rocks (see Finding No. 5). As a result, inorganic constituent concentrations beneath the facility may be partially due to the alluvium beneath and upgradient of the facility.
24. Unconfined groundwater beneath the facility flows west to northwest with a gradient ranging between 0.004 and 0.007 feet/foot. West of the landfill, unconfined groundwater flow ranges from westerly to southwesterly. Unconfined groundwater also flows vertically into the underlying upper semi-confined groundwater zone via water supply wells that serve as conduits and by seepage through the semi-confining layer, especially along the northern side of the landfill where there is an increased sand content.
25. The groundwater flow direction for the upper semi-confined groundwater zone is toward the southwest with a gradient ranging between 0.001 and 0.004 feet/foot. The direction of groundwater flow in the lower semi-confined aquifer is unavailable.
26. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal, agricultural, and industrial service and process supply.

GROUNDWATER MONITORING

27. Twenty-one groundwater detection monitoring wells have been installed in two groundwater zones around the perimeter of the facility (see Attachment B). The Discharger's existing detection monitoring program consists of various point of compliance monitoring wells and background monitoring wells in the unconfined and upper semi-confined groundwater zones. The Discharger's detection monitoring well system may need periodic revision in the future based on

changing hydraulic conditions at the facility. Revisions to the detection monitoring program will require Central Valley Water Board staff (Staff) review and approval.

28. The surface water detection monitoring system consists of two monitoring points, a background location on Lewis Creek north of the facility and a downgradient location on Lewis Creek immediately northwest of the northwest corner of the facility (see Attachment B).
29. Previously, unsaturated zone detection monitoring consisted of sampling landfill gas (LFG) monitoring wells G-1 through G-8 along the perimeter of the Unit (see Attachment B) for volatile organic compounds (VOCs). Since: 1) it is infeasible to install soil-pore liquid sampling devices beneath the closed Unit; 2) the maximum detected off-site total VOC concentration is 6.1 micrograms/liter ($\mu\text{g/l}$) and the VOCs in groundwater are commingled with a regional inorganic waste constituent plume derived from the City of Lindsay Olive and Lindsay Olive Growers brine ponds; 3) the final cover over the Unit and an LFG gas extraction system will minimize the LFG migration of VOC constituents to groundwater; and 4) a corrective action monitoring program is in operation for VOCs, unsaturated zone detection monitoring is infeasible and unnecessary for the early detection of a release.
30. The Discharger's detection monitoring program for groundwater at this Unit satisfies the requirements contained in Title 27.
31. 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 (see Finding No. 38). 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.
32. 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.
33. The Central Valley Water Board may specify a non-statistical data analysis method pursuant to Section 20080(a)(1) of Title 27. The Porter-Cologne Water Quality Control Act (California Water Code) §13360(a)(1) 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.

34. 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.
35. 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 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, 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 one waste constituent above its MDL as a trigger.

GROUNDWATER DEGRADATION

36. The Discharger initiated a detection monitoring program pursuant to §20420 of Title 27 and determined that various volatile organic waste constituents were released by the Unit to groundwater.
37. An evaluation monitoring program was completed in September 2005 and determined the nature and extent of the release. The evaluation monitoring program determined the nature of the release to consist of several VOCs.
38. Based on frequency of occurrence and concentration level, the release of VOCs in groundwater consists of: tetrachloroethylene (PCE); trichloroethylene (TCE); cis-1,2-dichloroethylene (cis-1,2-DCE); 1,1-dichloroethylene (1,1-DCE); 1,1-dichloroethane (1,1-DCA); dichlorodifluoromethane (CFC-12); 1,2-dichloropropane; and vinyl chloride.
39. The lateral extent of the VOC plume in unconfined groundwater (see Finding No. 38) is approximately 1,750 feet west of the Unit and approximately 300 feet south of the Unit. The lateral extent of the VOC plume in the upper semi-confined groundwater zone (see Finding No. 38) is approximately 1,400 feet west of the Unit and approximately 1,650 feet south of the Unit. The VOC plume extends

beyond the facility boundary towards the west and south. The vertical extent of VOC migration is approximately 294 feet bgs (near the base of the upper semi-confined groundwater zone).

POSTCLOSURE MAINTENANCE

40. The Discharger's final closure and postclosure maintenance plans were approved in March 2006. Postclosure maintenance duties proposed throughout the postclosure maintenance period include maintaining: 1) groundwater, surface water, and leachate/seep detection monitoring; 2) the structural integrity of the final cover system and effectiveness of containment structures as necessary to correct the effects of settlement, ponding, burrowing rodents, and equipment damage; and 3) the effectiveness of the drainage systems to prevent erosion of the final cover system and promote storm water drainage off of the final cover system.

CORRECTIVE ACTION PROGRAM

41. California Water Code §13304 requires dischargers to clean up waste and abate the effects of waste. Cleanup and abatement measures include corrective action measures as required under §20385(4) and §20430 of Title 27.
42. An engineering feasibility study for a corrective action program was reviewed and found to be adequate by Staff on 28 July 2006.
43. The Discharger's proposed corrective action method consists of monitored natural attenuation of the VOC plumes in the unconfined and upper semi-confined groundwater zones and public notification of the presence of VOC plumes in all areas affected by the release. Additionally, the Discharger states that the final cover system and landfill gas extraction will serve as source reduction limiting leachate and landfill gas migration to groundwater. Natural attenuation as a corrective action method relies primarily on the reduction of VOCs in groundwater over time as a result of dispersion, degradation, and possibly sorption. To evaluate the effectiveness of natural attenuation, the Discharger proposed monitoring points within and outside the VOC plumes to evaluate the status (increasing, decreasing, or static concentrations) of the plumes and whether the plume boundaries are expanding, shrinking, or remaining static.
44. Off-site vertical and lateral migration of the VOC plumes in the unconfined and upper semi-confined groundwater zones is proposed to be monitored utilizing

private agricultural and domestic wells, and monitoring wells located west, northwest, southwest, and south of the landfill. Monitoring results are proposed to be reported annually.

