CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2009-0049
WASTE DISCHARGE REQUIREMENTS
FOR
POSTCLOSURE MAINTENANCE AND CORRECTIVE ACTION
SAN JOAQUIN COUNTY DEPARTMENT OF PUBLIC WORKS
HARNEY LANE LANDFILL
CLASS III LANDFILL
SAN JOAQUIN COUNTY

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

1. The San Joaquin County Department of Public Works (hereafter referred to as "Discharger") owns and formerly operated the Harney Lane Landfill, a closed Class III landfill. The landfill is on East Harney Lane near North Jack Tone Road, approximately six miles east of Lodi, as shown in Attachment A, which is incorporated herein and made part of this Order. The landfill is on a 127-acre site in the northeast 1/4 of Section 19, T3N, R8E, MDB&M, corresponding to Assessor Parcel Numbers 065-03-03, 065-03-06, 065-03-08, and 065-03-09.

2. These revised Waste Discharge Requirements (WDRs) include updated findings and requirements for landfill monitoring and corrective action in accordance with California Code of Regulations (CCR), title 27, division 2 (Title 27) regulations. Previous WDRs Order 96-139, which this Order replaces, were issued prior to adoption of Title 27, do not reflect postclosure monitoring results, and no longer adequately describe the facility.

3. The landfill operated from 1948 until November 1991, accepting primarily household wastes. The facility includes two landfill units (Landfills 1 and 2), including precipitation and drainage controls, landfill gas (LFG) controls, monitoring wells, access roads, and other facilities. Landfill 1 (LF-1), also referred to as the primary fill area, includes 97 acres of the eastern part of the site. Landfill 2 (LF-2), also referred to as the secondary fill area, includes 15 acres and is immediately southwest of Landfill 1. Both landfills were filled concurrently. The landfills are shown in Attachment B, which is incorporated herein and made part of this Order.

4. In 1994, both landfill units were closed (i.e., graded and clay capped) in accordance with land disposal regulations formerly in CCR, title 23, chapter 15, division 3 and now in Title 27 (see Findings 36 through 39). In 1996, an LFG extraction system was also installed at the site, as described in Finding 43 and shown in Attachment C, which is incorporated herein and made part of this Order.

5. Since closure of the landfill units in 1994, the Discharger has been performing landfill postclosure monitoring and maintenance in accordance with previous waste discharge requirements (Order Nos. 93-093 and 96-139).

6. The facility is subject to federal municipal solid waste (MSW) landfill regulations (Title 40, Code of Federal Regulations, Part 258, or "Subtitle D") because it accepted MSW after the effective date of Subtitle D regulations (9 October 1991) and did not qualify for any exemptions. For example, the facility did not qualify for the limited exemption applicable to facilities that stopped accepting MSW before (and closed within six months after) the applicable federal deadline (9 October 1993), because the landfill did not close until November 1994 (see 40 CFR 258.1(d)). The facility also did not qualify for the small landfill exemption (see 40 CFR 258 (f)(1)) due to its size and evidence of groundwater impacts from the landfill.

WASTES AND UNIT CLASSIFICATION

7. The landfill accepted wastes defined as "inert" and "nonhazardous" under Title 27, sections 20230 and 20220, respectively. Septage and other liquid wastes were not accepted at this facility.

8. Approximately 350 tons per day (125,000 tons per year) of waste, including household waste, commercial refuse, construction debris, and agricultural waste, was discharged to the landfill prior to its closure. Waste disposal was by the trench fill method. Approximately 7 million cubic yards of waste are estimated to be in place at the facility. The maximum thicknesses of waste in the landfill units are estimated to be at least 80 feet in LF-1 and 50 feet in LF-2, respectively.

9. Waste was discharged to a series of trenches excavated in an east-west direction. The lowest elevation of waste is unknown, but is estimated to be about 58 feet mean sea level (MSL) based on boring logs for groundwater monitoring wells installed at the site. This elevation corresponds to a depth of about 40 feet below ground surface (bgs). See Finding 23.

10. Both landfill units are existing, reclassified units under Title 27, section 20080(d), since they operated prior to, and closed after, 27 November 1984. Previous WDRs reclassified the landfill to Class III from a previous Subchapter 15 designation.

11. Both landfill units are unlined and neither has a leachate collection system.

SITE DESCRIPTION

12. The site is in the Central Valley alluvial plain near the edge of the Sierra Nevada Foothills. The surrounding terrain is relatively flat with an average grade of about one half percent toward the west. Surface elevations within one half mile of the site range from about 95 feet MSL to the east to about 70 feet MSL to the west.

13. Land uses within the landfill vicinity include agriculture, dairies, industrial, and low-density residential development. Other uses in the area include water conveyance, roads, utility easements, and (immediately north of Landfill 2) a migrant labor camp on state-owned land operated by the San Joaquin County Housing Authority. The migrant labor camp includes unlined ponds used for the treatment and disposal of domestic wastewater from the camp and for the detention of storm water runoff from the camp. Discharges to these ponds are regulated under separate, non-Chapter 15 WDRs Order No. 95-176. Two groundwater monitoring wells, shown in Attachment B,

were installed at the camp in the 1980s to monitor these ponds. (Order No. 95-176 did not include a groundwater monitoring program, however, and the condition of these wells is unknown).

14. A March 2007 Department of Water Resources (DWR) well survey identified 55 supply wells within a one-mile radius of the site, including 47 domestic, 6 agricultural, and 2 combined domestic/agricultural wells. Additional parcels were identified that did not have well records, but likely have supply wells, including 229 parcels with private residences and 47 parcels designated as irrigated agriculture. One onsite industrial supply well was also identified. The results are summarized below.

Wells Within one Mile Radius of Landfill

Well Type	DWR Survey	On Other Parcels[1]		Total
		Beyond 1,000 Feet	Within 1,000 Ft.	
Domestic	47	214	15	276
Agricultural	6	41	6	53
Combined	2	0	0	2
Industrial	0	0	1	1

1. Known or estimated based on parcel type and land use.

The wells ranged from about 130 to 500 feet deep, averaging about 225 feet deep.

15. The site is not within a 100-year floodplain.

SURFACE AND STORM WATER

16. Surface drainage in the area is to South Paddy Creek immediately south of the site, thence to Paddy Creek about 1.3 miles west of the site, Bear Creek, and Disappointment Slough, which is tributary to the San Joaquin River.

17. The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference, plans and policies adopted by the State Water Resources Control Board.

18. The beneficial uses of the San Joaquin River (between Sack Dam and the mouth of the Merced River) are municipal and domestic supply; agricultural supply; industrial process supply; water contact recreation; non-contact water recreation; warm freshwater habitat; migration of aquatic organisms; spawning, reproduction and/or early development; and wildlife habitat.

19. The site receives an average of 16.5 inches per year of precipitation as determined from Rainfall Depth Duration Frequency data provided by the State Department of Water Resources for the Linn Ranch Station about three miles northeast of the site.

The 100-year, 24-hour precipitation event for this station is 3.3 inches. The estimated mean Class A pan evaporation rate is about 65 inches per year.

GEOLOGY

20. There are no known Holocene faults within 1000 feet of the facility. The closest active fault is the Bear Mountains fault zone within the Foothills Fault system 19 miles east of the site in the Sierra foothills. Recorded magnitudes of seismic events along this fault zone range up to 5.8 on the Richter scale (1975 Oroville event). The Foothills Fault system has been characterized as producing a maximum credible earthquake of 6.5 to 7.0 on the Richter scale and a peak bedrock acceleration of 3.5g to 4.5g (1977 Butte County General Plan).

21. The regional geology in the site area represents a transition between Cretaceous to recent age alluvial deposits of the Great Valley flood plain and Jurassic Period metamorphic rocks of the Sierra Nevada foothills. The valley deposits thin out within a few miles east of the site where the surface geology is primarily foothill terrain dominated by dissected alluvial uplands and exposed, uplifted bedrock.

22. Monitoring well boring logs indicate that the site is underlain by the Victor formation to about 100 feet bgs, and then by the Laguna formation. The former consists of alluvial deposits, generally as follows, from top to bottom:

    - Silty sand and/or sandy silt (10 to 40 feet thick);
    - Fine to course grained sand (20 to 45 feet thick);
    - Clay or clayey sand (20 to 30 feet thick);
    - Gravelly sand and/or sandy gravel (to interface with Laguna).

    Similar alluvial deposits are found in the underlying Laguna formation, except that it also contains volcanic and/or metamorphic rock fragments.

UNSATURATED ZONE

23. The minimum separation from waste to groundwater at the site is about 83 feet (see Finding 28).

24. In 1991, the Discharger installed an LFG monitoring system along the site perimeter in accordance with Chapter 15 (now Title 27) regulations. The system consisted of 12 LFG monitoring wells with nested probes screened in the upper, middle, and lower portions of the unsaturated zone, as shown in Attachment C.

25. Subsequent perimeter monitoring of LFG in the unsaturated zone showed high concentrations of methane (up to 60 percent by volume) and the presence of several volatile organic compounds (VOCs), including tetrachloroethene (PCE), which has also been detected in groundwater at the site (see Finding 30). Since initiation of LFG extraction in 1996, methane concentrations detected along the site perimeter have been greatly reduced (see Findings 43 and 44).

GROUNDWATER

26. The beneficial uses of the ground water at the site are municipal and domestic supply, agricultural supply, industrial process supply, and industrial process supply.

27. The upper water-bearing zone (UWBZ) at the site is unconfined. The UWBZ occurs in alluvial deposits of the Turlock Lake and Laguna formations, which consist of laterally discontinuous layers of gravel, sand, silt and clay. The overall permeability of these deposits is estimated to be about 1×10^{-2} cm/sec based on onsite boring log information and slug testing of a well screened in similar deposits at the North County Landfill (approximately 1.5 miles east of the site).

28. The depth to groundwater ranges from about 131 feet bgs (-30 feet MSL) on the upgradient perimeter of the landfill to about 124 feet bgs (-35.5 feet MSL) on the downgradient perimeter. Up to eight (+/-4) feet of seasonal variation in the water table has been observed along the downgradient perimeter, possibly due to the influence of the nearby detention basin. Historical groundwater elevation monitoring data indicate that the groundwater table has been declining over time due to regional and local pumping. The monitoring data indicate that the average ground water gradient at the site is about 0.003 foot/foot to the south-southwest.

29. Four groundwater monitoring wells, including one upgradient (MW-1), two cross gradient (MWs-2 and 4), and one downgradient (MW-3), were installed at the site in 1987. No other groundwater monitoring wells have since been installed at the site.

30. A 1987 groundwater investigation (see 20 June 1991 *Solid Waste Water Quality Assessment Test for Harney Lane Sanitary Landfill*, prepared by Kleinfelder, Inc.) found low to trace concentrations of volatile organic compounds (VOCs) in the UWBZ, primarily in cross-gradient well MW-2. The Discharger subsequently confirmed a landfill release and in 1994 implemented an Evaluation Monitoring Program (EMP) to investigate the nature and extent of impacts. Ground water monitoring results for VOCs detected at the site may be summarized as follows:

VOC	**Average Concentration**, *µg/L*		
	1995[1]	2005[1]	2008
Benzene	n/a[3]	<0.2[2]	0.6
Dichlorodifluoromethane (Freon 12)	<0.4[2]	2.0	<0.7[2]
1,2-Dichloropropane	<0.4[2]	0.6	<0.4[2]
Tetrachloroethene (PCE)	0.5	1.1	0.5
Toluene	n/a[3]	<0.2[2]	0.9
Total Xylenes	n/a[3]	<0.4[2]	<1.1[2]

1. Four-quarter average using non-detects at detection limit.
2. Constituent not detected.
3. Constituent not analyzed.

Other VOCs have also been sporadically detected in groundwater at trace concentrations, including carbon tetrachloride; chlorobenzene; 1,2-dichlorobenzene; 1,4-dichlorobenzene; dichloromethane; trichloroethane; and trichlorofluoromethane (Freon 11). No VOCs have generally been detected in the other three wells at the site, except for a few sporadically detected in upgradient well MW-1 and reported as probable false positive results.

31. Historical monitoring data for the site generally indicates declining concentrations of VOCs coincident with improvements to the LFG extraction system. Since 2007, the primary VOCs historically detected in groundwater at the site (e.g., PCE, Freon 12, and 1,2-Dichloropropane) have been detected at trace or non-detect levels.

32. Elevated concentrations of general minerals have also been historically detected in groundwater at the site, primarily in downgradient well MW-4, as follows:

Constituent	***Concentration*** (mg/L, except where noted)		
	Upgradient (MW-1)	Downgradient/ (MW-4)	
	Average[1]	1995[2]	2008[3]
Chloride	11	123	120
Bicarbonate Alkalinity	160	310	97
Total Dissolved Solids (TDS)	237	573	510
Specific Conductance, µmhos/cm	315	870	619

1. Historical average since 1995.
2. Annual average of quarterly results.
3. Second Quarter 2008 monitoring data.

Lower concentrations of chloride, but possible elevated concentrations of bicarbonate alkalinity, have been detected in the other downgradient wells at the site, and in upgradient well MW-1. Time series plots of the monitoring data from MW-4 show declining trends for bicarbonate alkalinity, TDS, and specific conductance since 1995, but no significant change for chloride.