45. Staff concurred with the Discharger's proposed corrective action method to monitor natural attenuation of the VOCs in the confined and upper semi-confined groundwater zones. Concurrence was based on: 1) the VOCs plumes are commingled with a regional inorganic waste constituent plume associated with the City of Lindsay and Lindsay Olive Growers brine ponds; 2) the maximum off-site total VOC concentration is 6.1 micrograms/liter ($\mu\text{g/l}$), 3) the maximum total VOCs concentrations at the point of compliance range between 21.9 and 60 $\mu\text{g/l}$; 4) domestic wells east of the landfill that were subject to degradation by landfill gas have been taken out of service; 5) the final cover over the Unit and a landfill gas extraction system (source reduction), will reduce the migration of VOCs to groundwater via leachate and landfill gas; and 6) hydraulically downgradient receptors are not threatened at this time.
46. To monitor natural attenuation of the VOC plume in the unconfined groundwater zone, the County has specified the use of several private off-site monitoring wells. The Discharger's proposed off-site monitoring well system may need periodic revision in the future based on changing hydraulic conditions at the facility and/or accessibility to private off-site monitoring wells. Revisions to the detection monitoring program will require Staff review and approval.
47. City of Lindsay monitoring well LMW-20, located approximately 1375 feet west of the landfill (see Attachment A), is constructed within the unconfined groundwater zone and near the hydraulically downgradient margin of the VOC plume. As part of monitored natural attenuation of the VOCs in the unconfined groundwater zone, the Discharger monitors LMW-20 to evaluate the status of the total VOC concentration.
48. The Discharger proposes to utilize additional monitoring wells at the Hilarides Dairy to monitor the westerly migration of the VOC plume if it is determined that the total VOC concentration significantly increases in City of Lindsay monitoring well LMW-20. If additional monitoring wells at the Hilarides Dairy property cannot be utilized, the Discharger proposes to construct new monitoring wells that do not interfere with the Hilarides Dairy operations in the unconfined groundwater zone to monitor the westerly migration of the VOC plume.
49. To monitor the natural attenuation of VOCs in the upper semi-confined groundwater zone, the Discharger has selected several wells including agricultural and private monitoring wells located west, southwest, and northwest of the leading edge of the upper semi-confined VOC plume. No upper semi-

confined groundwater zone monitoring point is currently proposed to monitor the natural attenuation of the VOC plume south of the Unit.

50. The Discharger proposes to collect and analyze groundwater samples from corrective action monitoring points on an annual basis and submit the results of the analyses in Annual Monitoring Summary Reports.
51. The Discharger proposes to submit an amended engineering feasibility study for a corrective action program that contains an alternative corrective action method to monitored natural attenuation to mitigate the VOC plumes in the unconfined and upper semi-confined groundwater zones if it is determined that:
 - monitored natural attenuation and source control do not reduce the total concentrations of VOCs in groundwater; and/or
 - hydraulically downgradient receptors are threatened due to continued lateral and/or vertical expansion of the VOC plumes from their positions determined by the evaluation monitoring program.
52. The Discharger implemented the proposed corrective action program. The Discharger has not submitted an amended report of waste discharge (amended RWD) to establish a corrective action program for Executive Officer review and approval in accordance with the existing WDRs and §20425(d) of Title 27. According to the Discharger, a draft amended RWD for corrective action was prepared, but not submitted.

CEQA AND OTHER CONSIDERATIONS

53. Since no expansion of operations beyond the original waste footprint has occurred or is proposed, the facility is categorized as an “existing facility” and the action to revise the WDRs for postclosure maintenance and corrective action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resources Code, §21000, et seq., and the CEQA Guidelines, in accordance with §15301 of Title 14, CCR.
54. 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. Section 258.1(c) of Subtitle D states that Subtitle D regulations do not apply to municipal solid waste landfills that do not receive waste after 9 October 1991. The facility ceased

discharge in September 1989. Therefore, the provisions of Subtitle D do not apply to this Unit.

55. This order implements:

- a. The Water Quality Control Plan for the Tulare Lake Basin, Second Edition;
- b. The prescriptive standards and performance goals of Title 27, California Code of Regulations, Division 2, Subdivision 1, Chapters 1 through 7, 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.

56. This Order requires the Discharger to maintain the integrity and effectiveness of containment structures as necessary to correct the effects of settlement, erosion, or other adverse factors and maintain groundwater, surface water, and leachate/seep monitoring throughout the postclosure maintenance period of the Unit.

57. The proposed corrective action program will monitor VOC plumes to determine whether the VOC concentrations remain static, are reducing, or are expanding in the unconfined and upper semi-confined groundwater zones. If the VOC plumes in either the unconfined or upper semi-confined groundwater zones are determined to be expanding, the Discharger will be required to submit an amended engineering feasibility study for a corrective action program that contains alternative remedial methods to monitored natural attenuation to mitigate the expansion of the VOC plume/s.

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

59. Section 13267(b) of the California Water Code provides that: "In conducting an investigation specified in subdivision (a), the regional water board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of having discharged or discharging, or who proposed to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of

perjury, technical or monitoring program reports which the regional water board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.”

60. The technical reports required by this Order and the attached Monitoring and Reporting Program No. R5-2010-0072 are necessary to assure compliance with this Order. The Discharger owns and operated the facility where waste discharges occurred and is subject to this Order.

PROCEDURAL REQUIREMENTS

61. All local agencies with jurisdiction to regulate land use, solid waste discharge, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.
62. The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for closure and postclosure maintenance of the Unit, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
63. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.
64. 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, CCR. 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/water_laws/index.html and will be provided on request.

IT IS HEREBY ORDERED, pursuant to Porter-Cologne Water Quality Control Act (California Water Code) Sections 13263 and 13267, that Order No. R5-2003-0114 is rescinded and that the County of Tulare, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of waste to this Unit is prohibited.

B. DISCHARGE SPECIFICATIONS

1. Discharged wastes shall remain within the designated disposal area at all times.
2. 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, unauthorized discharge of waste off-site, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste 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 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. Cover materials shall be graded to divert precipitation from the Unit, to prevent ponding of surface water over wastes, and to resist erosion as a result of precipitation.

D. POSTCLOSURE MAINTENANCE SPECIFICATIONS

1. The Discharger shall conduct postclosure maintenance throughout the postclosure maintenance period in accordance with the approved postclosure maintenance plans. Postclosure maintenance duties include at a minimum, maintaining:
 - a) groundwater, surface water, and unsaturated zone detection monitoring systems;
 - b) the structural integrity of the final cover system and effectiveness of containment structures as necessary to correct the effects of settlement, ponding, burrowing rodents, and equipment damage; and
 - c) the effectiveness of the drainage systems to prevent erosion of the final cover system and promote storm water drainage off of the final cover system.

E. DETECTION MONITORING SPECIFICATIONS

1. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater and surface water in accordance with Monitoring and Reporting Program No. R5-2010-0072.
2. The Discharger shall provide Staff a minimum of **one week** notification prior to commencing any field activities related to the installation, repair, or abandonment of monitoring devices or the collection of samples associated with a detection monitoring program, evaluation monitoring program, or corrective action program.
3. The Discharger shall comply with the water quality protection standard (as defined in §20390 of Title 27) which is specified in Monitoring and Reporting Program No. R5-2010-0072 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.