33. The Discharger has attributed elevated concentrations of chloride detected in the UWBZ at MW-4 to an upgradient source (claimed percolation from the nearby migrant labor camp's sewage treatment ponds), but has not provided any upgradient monitoring data to substantiate this claim. Chloride is a common constituent of landfill leachate that can migrate to groundwater from an unlined landfill. To resolve this issue and establish background concentrations for chloride, Provision G.5 of these WDRs requires that the Discharger establish a background monitoring well immediately upgradient of Landfill 2, but downgradient of the labor camp's ponds (i.e., either by installation of a new well or by utilization of an existing monitoring well of suitable construction).

34. Carbon dioxide in LFG can cause elevated bicarbonate in groundwater. Also, since LFG can migrate in all directions, including vertically and upgradient, it can affect upgradient wells close to the landfill. Given the possibly elevated concentrations of bicarbonate alkalinity detected in MW-1 and the well's close proximity to the landfill, it cannot be assumed that this well has not been impacted by LFG. MW-1 may therefore not be suitable as a background monitoring well for monitoring parameters that can be affected by LFG, such as alkalinity, TDS and specific conductance. To resolve this issue, Provision G.5 of these WDRs requires that the Discharger establish a background monitoring well a sufficient distance from the landfill to be outside of the influence of LFG and any potential landfill leachate impacts (i.e., either by installation of a new well or by utilization of an existing monitoring well of suitable construction).

35. The following groundwater water quality criteria for constituents of concern (COCs) have been exceeded at this site:

Constituent	**WQ Objective**	**Concentration**	
*VOCs (*µg/L):		*WQ Limit*	*Detected*
Benzene	Chemical Constituents	1.0[1]	1.3
	Toxicity	0.15[2]	
1,2-Dichloropropane	Toxicity	0.50[2]	0.7
PCE	Toxicity	0.06[2]	1.4
General Minerals (mg/L):			
Chloride	Chemical Constituents	106[3]	120
TDS	Chemical Constituents	450[3]	510
		500[4]	
	Taste & Odor	500[4]	

1. California Primary MCL
2. California Public Health Goal
3. Agricultural Goal
4. California Secondary MCL

CLOSURE AND CORRECTIVE ACTION

36. Previous WDRs Order No. 93-093 required that the Discharger close the landfill in accordance with Chapter 15 regulations and an approved Final Closure Plan (FCP). Landfill closure was also required as a corrective action measure to address groundwater impacts from the landfill (see Finding 30). The FCP included the following documents (all prepared by George S. Nolte and Associates):

- May 1986 *Closure Plan, Harney Lane Landfill*
- January 1992 *Harney Lane Sanitary Landfill Final Closure Plan*
- April 1994 *Harney Lane Sanitary Landfill Final Closure Construction Plans*

37. The approved final cover constructed for closure is:

    a. Foundation Layer – Two feet of compacted soil
    b. Low Hydraulic Conductivity (LHC) Layer – one foot of compacted clay ($k \leq 1 \times 10^{-6}$ cm/sec)
    c. Erosion Resistant Layer – One foot of clean vegetative cover soil
    d. Vegetative Cover – native grass mix

    The foundation layer was compacted to a minimum of 90 percent of relative maximum dry density using onsite borrow soil and excavated soil from the detention basin. The LHC layer was constructed using a mixture of imported Ione clay and onsite borrow, and was compacted to a maximum permeability of 1×10^{-6} cm/sec. Field and laboratory permeabilities were correlated by double-ring infiltrometer tests. To achieve permeability specifications with lower relative compaction (90 percent), a higher percentage of Ione clay was used along the sideslopes.

38. The Discharger completed landfill closure in March 1994 and submitted the closure certification report for the project (April 1994 *Final Documentation Report for Final Cover Foundation and Vegetation Layers, Harney Lane Sanitary Landfill, San Joaquin Public Works*). Regional Water Board staff approved the closure certification report in January 1995.

Grading

39. The final cover was constructed over both landfill units with an elongated (north-south oriented) central crest. On Landfill 1, the cover deck was graded from the crest (146 feet MSL) to the side slopes (126 feet MSL) at a minimum slope of 3 percent. The side slopes were graded from the rim deck to the landfill perimeter (104 feet MSL) at about 2.5H:1V, except for the northern side slope (i.e., the landfill toe), which was graded at about 15H:1V.

    The Landfill 2 cover deck was also graded from the crest (132 feet MSL) to the side slopes (128 feet MSL) at a minimum slope of 3 percent. The side slopes were graded to about 2.5H:1V, except at the NE corner of the unit, where the side slope was graded to about 3.5H:1V.

40. A technical report demonstrating the stability of the cover slopes per Title 27, section 21750(f)(5) was not required for the facility because the Discharger closed the units prior to 18 July 1997 (See Title 27 sections 21090(a) and 20310(g)). A 1991 slope stability report prepared under previous Chapter 15 regulations showed factors of safety greater than 1.5 along the steepest landfill side slopes, which is what is typically required of landfills now undergoing closure.

Drainage

41. Sheet flow runoff from the top decks of each landfill unit is directed via perimeter swales to 12-inch diameter, corrugated metal pipe overside drains. Unlined ditches (with “V” shape or trapezoidal profiles) along the perimeter of each landfill capture and carry discharges from the overside drains and side slope runoff through a common culvert to the detention basin in the southwest corner of the site. The

detention basin is equipped with a float-controlled automatic pump that regulates the water level in the basin by pumping to South Paddy Creek immediately south of the site. The detention basin also includes a weir that allows overflows from South Paddy Creek to enter the basin during severe storm events. The basin's pump does not operate during such periods.

42. All landfill drainage facilities, including cover swales, overside drains, perimeter ditches, culverts, and the storm water detention basin were designed to have sufficient capacity to accommodate a 24-hour, 100-year storm event.

Landfill Gas Controls

43. To control LFG migration and mitigate LFG as a likely source of VOCs in groundwater (see Finding 30), the Discharger installed a landfill gas extraction system at the site in 1996. The system has been improved over time and presently includes 82 vertical extraction wells at Landfill 1 and 14 vertical extraction wells at Landfill 2, as follows:

Landfill	Wells	Coverage	Depth Range, ft bgs	Screen Length, ft
LF-1	A1 - A10	NE	50 - 65	25 - 33
LF-1	B1 - B8	Central eastern	65 - 85	33 - 40
LF-1	C1 - C13	SE	60 - 85	30 - 40
LF-1	D1 – D9	NW	60 - 65	30 - 33
LF-1	E1 – E13	Central western	60 - 80	30 - 40
LF-1	F1 - F11	SW	65 - 85	33 - 40
LF-1	G1 - G4	SW	65 - 70	33 - 35
LF-2	H1 - H14	Entire	42	17

1. Dual extraction well installed in 2005 to improve gas extraction

Each LFG extraction well was installed with a sampling port and a valve to control the LFG collection rate. The LFG extraction system facilities also include associated piping, condensate sumps, blowers, controls, and a flare station. Once extracted, the LFG is piped to the flare station where it is flared along with any condensate pumped from the condensate sumps. See Attachment C.

POSTCLOSURE

44. Quarterly monitoring of LFG probes conducted per LEA requirements indicates that since 1995, the maximum concentration of methane detected along the site perimeter has been reduced to less than five percent by volume and is less than one percent by volume in most probes. Carbon dioxide, another component of LFG (and possible contributor to elevated bicarbonate in groundwater, as noted in Finding 34), has been detected up to 16 percent in several of the probes.

45. The Discharger has been conducting postclosure maintenance and monitoring of the landfill since 1995 in accordance with a 1994 Revised Postclosure Maintenance Plan,

PCMP. Provision G.6 of these WDRs requires that the Discharger submit an updated PCMP to reflect current operations and requirements under this Order.

46. Based on a 2004 aerial survey, the Discharger estimates that the landfill cover (including LHC layer) has settled up to four feet since closure in 1994. The steepest landfill side slopes have flattened to about 3H:1V.

COST ESTIMATES AND FINANCIAL ASSURANCES

47. The Discharger is required to demonstrate financial assurances for postclosure maintenance to the California Integrated Waste Management Board (CIWMB) pursuant to Title 27 section 22210(b), since the landfill operated after January 1, 1988. The Discharger has estimated the cost of landfill postclosure maintenance and monitoring in 2008 dollars to be $98,750 per year. In 1993, the CIWMB approved a Pledge of Revenue agreement provided by the Discharger to cover the estimated annual cost of landfill postclosure maintenance and monitoring. This agreement is still in effect. Provision G.6.a requires that the Discharger provide updated cost estimates, as necessary under these WDRs, for postclosure maintenance and monitoring, while Provision G.7.a requires that the Discharger provide and maintain updated financial assurances to the CIWMB in the amount of such updated cost estimates, as approved by the Regional Water Board.

48. The Discharger is required to demonstrate financial assurances for corrective action to the CIWMB pursuant to Title 27 section 22220(b), since the landfill operated after July 1, 1991. Title 27 section 22221(a) requires that such corrective action funding be sufficient to address a known or reasonably foreseeable release, as approved by the Regional Water Board. In October 2008, Regional Water Board staff approved an estimate of approximately $1,471,000 (in 2008 dollars) submitted by the Discharger for corrective action financial assurances, based on costs necessary to address VOC impacts to groundwater from an additional (i.e., reasonably foreseeable) release of LFG from the landfill. In January 2009, the CIWMB approved the corrective action financial assurances mechanism (a Pledge of Revenue) provided by the Discharger in the amount of the estimated cost estimate ($49,034 per year over 30 years). Provision G.6.b requires that the Discharger provide updated an cost estimate, as necessary under these WDRs, for corrective action, while Provision G.7.b requires that the Discharger provide and maintain updated financial assurances to the CIWMB in the amount of the updated cost estimate, as approved by the Regional Water Board.

CEQA AND OTHER CONSIDERATIONS

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

50. Section 13267(b) of 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 discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of

discharging, or who proposed to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional 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." The monitoring and reporting program (MRP) required by this Order (MRP No. R5-2009-0049, attached) is necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

51. On 17 June 1993 (and as amended 21 July 2005), the State Water Resources Control Board adopted Resolution No. 93-62 implementing a State Policy for the construction, monitoring, and operation of MSW landfills that is consistent with the federal MSW regulations promulgated under Title 40, Code of Federal Regulations, Part 258 (Subtitle D). Title 27 incorporates *State Water Resources Control Board (SWRCB) Resolution No. 93-62*.

52. This order implements:

    a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition;*
    b. Chapters 1 through 7, Subdivision 1, Division 2, Title 27, of the California Code of Regulations, effective 18 July 1997, and subsequent revisions;
    c. The prescriptive standards and performance criteria of RCRA Subtitle D, Part 258; and
    d. State Water Resources Control Board Resolution No. 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993 and amended 21 July 2005.

PROCEDURAL REQUIREMENTS

53. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.

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

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

56. Any person aggrieved by this action of the Regional Water Board may petition the State Water Board to review the action in accordance with CWC section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of the Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water

Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality

or will be provided upon request.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 96-139 is rescinded, and that the San Joaquin County Public Works Department, 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. DISCHARGE PROHIBITIONS

1. The discharge of new or additional waste to the facility, including Landfills 1 and 2, is prohibited.

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

3. The discharge of treated or untreated wastewater or groundwater to any surface water or any surface water drainage course is prohibited without a National Pollutant Discharge Elimination System (NPDES) permit authorizing the discharge.

4. The landfill shall not cause pollution or a nuisance, as defined by the California Water Code, Section 13050, and shall not cause degradation of any water supply.

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

6. The waste discharge prohibitions herein shall supercede any conflicting or contradictory provisions in the April 2000 Standard Provisions and Reporting Requirements (SPRR) applicable to waste discharge to an active or closed landfill. See also SPRR section I.E.

B. DISCHARGE SPECIFICATIONS

1. The discharge 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.

3. Storm water runoff from the facility shall be monitored in accordance with MRP No. R5-2009-0049 and applicable storm water regulations.

4. A minimum separation of five feet shall be maintained between wastes or leachate and the highest anticipated elevation of underlying groundwater per Title 27 section 20240(c). See also Discharge Specification VI.B, SPRR.

5. The owners of the waste management facility shall have the continuing responsibility to assure protection of usable waters from discharged wastes and from gases and leachate generated by discharged wastes during the closure and postclosure maintenance period of the landfill and during subsequent use of the property for other purposes.

C. POST-CLOSURE SPECIFICATIONS

1. All final cover slopes shall be capable of withstanding a maximum probable earthquake. See also SPRR Construction Specification VIII.E.