5. The concentrations of the constituents of concern (COC) in waters passing the point of compliance shall not exceed the concentration limits established pursuant to Monitoring and Reporting Program No. R5-2010-0072.
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. R5-2010-0072 and §20415(e) of Title 27.
7. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless the Executive Officer approves a longer time period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.
8. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods and/or Standard Methods, such as the latest editions, as applicable, of: (1) *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater (USEPA 200 series or Standard Methods SM 4500 series)*, (2) *Test Methods for Evaluating Solid Waste (SW 846-latest edition)*, and (3) *Methods for Chemical Analysis of Water and Wastes*, and in accordance with an 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 Staff prior to use. 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 Staff.
10. The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background monitoring points for that medium, the analytical method having the lowest method detection limit (MDL) shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.

11. **“Trace” results** - results falling between the MDL and the practical quantitation limit (PQL) - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
12. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA and/or Standard Method analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA and/or Standard Method MDLs and PQLs.
13. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with estimates of the detection limit and quantitation limit actually achieved. The **MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.** The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent’s actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.
14. All quality assurance/quality control data (**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 data analysis method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to §20415(e)(7) of Title 27 that is used in the data analysis method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in these WDRs for routine laboratory operating conditions that are available to the facility. The Discharger's technical report, pursuant to §20415(e)(7) of Title 27 shall consider the PQLs listed in Title 22 CCR, Division 4.5, Chapter 14, Appendix IX, 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 Staff.
18. Upon receiving written approval from Staff, alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate). Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Staff.
19. The Discharger shall use the following nonstatistical method specified in Section E.20 for all constituents which are not amenable to the statistical tests above (i.e., less than 10% of the data from background samples equal or exceed their respective MDL). This includes all constituents in the monitoring parameters and for all COCs found in groundwater and surface water. 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 or soil-pore gas samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point).

20. 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 [§20415(e)(8)(E) of Title 27]:
 - 1) In the event that the Discharger concludes (pursuant to paragraph 19.a., above) that there is a preliminary indication of a release, then the Discharger shall immediately notify 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 20.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 20.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).
21. If the Executive Officer determines, after reviewing the submitted report that the detected COCs most likely originated from the Unit(s), the Discharger shall **immediately** implement the requirements of XI. Response To A Release, C. Release Has Been Verified, contained in the Standard Provisions and Reporting Requirements.

F. CORRECTIVE ACTION PROGRAM SPECIFICATIONS

1. **By 31 August 2010**, the Discharger shall submit an amended report of waste discharge to establish a corrective action program in accordance with these WDRs and §20425(d) of Title 27.
2. **By 31 August 2010** the Discharger shall submit a report that specifies the corrective action monitoring points (unconfined and upper semi-confined groundwater zone wells) to be utilized for evaluating the effectiveness of natural attenuation of VOCs.
3. The Discharger shall notify the public of the presence of landfill-derived VOC plumes in all water bodies affected by the release.
4. The Discharger shall collect and analyze groundwater samples from the corrective action monitoring wells on an annual basis and submit the analytical data in accordance with the reporting frequency in B. Reporting of Monitoring and Reporting Program No. R5-2010-0072. The groundwater samples shall be analyzed for the VOCs specified in Monitoring and Reporting Program No. R5-2010-0072.
5. The Discharger shall monitor City of Lindsay monitoring well LMW-20, to determine whether total concentration of VOCs are significantly increasing. If it is determined that the total VOC concentration in monitoring well LMW-20 has significantly increased, the Discharger needs to submit a proposal **within three months** to expand the unconfined groundwater zone monitoring system by constructing new monitoring wells or utilizing other existing monitoring wells hydraulically downgradient of the VOCs plume. The

proposal will need to contain a map showing where the new monitoring wells will be located and their construction details.

6. The Discharger shall evaluate the effectiveness of natural attenuation of VOCs in the unconfined and upper semi-confined groundwater zones on an annual basis. The Discharger's evaluation shall be included in the Annual Monitoring Summary Report.

7. **Within three months** of a determination that:

a. monitored natural attenuation and source control do not reduce the total concentrations of VOCs in groundwater; and/or

b. hydraulically downgradient receptors are threatened due to continued lateral and/or vertical expansion of the VOC plumes;

the Discharger shall submit an amended report of waste discharge for Executive Officer review and approval, that contains modifications to the corrective action program to mitigate the VOC plumes in the unconfined and upper semi-confined groundwater zones.

8. **Within six months** of approval of the modifications to the corrective action program (see Corrective Action Program Specification No. 7), the Discharger shall implement the modified corrective action program.

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 Central Valley Water Board staff 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 Tulare County Resource Management Agency 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 Monitoring and Reporting Program No. R5-2010-0072, which is incorporated into and made part of this Order.
4. The Discharger shall comply with the applicable portions of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Title 27 and/or Subtitle D (27 CCR §20005 et seq. and 40 CFR 258 et seq.)*, dated April 2000, which are hereby incorporated into this Order.
5. The Discharger shall comply with all applicable provisions of Title 27 and 40 Code of Federal Regulations Part 258 (Subtitle D) that are not specifically referred to in this Order.
6. All reports and transmittal letters shall be signed by persons identified below:
 - a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor.
 - c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.
 - d. A duly authorized representative of a person designated in a, b or c above if:
 - 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.”

- f. Section 6700 - §6799 and §7800 - §7887 of the California Code of Regulations (Business and Professions Code), requires that all technical reports (including self-monitoring reports where analytical work and evaluations are required) be prepared by a registered professional or subordinate employee under his or her direction. If the report is prepared by the subordinate employee then the registered professional is required to sign the report indicating his or her responsibility for the report. Self-monitoring reports include an interpretation of analytical data and therefore require the signature of an appropriately registered professional in accordance with the §6700 - §6799 and/or §7800 - §7887 of the California Code of Regulations, Business & Professional Code. Technical reports submitted by the Discharger without the signature of an appropriate registered professional will be incomplete and shall be rejected.
7. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.
8. The owner of the facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and postclosure maintenance period of the Unit and during subsequent use of the property for other purposes.
9. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of the Order.
10. To assume ownership or operation under this Order, a 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 maintain assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill in an amount approved by the Executive Officer, and shall submit the financial assurance mechanism to the Financial Assurances Section of the California Department of Resources Recycling and Recovery. The Discharger shall conduct an annual review of the estimates and submit a report for Executive Officer review and approval by 1 October of each year. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.
12. The Discharger shall maintain financial assurance mechanisms for postclosure maintenance costs as specified in Chapter 6 of Title 27. The Discharger is required to submit the financial assurance mechanism to the Financial Assurances Section of the California Department of Resources Recycling and Recovery, which determines if the mechanism meets the requirements of Chapter 6 of Title 27, and if the amount of coverage is adequate. The Discharger shall conduct an annual review of the estimates and submit a report for Executive Officer review and approval **by 1 October of each year**. 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:

Task

Compliance Date

A. Corrective Action Program

1. Submit an amended report of waste Discharge to establish a corrective action program.
(Corrective Action Monitoring Program Specification F.1) **31 August 2010**

- | | |
|--|--|
| <p>2. Submit a report that specifies the corrective action monitoring points to be used for evaluating the effectiveness of natural attenuation of VOCs.
(Corrective Action Monitoring Program Specification F.2)</p> | <p>31 August 2010</p> |
| <p>3. Submit a report with a proposal to expand the corrective action monitoring system for the unconfined groundwater zone if it is determined that VOC concentrations in City of Lindsay monitoring well LMW-20 have significantly increased.
(Corrective Action Monitoring Program Specification F.5)</p> | <p>Within three months of a determination of significant VOC concentrations in LMW-20</p> |
| <p>4. Submit a report that contains modifications to the corrective action program to mitigate the VOC plumes in the unconfined and upper semi-confined groundwater zones upon determination that:</p> <ul style="list-style-type: none">a. monitored natural attenuation and source control do not reduce the total concentrations of VOCs in groundwater; and/orb. hydraulically downgradient receptors are threatened due to continued lateral and/or vertical expansion of the VOC plumes;
(Corrective Action Monitoring Program Specification F.7) | <p>Within three months of a determination of Task 4.a and/or 4.b</p> |
| <p>5. Implement the modified correction action program.
(Corrective Action Monitoring Program Specification F.8)</p> | <p>Within six months of the submission of the report with modifications to the corrective action program</p> |

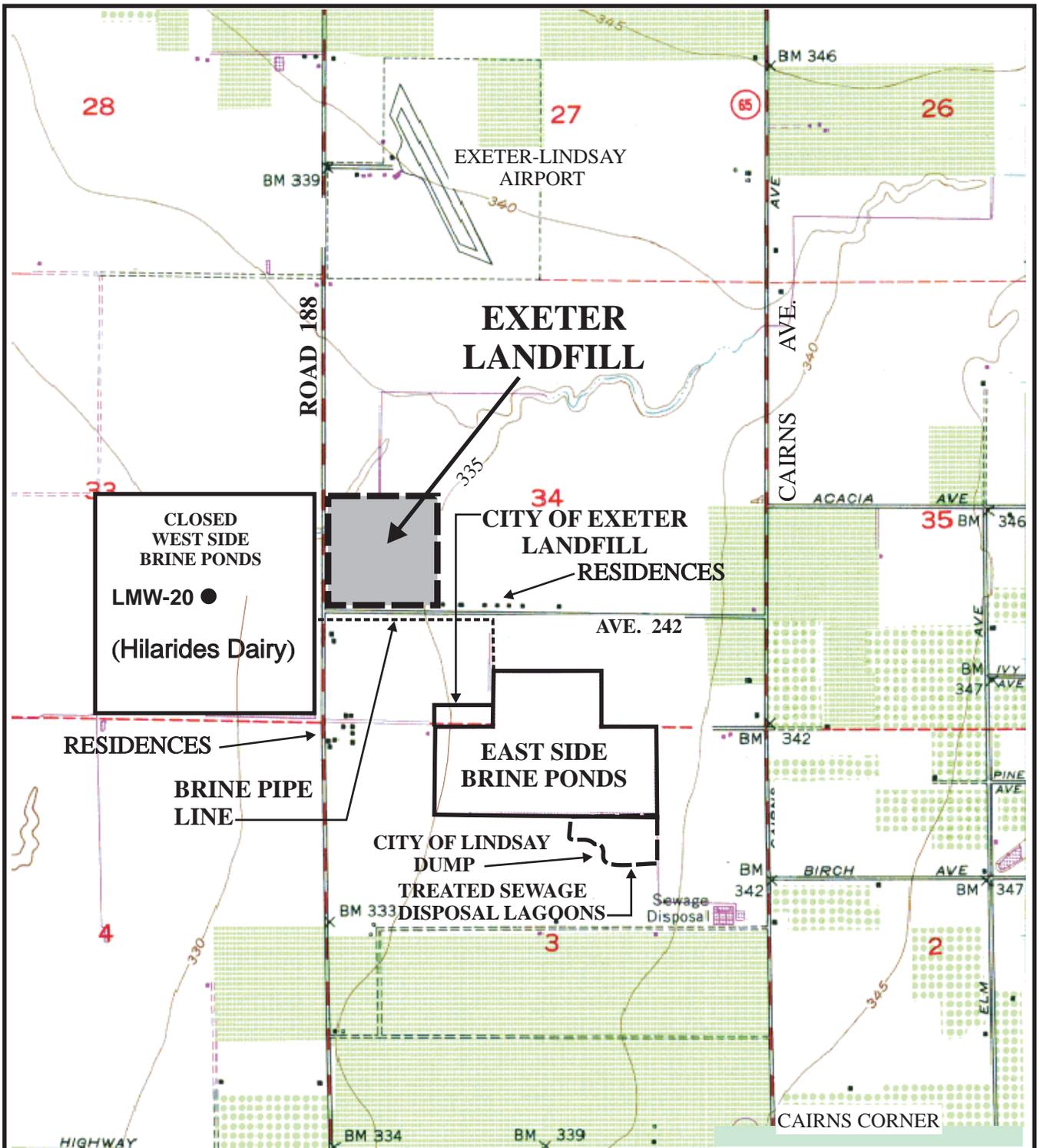
B. Financial Assurance Review

- | | |
|---|-------------------------------|
| 1. Annual Review of Financial Assurance for initiating and completing corrective action (see Provision G.11.) | 1 October of each year |
| 2. Annual Review of Financial Assurance for closure and postclosure maintenance (see Provision G.12.) | 1 October of each year |

I, PAMELA C. 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 27 May 2010.