2. The final cover shall be graded and maintained to prevent ponding, promote lateral runoff, and prevent soil erosion due to high run-off velocities. See also SPRR Storm Water Provision VII.J.

3. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be maintained to prevent such erosion. See also Closure and Postclosure Specification IX.G.6.

4. The erosion-resistant layer shall be maintained with native or other vegetation capable of providing effective erosion resistance.

5. Precipitation and drainage control systems shall be designed, constructed, operated and maintained to convey peak flows from a 100-year, 24-hour storm event. (Note: This specification is more stringent than SPRR Storm Water Provision XII.D)

6. The closed landfills shall be maintained to prevent, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, and washout. See also SPRR Storm Water Provision XII.E.

7. Annually, prior to the anticipated rainy season but no later than **31 October**, any necessary erosion control measures shall be implemented and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent storm water flows from:

   a. Contacting or percolating through wastes,
   b. Causing erosion or inundation of the landfill cover or other areas of site, or
   c. Causing sedimentation and clogging of the storm drains.

8. The Discharger shall continue to monitor all required media per MRP No. R5-2009-0049 throughout the postclosure maintenance period.

9. The postclosure maintenance period shall continue until the Regional Water Board verifies that remaining waste in the landfill will not threaten water quality. See also Closure and Postclosure Specification IX.J.

D. FACILITY SPECIFICATIONS

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

2. The Discharger shall maintain the landfill final cover, precipitation and drainage controls, monitoring wells, gas extraction system, and all other associated landfill facilities, as necessary, in order to comply with this Order.

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. All storm water controls, including drainage facilities, shall be maintained so that they function effectively during precipitation events.

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. All wells within 500 feet of the waste management units shall have sanitary seals that meet the requirements of the San Joaquin County Environmental Health Department or shall be properly abandoned. A record of the sealing and/or abandonment of such wells shall be sent to the Regional Water Board and to the State Department of Water Resources.

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

E. MONITORING SPECIFICATIONS

1. The Discharger shall conduct background and corrective action groundwater monitoring, as specified in MRP No. R5-2009-0049. Background monitoring shall be conducted for the purpose of establishing and updating concentration limits as part of the Water Quality Protection Standard per Title 27 section 20400(a). Corrective action monitoring shall be conducted for the purpose of assessing the nature and extent of the release, designing corrective action measures, and for assessing the progress of corrective action in returning to compliance with the WQPS (Title 27 Section 20430(d)).

2. The Discharger shall provide Regional Water Board staff a minimum of one-week notification prior to commencing any field activities related to the installation, non-routine repair, or abandonment of monitoring devices. The Discharger shall also provide Regional Water Board staff with a sampling schedule at least 48 hours prior to initiation of each detection, evaluation, or corrective action monitoring event conducted pursuant to MRP No. R5-2009-0049.

3. The Discharger shall comply with the Water Quality Protection Standard as specified in MRP No. R5-2009-0049 and the SPRR.

4. The concentrations of the COCs in waters passing the Point of Compliance shall not exceed concentration limits established in accordance with MRP No. R5-2009-0049.

5. The Discharger shall maintain and implement a Sample Collection and Analysis Plan that includes the following elements:

   a. Sample collection procedures describing purging techniques, sampling equipment, and decontamination of sampling equipment;
   b. Sample preservation information and shipment procedures;
   c. Sample analytical methods and procedures; Sample quality assurance/quality control (QA/QC) procedures; and
   d. Chain of custody control.

6. 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.

7. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) *Methods for the Analysis of Organics in Water and Wastewater* (USEPA 600 Series), (2) *Test Methods for Evaluating Solid Waste* (SW-846, latest edition), and (3) *Methods for Chemical Analysis of Water and Wastes* (USEPA 600/4-79-020), and in accordance with the approved sampling plan.

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

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

results in light of any matrix effects or interferences.

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

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

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

13. **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.

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

Monitoring Data Analysis

15. All monitoring data analysis methods shall be consistent with the performance standards specified in Section 20415(e)(9) and sampling standards specified in Section 20415(e)(12).

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

Concentration Limits

17. Concentration limits (CLs) for corrective action monitoring shall be developed consistent with Monitoring Specifications E.18 through E.20 below.

18. For inorganic COCs for which at least 10% of the data from background samples equal or exceed their respective MDL (i.e., naturally occurring COCs), the Discharger shall use one of the following **statistical** data analysis methods for determination of CLs and detection of a release:

    a. Tolerance or Prediction Interval statistical method;
    b. Analysis of Variance (ANOVA) statistical method; and/or
    c. An alternative statistical method authorized under Section 20415(e)(8) and approved by the Executive Officer under Section 20415(e)(7)).

    Background monitoring data shall be screened for trends prior to calculating CLs to ensure that the data represents a single statistical population (i.e., one that does not show appreciable variation per Section 20415(e)(10)). CLs shall be periodically updated, as necessary, to reflect current background conditions. If a significant trend is identified that reflects changes in background conditions, data prior to development of the trend shall not be included in updating s. Otherwise CLs shall include prior historical data. Statistical CLs shall also take into account any seasonality in the data.

    Any analyte that exceeds its statistical CL shall provide a preliminary indication [or, for a retest, measurably significant evidence] of a release at that monitoring point.

19. For inorganic COCs for which less than 10% of the data from background samples equal or exceed their respective MDL (including inorganic COCs not detected in background), the CL shall be the MDL. Any analyte that exceeds its MDL shall provide a preliminary indication [or, for a retest, measurably significant evidence] of a release at that monitoring point.

20. For VOCs and all other organic COCs, the CL shall be the MDL, and the trigger for detection of a release shall be as follows:

    a. From the COC or monitoring parameter list, identify each analyte in the current sample that exceeds its respective MDL. The Discharger shall conclude that the exceedance provides a preliminary indication [or, for a retest, provides measurably significant evidence] of a release (existing or new) at that monitoring point, if either:

        i. The data contain two or more analytes that equal or exceed their respective MDLs; or

        ii. The data contain one analyte that equals or exceeds its PQL.

21. If the above statistical or non-statistical trigger procedures used for monitoring data analysis for a given media provide a preliminary indication of a release (i.e., new release or a previously unconfirmed constituent of the existing release) at a given monitoring point, the Discharger shall immediately notify Regional Water Board staff by phone or e-mail of a preliminary indication of a release, and, within 30 days of such indication, conduct confirmation (retest) sampling.

    a. Exceedances for constituents that have been previously confirmed as part of the release at a given monitoring point, including regularly-detected and sporadically detected (e.g., as a result of seasonal or lateral fluctuations in the plume) COCs, shall be considered confirmed without notification and retest.

    b. Exceedances for any other constituent for which the Discharger fails to conduct a retest will be considered confirmed without retest unless and until the Discharger demonstrates its absence through subsequent monitoring.

Discrete Retest

22. Confirmation sampling shall consist of taking two new (retest) samples from the monitoring point where the release is preliminarily indicated. For any given retest sample, the Discharger shall include in the retest analysis only the laboratory analytical results for those analytes detected in the original sample.

    a. As soon as the retest data are available, the Discharger shall apply the same tests [i.e., E.18 for statistical constituents, E.19 or E.20 for non-statistical constituents], to separately analyze each of the two suites of retest data at the monitoring point where the release is preliminarily indicated.

    b. If either (or both) of the retest samples trips the applicable trigger above, then the Discharger shall conclude that there is measurably significant evidence of

a release at that monitoring point for the analyte(s) indicated in the validating retest sample(s) and shall:

i. Immediately notify the Regional Water Board about the constituent verified to be present at the monitoring point, and follow up with written notification submitted by certified mail within seven days of validation; and

ii. Proceed in accordance with E.23 and/or E.24, below, as applicable.

23. Exceedances that the Discharger demonstrates per Section 20420(k)(7) are the result of sample corruption, laboratory interferences, error, natural variation in the water quality, statistical evaluation, or other cause not associated with a release from the unit shall not provide a preliminary indication of a release, or, in the case of a discrete retest, confirm a release. Retesting may be necessary, however, to make such demonstration or, such as in the case of error or laboratory interferences, to obtain valid monitoring data.

24. Any COC confirmed by retest as part of an existing release shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event. If the Discharger determines that there is measurably significant evidence of a new release from the Unit at any monitoring point, the Discharger shall immediately implement the requirements for *Response To A Release* contained in Section XI of the SPRR.

Corrective Action Progress

25. The data analysis methods shall also include trend analysis using time series plots and an evaluation of the water chemistry to monitor the effectiveness of corrective action measures in accordance with Section __ of the MRP. The trigger requirement for performing trend analysis shall be at least 4 historical data points above the PQL. The water quality chemistry analysis shall, at a minimum, include ion balance and an appropriate graphical method (e.g., Piper diagram, trilinear plot, stiff diagram, Scheuler plot).

26. Prior to termination of corrective action measures required under Section 20430(c), the discharger shall demonstrate, pursuant to Section 20430(f), that the constituents of the release have been reduced to levels below concentration limits throughout the entire zone affected by the release. During this “proof period”, the Discharger shall demonstrate that:

a. The concentration of each constituent in each sample from each monitoring point remained at or below its concentration limit for at least one year, beginning immediately after the suspension of corrective action measures; and

b. The individual sampling events for each monitoring point must have been evenly distributed throughout the proof period and have consisted of at least eight sampling events per year per monitoring point.

27. Any proposal for concentration limits greater than background (CLGBs) shall be accompanied by the requisite demonstration under Section 20400(c) (i.e., that it

is technologically or economically infeasible to achieve the background value for that constituent and that the constituent will not pose a substantial present or potential hazard to human health or the environment). Approval of CLGBs shall require approval of revised WDRs by the Regional Water Board.

F. REPORTING REQUIREMENTS

1. The Discharger shall comply with the reporting requirements specified in this Order, in MRP Order No. R5-2009-0049 and in the SPRR.

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

3. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Regional Water Board office by telephone **as soon** as it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.

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

    a. Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
    b. Date, time, and manner of sampling;
    c. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
    d. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
    e. Calculation of results; and
    f. Results of analyses, and the MDL and PQL for each analysis.

5. 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.

6. Each monitoring report shall include a compliance evaluation summary. The summary shall contain at least:

   a. For each monitoring point and background monitoring point addressed by the report, a description of:

      i. The time of water level measurement;

      ii. 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;

      iii. 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;

      iv. The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and

      v. A statement that the sampling procedure was conducted in accordance with the approved Sampling and Analysis Plan.

   b. A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.

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

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

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

   f. A summary and certification of completion of all **Standard Observations** for the Unit(s), for the perimeter of the Unit, and for the receiving waters. The Standard Observations shall include:

      i. For the Unit:

         1) Evidence of ponded water at any point on the facility (show affected area on map);
         2) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and
         3) Evidence of erosion and/or of day-lighted refuse.

      ii. Along the perimeter of the Unit:

1) Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map);
2) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and
3) Evidence of erosion and/or of day-lighted refuse.

iii. For receiving waters:

1) Floating and suspended materials of waste origin - presence or absence, source, and size of affected area;
2) Discoloration and turbidity - description of color, source, and size of affected area;
3) Evidence of odors - presence or absence, characterization, source, and distance of travel from source;
4) Evidence of water uses - presence of water-associated wildlife;
5) Flow rate; and
6) Weather conditions - wind direction and estimated velocity, total precipitation during recent days and on the day of observation.

7. The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Regional Water Board **within seven days**, containing at least the following information:

a. A map showing the location(s) of seepage;
b. An estimate of the flow rate;
c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);
d. Verification that samples have been submitted for analyses of the COCs and Monitoring Parameters, and an estimated date that the results will be submitted to the Regional Water Board; and
e. Corrective measures underway or proposed, and corresponding time schedule.

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

a. All monitoring parameters and COCs shall be graphed to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot down gradient 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 reporting periods for the year shall be submitted in tabular form as well as in a digital file format acceptable to the Executive Officer. The Regional Water Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [§20420(h)], in that this facilitates periodic review by the Regional Water Board. See Section G.2.f, MRP No. R5-2009-0049.

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

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

9. 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;

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

      ii. 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

      iii. The written authorization is submitted to the Regional 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."

10. The Discharger shall notify the Regional Water Board in writing of any proposed change in ownership or responsibility for construction or operation of the landfill. To assume ownership or operation under this Order, the succeeding owner or

operator must apply in writing to the Regional 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 Regional Water Board, and a statement. The statement shall comply with the signatory requirements contained in Reporting Requirement F.9 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer of this Order shall be approved or disapproved by the Regional Water Board.

11. The discharger shall mail a copy of each monitoring report and any other reports required by this Order to:

    California Regional Water Quality Control Board
    Central Valley Region
    11020 Sun Center Drive, Suite 200
    Rancho Cordova, CA 95670

    (or the current address if the office relocates)

12. The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the State Department of Water Resources with regard to construction, alteration, destruction, or abandonment of all monitoring wells used for compliance with this Order or with MRP No. R5-2009-0049, as required by California Water Code sections 13750 through 13755 of the California Water Code.