PAMELA C. CREEDON, Executive Officer

VSM: 6/03/2010



LEGEND

FACILITY BOUNDARY

MILES

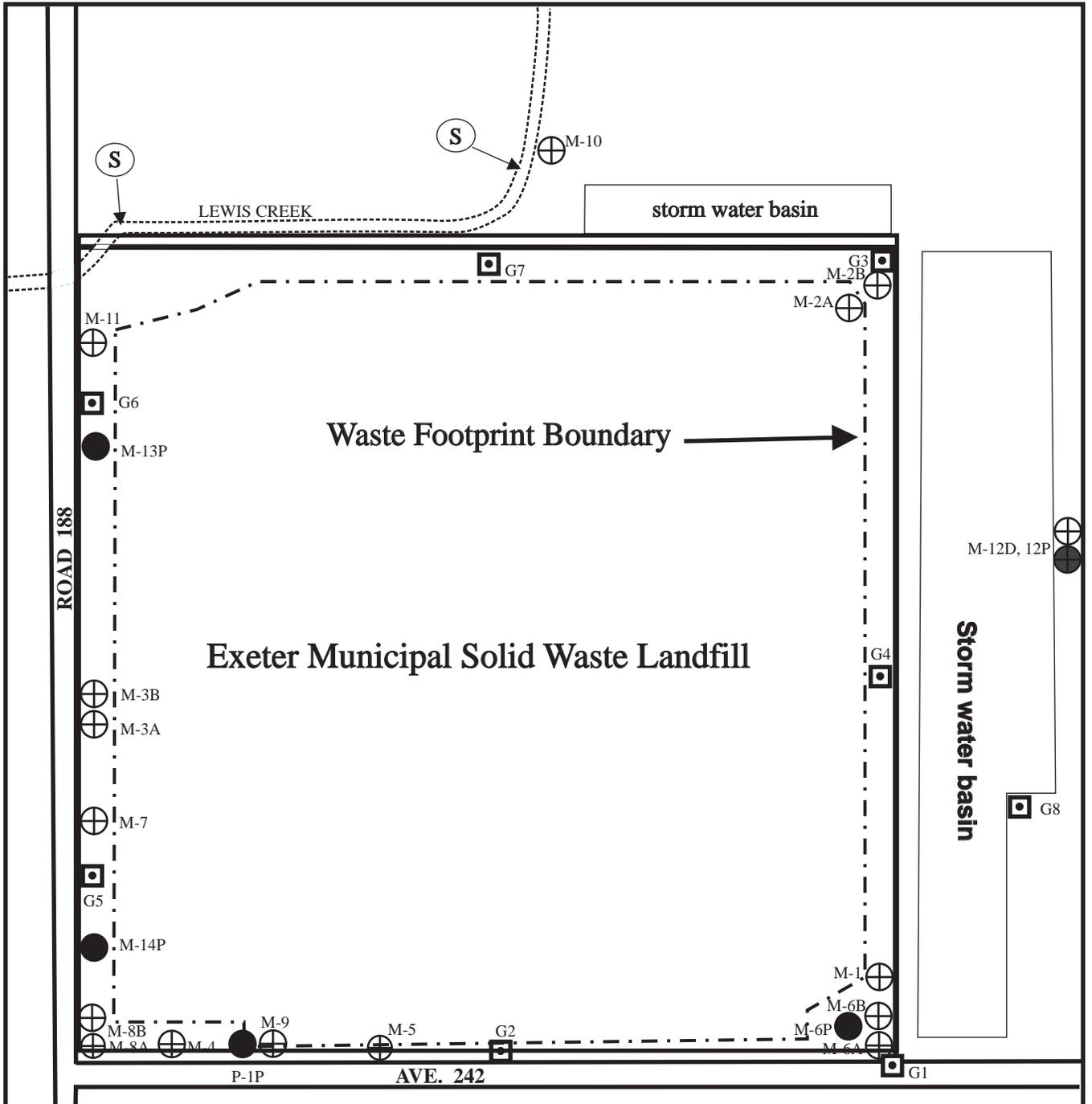
BASE MAP SOURCE: ADAPTED FROM USGS 7.5' CAIRNS CORNER QUADRANGLES
(2/2010) (VSM)

ATTACHMENT A

ORDER NO. R5-2010-0072

WASTE DISCHARGE REQUIREMENTS
FOR
COUNTY OF TULARE
FOR
POSTCLOSURE MAINTENANCE AND CORRECTIVE ACTION
EXETER MUNICIPAL SOLID WASTE LANDFILL
TULARE COUNTY

LOCATION MAP



LEGEND

- ⊕ Unconfined Groundwater Zone Detection Well
- Upper Semi-Confined Groundwater Zone Detection Well
- ⊠ Landfill Gas Monitoring Well
- ⊙ Surface water monitoring point
- Facility Boundary



BASE MAP SOURCE: ADAPTED FROM USGS 7.5' CAIRNS CORNER QUADRANGLES
(2/2010) (VSM)

ATTACHMENT B

ORDER NO. R5-2010-0072

WASTE DISCHARGE REQUIREMENTS
FOR
COUNTY OF TULARE
FOR

POSTCLOSURE MAINTENANCE AND CORRECTIVE ACTION
EXETER MUNICIPAL SOLID WASTE LANDFILL
TULARE COUNTY

SITE MAP

CALIFORNIA REGIONAL WATER QUALITY CONTROL REGIONAL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2010-0072
FOR
COUNTY OF TULARE
FOR
POSTCLOSURE MAINTENANCE AND CORRECTIVE ACTION
EXETER SOLID WASTE LANDFILL
TULARE COUNTY

Compliance with this Monitoring and Reporting Program; with Title 27 California Code of Regulations, §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*, dated April 2000 (Standard Provisions and Reporting Requirements), is ordered by Waste Discharge Requirements Order R5-2010-0072.

A. REQUIRED MONITORING REPORTS

<u>Report</u>	<u>Due</u>
1. Groundwater Monitoring (Section D.1)	See Table I
2. Annual Monitoring Summary Report	Annually
3. Surface Water Monitoring (Section D.3)	See Table II
4. Leachate/Seep Monitoring (Section D.4)	See Table III
5. Facility Monitoring (Section D.5)	Annually
6. Response to a Release (Standard Provisions and Reporting Requirements)	As necessary

B. REPORTING

The County of Tulare (hereafter Discharger) shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in Order R5-2010-0072 and the Standard Provisions and Reporting Requirements. Reports which do not comply with the required form will be **REJECTED** and the Discharger shall be deemed 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 E. Reporting Requirements.

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 Regional Water Quality Control Board (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	Semiannually	Last Day of Month	by Semiannual schedule
Quarterly	Semiannually	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	28 February

The Discharger shall submit an **annual monitoring summary report** (annual report) to the Central Valley Water Board covering the previous monitoring year. The annual report shall contain the information specified in E. Reporting Requirements and a discussion of compliance with the waste discharge requirements and the water quality protection standard (WQPS).

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 the waste management unit (Unit), the WQPS 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.

Central Valley Water Board staff (Staff) shall review and approve the WQPS, or any modification thereto, for each monitored medium.

The report shall:

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

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

2. Constituents of Concern

The constituents of concern include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit. The constituents of concern for the Unit are those listed in Tables I and II for the specified monitored medium, and Table V. 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 the Unit are those listed in Tables I through III for the specified monitored medium, and Table IV.