G. PROVISIONS

1. The Discharger shall comply with the MRP No. R5-2009-0049, which is attached to and made part of this order. A violation of the MRP is a violation of these waste discharge requirements.

2. The Discharger shall comply with the Standard Provisions and Reporting Requirements (SPRR), dated April 2000, which are hereby incorporated into this Order. The SPRR contain important provisions and requirements with which the Discharger must comply. A violation of any of the SPRR is a violation of these waste discharge requirements.

3. The Discharger shall submit semiannual corrective action progress reports in accordance with MRP No. R5-2009-0049 and Section 20430 of Title 27. Each progress report shall address the following issues:

    a. The source of the impact.
    b. The nature and extent of the release.
    c. Whether the size of the plume and concentrations of constituents within have increased, decreased or have not changed.

d. The ongoing effectiveness of landfill closure as a corrective action.
e. The ongoing effectiveness of LFG extraction as a corrective action.
f. The need for additional corrective action measures and/or monitoring wells.

The reports shall include plans for the installation any additional monitoring wells necessary to define the extent of the release and/or monitor the progress of corrective action.

4. If the Discharger or Regional Water Board determines that the corrective action program is not adequate (i.e., does not satisfy the provisions of Section 20430), the Discharger shall, within 90 days of making the determination, or of receiving written notification from the Regional Water Board of such determination, submit an amended report of waste discharge (RWD) to make appropriate changes to the program. The amended RWD shall include the following:

   a. A discussion as to why existing corrective action measures have been ineffective or insufficient.
   b. A revised evaluation monitoring plan if necessary to further assess the nature and extent of the release
   c. A discussion of corrective action needs and options.
   d. Proposed additional corrective action measures, as necessary, for:
      i. Source control,
      ii. Adequate separation from groundwater,
      iii. Groundwater cleanup, and/or
      iv. Landfill gas control
   e. A plan to monitor the progress of corrective action measures consistent with the MRP.
   f. Cost estimates for implementing additional corrective action, including monitoring.
   g. An implementation schedule.

5. **By 15 June 2009**, the Discharger shall submit for approval a work plan and schedule for the establishment of background monitoring wells (i.e., either by installation of a new well or by utilization of an existing monitoring well of suitable construction) for Landfills 1 and 2, as described in Findings 33 and 34, and as specified under Section E.2 of MRP No. R5-2009-0049. The Water Quality Protection Standard Report shall be amended to include and consider information obtained from this well once it is installed.

6. By **30 July 2009**, the Discharger shall submit for approval an updated Postclosure Maintenance Plan (PCMP) to reflect current operations and requirements under these WDRs, including MRP R5-2009-0049. The PCMP shall meet the requirements of Title 27 section 21769(c) applicable to a closed landfill. The updated plan shall include updated cost estimates, as necessary, as follows:

a. Annual and 30-year cost estimates for

   i. Landfill postclosure maintenance (e.g., cover, drainage controls, monitoring systems, LFG extraction system) per Title 27 section 22210(b); and

   ii. Postclosure corrective action monitoring

b. A lump sum cost estimate for corrective action measures to address a known or reasonably foreseeable release per Title 27 section 22220(b).

Copies of the updated PCMP shall also be provided to the Local Enforcement Agency and the CIWMB.

7. The Discharger shall obtain and maintain assurances of financial responsibility for the following:

   a. Landfill postclosure maintenance and monitoring in the amount of the approved cost estimates under Provision G.6.a, and

   b. Corrective action in the amount of the approved cost estimate under Provision G.6.b.

   The Discharger shall obtain and maintain Financial Assurance Instruments (Instruments), which comply with CCR Title 27 (Sections 22212 [Post-Closure Fund], and 22220 et seq. [Corrective Action Fund]) and 40 CFR parts 257 and 258. The Discharger shall evaluate the cost of Financial Assurance to cover the estimated costs of the worst case known or reasonably foreseeable release. The Discharger shall submit a report on financial assurance for corrective action for the Regional Water Board Executive Officer's review and approval. **Every five years** after submittal of the initial financial assurance report, or earlier if requested by the Executive Officer, the Discharger shall submit a report that either validates the Instruments' ongoing viability or proposes and substantiates any needed changes. The Discharger may combine the two components (Post Closure, Corrective Action) of the Instruments into one report to comply with this requirement. The Discharger shall also submit evidence (e.g., an acceptance letter from the CIWMB—Financial Assurance Division) to the Regional Board's Executive Officer that a financial assurance instrument(s) is in place for post-closure and corrective action **within 120 days** of adoptions of these WDRs. The most recent acceptance letter shall also be included in the Landfill's Annual Report required to be submitted to the Executive Officer under Section G.2 of MRP No. R5-2009-0049.

8. 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.

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.