3. Concentration Limits

The concentration limits for each constituent of concern are as follows:

- a. For anthropogenic (not naturally occurring) constituents, which have no natural, and therefore, no background values, the concentration limit shall be the detection limit of the analytical method(s) used.
- b. Pursuant to §20415(e)(10)(B) of Title 27, for each naturally occurring inorganic constituent of concern, the concentration limit (applicable suite of background data) for that constituent shall be redetermined each semiannual monitoring period according to the following “moving window” formula, and the Discharger shall use the revised resulting concentration limit to apply the parametric Interwell Upper Prediction Limit analysis method featured in the Sanitas™ For Groundwater statistical software package, unless the software indicates that a different method (e.g., the nonparametric version of the same method) is more appropriate. For each reporting period subsequent to the initial reporting period, the Discharger shall create the new concentration limit, for that constituent, by taking the prior reporting period’s background data, adding the newest datum, for that constituent, from background monitoring wells and removing the oldest datum.

4. Point of Compliance

The point of compliance for the WQPS 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 the Unit shall be the number of years equal to the active life of the Unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality

monitoring program subsequent to a release from the Unit. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program.

D. MONITORING

The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and leachate in accordance with Detection Monitoring Specifications of Waste Discharge Requirements Order R5-2010-0072. All monitoring shall be conducted in accordance with a sample collection and analysis plan, which includes quality assurance/quality control standards, that is approved by Staff.

All point of compliance groundwater monitoring wells and surface water monitoring points established for the detection monitoring program shall constitute the monitoring points for the groundwater and surface water WQPS. All detection monitoring program groundwater monitoring wells, surface water monitoring points, and leachate seepage monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern as indicated and listed in Tables I through V.

Method detection limits (MDLs) and practical quantitation limits (PQLs) 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 V.

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

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 and §20430 of Title 27 in accordance with an approved corrective action monitoring plan. 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 groundwater zone, the upper semi-confined groundwater zone,

zones of perched water, and in any additional groundwater zone 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.

A groundwater contour map and tabular data shall be submitted showing the elevation of groundwater within the unconfined groundwater zone, the semi-confined groundwater zone, and any additional groundwater zone with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. The tabular data shall be prepared quarterly and submitted semiannually.

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

The monitoring parameters shall also be evaluated annually with regards to the cation/anion balance, and the results shall be graphically presented using a Stiff diagram, a Piper graph, or a Schueller plot. Samples for the constituents of concern specified in Table I shall be collected and analyzed in accordance with the methods listed in Table V 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 be conducted on an annual basis. The results of sample analysis shall include a narrative discussion and be summarized in the annual report, in accordance with the date specified under Section B. Reporting of this program.

Corrective action monitoring data analysis shall include the following:

a. Nature and Extent

- a) 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.
- c) The need for additional corrective action measures and/or monitoring wells.

The semiannual monitoring reports shall include a discussion of the progress of the corrective action toward returning to compliance with the WQPS (as specified in Section 20430(h) of Title 27) and be submitted in accordance with the frequency specified under Section B. Reporting of this program.

3. Surface Water Monitoring

The Discharger shall operate its surface water detection monitoring system where appropriate in accordance with the applicable provisions of §20415 and §20420 of Title 27, as approved by the Staff.

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

4. Leachate Seep Monitoring

The final cover of the Unit shall be monitored for leachate that seeps to the surface on a quarterly basis. Leachate that seeps to the surface from the Unit shall be sampled and analyzed for the constituents listed in Table III upon detection. The quantity of leachate shall be *estimated* and reported as leachate flow rate (in gallons/day).

5. 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 *significant storm events*. Necessary repairs shall be completed **within 30 days** of the inspection. The Discharger shall report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs.

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 Order R5-2010-0072, and records of all data used to complete the application for Order R5-2010-0072. Records shall be maintained throughout the postclosure maintenance period.

Such legible records shall show the following for each sample:

- a. Sample identification and the 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 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 shall include a compliance evaluation summary. The summary shall contain at least:
 - a. For each monitoring point addressed by the report, a description of:
 - 1) The time of water level measurement;
 - 2) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;
 - 3) The method of purging (the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; the calibration of the field equipment; results of the pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water) to remove all portions of the water that was in the well bore while the sample was being taken;
 - 4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
 - 5) A statement that the sampling procedure was conducted in accordance with the approved Sampling and Analysis Plan.
 - b. A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.

- c. For each groundwater body, a description and graphical presentation of the gradient and direction of groundwater flow under/around the Unit, and the groundwater flow rate, based upon water level elevations taken prior to the collection of the water quality data submitted in the report.
 - d. Laboratory statements of results of all analyses evaluating compliance with requirements.
 - e. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.
 - f. A summary and certification of completion of all **Standard Observations** for the Unit, for the perimeter of the Unit, and for the receiving waters. The Standard Observations shall include the items listed below.
 - 1) For the Unit:
 - a) Evidence of ponded water at any point on the Unit (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 leachate 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 a minimum, the following information:
- a. A map showing the location(s) of leachate seepage;
 - b. An estimate of the flow rate;

- c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);
 - d. Verification that samples have been submitted for analyses of the Constituents of Concern and Monitoring Parameters, and an estimated date that the results will be submitted to the Central Valley Water Board; and
 - e. Corrective measures underway or proposed, and corresponding time schedule.
5. The Discharger shall submit an annual report to the Central Valley Water Board covering the reporting period of the previous monitoring year. This report shall contain:
 - a. All detected monitoring parameters and constituents of concern shall be graphed so as to show historical trends at each 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, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
 - b. Unless otherwise exempted by the Executive Officer, all monitoring analytical data obtained during the previous two six-month reporting periods, shall be presented in tabular form as well as in a digital format acceptable to the Executive Officer. The Central Valley Water Board regards the submittal of data in hard copy and digital format as "...the form necessary for..." statistical analysis [§20420(h) of Title 27], in that this facilitates periodic review by Central Valley Water Board staff.
 - c. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.
 - d. A map showing the area and elevations in which filling has been completed during the previous calendar year and a comparison to final closure design contours.
 - e. A written summary of the monitoring results, indicating any changes made or observed since the previous annual report.

- f. An evaluation of the effectiveness of the leachate monitoring/control facilities.
- g. A written summary of the monitoring results of periodic leak searches to evaluate the structural integrity of the final cover system.

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

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

(Date)

VSM: 6/03/2010

TABLE I
GROUNDWATER DETECTION MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Groundwater Elevation	Ft. & hundredths, M.S.L. ¹	Quarterly
Temperature	°C ²	Semiannual
Electrical Conductivity	µmhos/cm ³	Semiannual
pH	pH units	Semiannual
Turbidity	NTU ⁴	Semiannual
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L ⁵	Semiannual
Chloride	mg/L	Semiannual
Carbonate	mg/L	Semiannual
Bicarbonate	mg/L	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual
Sulfate	mg/L	Semiannual
Calcium	mg/L	Semiannual
Magnesium	mg/L	Semiannual
Potassium	mg/L	Semiannual
Sodium	mg/L	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, see Table IV)	µg/L ⁶	Semiannual
Constituents of Concern (see Table V)		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

-
1. Feet and hundredths of a foot above mean sea level.
 2. Degrees Celsius.
 3. Micromhos per centimeter.
 4. Nephelometric turbidity units.
 5. Milligrams per liter.
 6. Micrograms per liter

TABLE II
SURFACE WATER DETECTION MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Temperature	°C ¹	Semiannual
Electrical Conductivity	µmhos/cm ²	Semiannual
pH	pH units	Semiannual
Turbidity	NTU ³	Semiannual
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L ⁴	Semiannual
Carbonate	mg/L	Semiannual
Bicarbonate	mg/L	Semiannual
Chloride	mg/L	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual
Sulfate	mg/L	Semiannual
Calcium	mg/L	Semiannual
Magnesium	mg/L	Semiannual
Potassium	mg/L	Semiannual
Sodium	mg/L	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, see Table IV)	µg/L ⁵	Semiannual
Constituents of Concern (see Table V)		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

-
1. Degrees Celsius.
 2. Micromhos per centimeter.
 3. Nephelometric turbidity units.
 4. Milligrams per liter.
 5. Micrograms per liter

TABLE III
LEACHATE/SEEP MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Total Flow	Gallons	Upon leachate seep discovery
Flow Rate	Gallons/Day	Upon leachate seep discovery
Electrical Conductivity	$\mu\text{mhos}/\text{cm}^1$	Upon leachate seep discovery
pH	pH units	Upon leachate seep discovery
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L^2	Upon leachate seep discovery
Chloride	mg/L	Upon leachate seep discovery
Carbonate	mg/L	Upon leachate seep discovery
Bicarbonate	mg/L	Upon leachate seep discovery
Nitrate - Nitrogen	mg/L	Upon leachate seep discovery
Sulfate	mg/L	Upon leachate seep discovery
Calcium	mg/L	Upon leachate seep discovery
Magnesium	mg/L	Upon leachate seep discovery
Potassium	mg/L	Upon leachate seep discovery
Sodium	mg/L	Upon leachate seep discovery
Volatile Organic Compounds (USEPA Method 8260B, see Table IV)	$\mu\text{g}/\text{L}^3$	Upon leachate seep discovery

-
1. Micromhos per centimeter.
 2. Milligrams per liter.
 3. Micrograms per liter

TABLE IV

MONITORING PARAMETERS FOR DETECTION MONITORING

Surrogates for Metallic Constituents:

pH
Total Dissolved Solids
Electrical Conductivity
Chloride
Sulfate
Nitrate nitrogen

Constituents included in VOCs:

USEPA Method 8260B

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

TABLE IV
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 V
CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

<u>Inorganics (dissolved):</u>	<u>USEPA Method/Standard Method</u>
Aluminum	200.8
Antimony	200.8
Barium	200.8
Beryllium	200.8
Cadmium	200.8
Chromium	200.8
Cobalt	200.8
Copper	200.8
Silver	200.8
Tin	200.8
Vanadium	200.8
Zinc	200.8
Iron	200.8
Manganese	200.8
Arsenic	200.8
Lead	200.8
Mercury	245.1
Nickel	200.8
Selenium	200.8
Thallium	200.8
Cyanide	SM ¹ 4500-CN
Sulfide	SM 4500-CN

1. Standard Methods

Volatile Organic Compounds:

USEPA Method 8260B

- 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)

TABLE V

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

(Continued)

Chloroprene
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- 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

TABLE V

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

(Continued)

1,1,1,2-Tetrachloroethane
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 8270C - base, neutral, & acid extractables

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

TABLE V

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

(Continued)

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

TABLE V

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
2,3,4,6-Tetrachlorophenol

TABLE V

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

(Continued)

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

Chlorophenoxy Herbicides:

USEPA Method 8151A

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

Organophosphorus Compounds:

USEPA Method 8141A

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

INFORMATION SHEET

ORDER NO R5-2010-0072
COUNTY OF TULARE
FOR POSTCLOSURE MAINTENANCE AND CORRECTIVE ACTION
EXETER SOLID WASTE LANDFILL
TULARE COUNTY

The County of Tulare (hereafter Discharger) owns and maintains a closed municipal solid waste landfill about 3.3 miles south of Exeter. The existing waste management facility (facility) contains one existing unlined waste management unit (Unit) covering 34 acres.

On 11 July 2003, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) adopted Order R5-2003-0114, for closure and postclosure maintenance of the Unit. Order R5-2003-0114 classified the facility as a Class III waste disposal facility where a variety of nonhazardous solid waste, including lesser amounts of municipal solid waste, and inert solid waste were previously discharged to the Unit in accordance with Title 27, California Code of Regulations, §20005, et seq. (Title 27). The Discharger closed the existing Unit in accordance with Title 27, in February 2007. The site and waste classification remain the same for this Order. Revised waste discharge requirements are needed to include requirements for postclosure maintenance and corrective action.

The Unit was constructed on a topographically flat region of the San Joaquin Valley. The facility overlies Quaternary-age alluvial deposits from Lewis Creek, which consist of moderately to highly permeable, interbedded fluvial deposits of gravelly-sand, silty-sand, silt, and clay. The measured hydraulic conductivity of the native soils underlying the Unit ranges between 7×10^{-4} and 5×10^{-5} centimeters per second (cm/sec).

Surface drainage is toward Elk Bayou, which is a tributary to the Tule River in the Kaweah Hydrologic Area (558.10) of the Tulare Lake Hydrologic Basin Planning Area. The closest surface water body to the facility is Lewis Creek (intermittent), which passes from east to west along the northern boundary of the facility. The latest available monitoring data indicate that the background surface water quality of Lewis Creek has an electrical conductivity (E.C.) of approximately 450 micromhos per centimeter ($\mu\text{mhos/cm}$), with total dissolved solids (TDS) of approximately 370 milligrams per liter (mg/l). Monitoring has not detected waste constituents in the water within Lewis Creek. The designated beneficial uses of the Tule River, as specified in the Basin Plan, are municipal supply, agricultural supply, industrial service and industrial process supply; recreation-1 and recreation-2, warm fresh water habitat, wildlife habitat, and groundwater recharge.

The facility is in the Kaweah Basin Hydrologic Unit, Detailed Analysis Unit 242. The designated beneficial uses of the groundwater include domestic and municipal water supply, agricultural supply, industrial service and process supply, and recreation-1 and recreation-2.

Three groundwater zones exist beneath the Unit, which from shallowest to deepest are the unconfined, upper semi-confined, and lower semi-confined groundwater zones. Unconfined groundwater (from approximately 64 feet below ground surface (bgs) to 135 feet bgs) flows predominantly to the west, and varies seasonally with periodic flow directions to the southwest and northwest. Unconfined groundwater also flows vertically into the underlying upper semi-confined groundwater zone via water supply wells that serve as conduits and by seepage through the semi-confining layer, especially along the northern side of the landfill where there is an increased sand content. The elevation of unconfined groundwater ranges from approximately 266 to 195 feet above mean sea level (MSL). The unconfined groundwater elevation generally fluctuates between five and seven feet on a seasonal basis. On rare occasions, the depth to unconfined groundwater may fluctuate as much as 20 feet in the northernmost monitoring wells due to heavier than normal storm water flows in Lewis Creek. The upper semi-confined groundwater zone (from approximately 225 feet bgs to 305 feet bgs) flows toward the southwest. The elevation of the upper semi-unconfined groundwater zone ranges from approximately 105 to 135 feet MSL. Information on the groundwater flow direction for the lower semi-confined groundwater zone (below 305 feet bgs or an elevation of 25 feet MSL) is not available.

Background groundwater in the unconfined groundwater zone has an E.C. that ranges from 1,500 to 3,600 $\mu\text{mhos/cm}$ and a TDS concentration that ranges from 1,000 to 2,700 mg/l. Background groundwater in the upper semi-confined groundwater zone has an E.C. that ranges from 1,600 to 1,700 $\mu\text{mhos/cm}$ with a TDS concentration that ranges from 1,000 to 1,100 mg/l. Background water quality data are not available for the lower semi-confined groundwater zone.

Detection monitoring determined that the Unit released waste constituents to groundwater. An evaluation monitoring program determined the nature of the release to consist of several volatile organic compounds (VOCs). Based on frequency of occurrence and concentration level, groundwater has been degraded by the VOCs: tetrachloroethylene (PCE); trichloroethylene (TCE); cis-1,2-dichloroethylene (cis-1,2-DCE); 1,1-dichloroethylene (1,1-DCE); 1,1-dichloroethane (1,1-DCA); dichlorodifluoromethane (CFC-12); 1,2-dichloropropane; and vinyl chloride.

The vertical extent of VOC migration is approximately 294 feet bgs (near the base of the upper semi-confined groundwater zone). The lateral extent of the VOCs in the unconfined groundwater is approximately 1,750 feet west of the Unit and approximately 300 feet south of the Unit. The lateral extent of VOCs in the

upper semi-confined groundwater zone is approximately 1,400 feet west of the Unit and approximately 1,650 feet south of the Unit.

The inorganic waste constituents in groundwater are derived from the olive brine waste water previously discharged to the City of Lindsay and Lindsay Olive Growers olive brine ponds located southeast and west of the Unit. The West Side Brine Ponds are regulated by closure and postclosure Waste Discharge Requirements Order R5-04-0084 and Cleanup and Abatement Order R5-04-0703. The East Side Brine Ponds are regulated by Cleanup and Abatement Order R5-04-0715. Additionally, granite, metagabbro, metasedimentary rock, and ultramafic rock outcrop approximately four miles east of the facility. The alluvium underlying the facility may be derived in part, from the weathering and erosion of some or all of the aforementioned igneous and metamorphic rocks. As a result, inorganic constituent concentrations beneath the facility may be partially due to the alluvium beneath and upgradient of the facility.

The Discharger's proposed corrective action method consists of monitored natural attenuation of the VOC plumes in the unconfined and upper semi-confined groundwater zones and public notification of the presence of VOCs in all water bodies affected by the release. Additionally, the Discharger states that the final cover system and landfill gas extraction will serve as source reduction limiting leachate and landfill gas migration to groundwater. Natural attenuation as a corrective action method relies primarily on the reduction of VOCs in groundwater over time as a result of dispersion, degradation, and possibly sorption. To evaluate the effectiveness of natural attenuation, the Discharger proposed monitoring points within and outside the VOC plumes to evaluate whether the plume boundaries are expanding, shrinking, or remaining static.

The Discharger is required in the revised WDRs to submit an amended report of discharger to establish a corrective action program in accordance with the existing WDRs and §20425(d) of Title 27. The Discharger is also required to submit a report that specifies the corrective action monitoring points for the unconfined and upper semi-confined groundwater zones to evaluate the effectiveness of natural attenuation of VOCs. Additionally, the Discharger is required to evaluate the effectiveness of natural attenuation of VOCs in the unconfined and upper semi-confined groundwater zones on an annual basis and determine whether modifications to the corrective action program are needed to mitigate the VOC plumes. If modifications to the corrective action program are needed, the Discharger is required to submit a report that contains modifications to the corrective action program to mitigate the VOC plumes in the unconfined and upper semi-confined groundwater zones and then implement the modified corrective action plan in accordance with a time schedule.

The Discharger is required by the revised WDRs to conduct postclosure maintenance throughout the postclosure maintenance period in accordance with

the approved postclosure maintenance plans. Postclosure maintenance duties include at a minimum, maintaining: 1) groundwater, surface water, leachate/seep detection monitoring; 2) the structural integrity of the final cover system and effectiveness of containment structures as necessary to correct the effects of settlement, ponding, burrowing rodents, and equipment damage; and 3) the effectiveness of the drainage systems to prevent erosion of the final cover system and promote storm water drainage off of the final cover system.

The facility ceased discharge in 1989. Therefore, the provisions of Title 40, Code of Federal Regulations, Parts 257 and 258, “federal municipal solid waste regulations” or “Subtitle D” do not apply to the Unit.

Since no expansion of operations beyond the original waste footprint has occurred or is proposed, the facility is categorized as an “existing facility” and the action to revise the WDRs for postclosure maintenance and corrective action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resources Code, §21000, et seq., and the CEQA Guidelines, in accordance with §15301 of Title 14, CCR.

This Order requires the Discharger to maintain the integrity and effectiveness of containment structures as necessary to correct the effects of settlement, erosion, or other adverse factors and maintain groundwater, surface water, and leachate monitoring throughout the postclosure maintenance period of the Unit. Additionally, the proposed corrective action program will monitor VOC plumes to determine whether their concentrations remain static, are reducing, or are expanding in the unconfined and upper semi-confined groundwater zones. If the VOC plumes in either the unconfined or upper semi-confined groundwater zones are determined to be expanding, the Discharger will be required to submit an amended engineering feasibility study for a corrective action program that contains alternative remedial methods to monitored natural attenuation to mitigate the expansion of the VOC plume/s. The provisions of Title 27 require that waste be contained to protect the beneficial uses of surface and/or groundwater, and to remediate any release to surface water and/or groundwater. The proposed order does not allow the degradation of surface water or groundwater. Therefore, further antidegradation analysis is not needed.