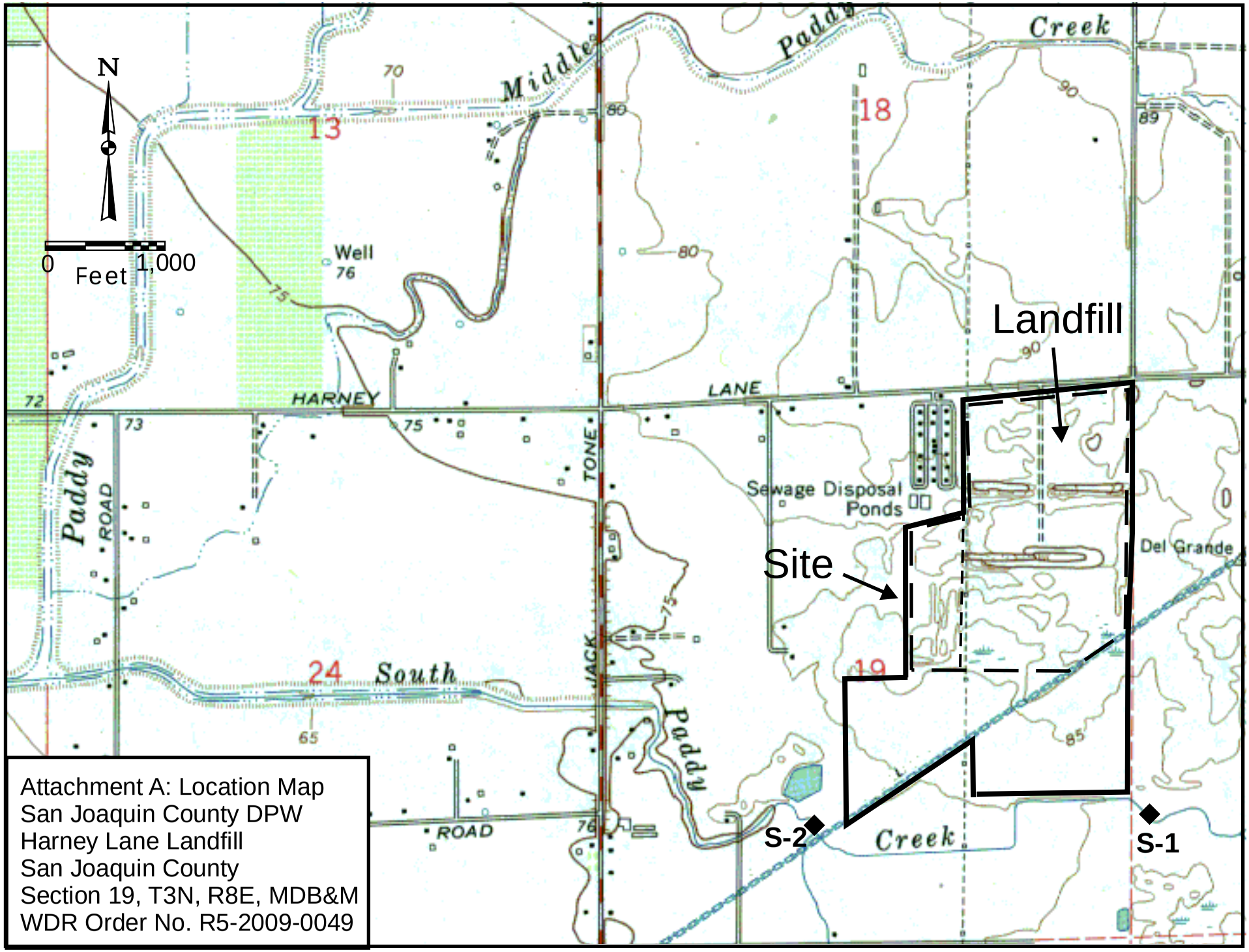
10. The Discharger shall also notify the Regional Water Board of any proposed land use or closure plan changes. This notification shall be given 90 days prior to the effective date of the change and shall be accompanied by an amended Report of Waste Discharge and any technical documents that are needed to demonstrate continued compliance with these waste discharge requirements.

11. The Regional Water Board will review this Order periodically and will revise these requirements when necessary.

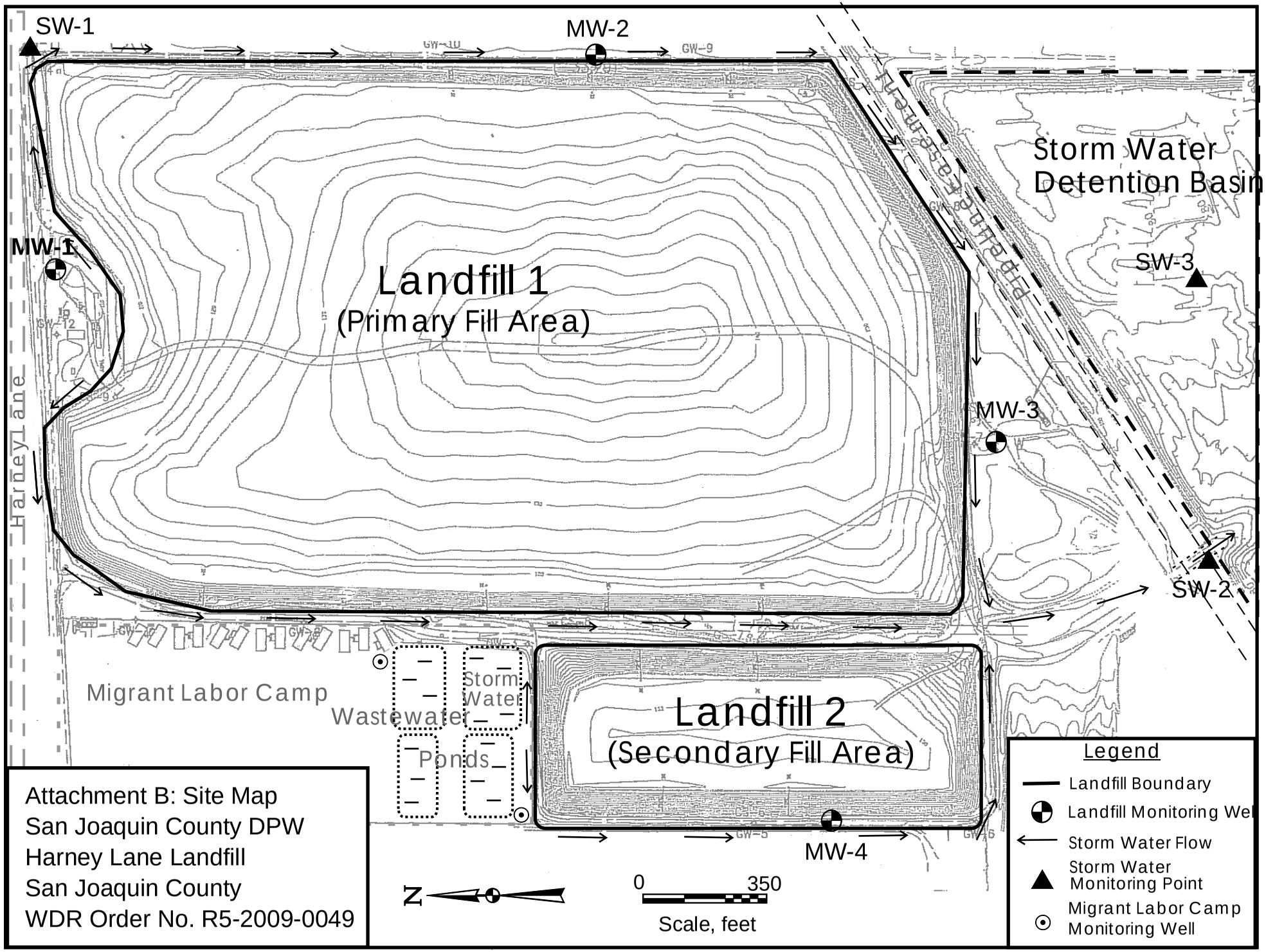
I, PAMELA C. CREEDON, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 24 April 2009.

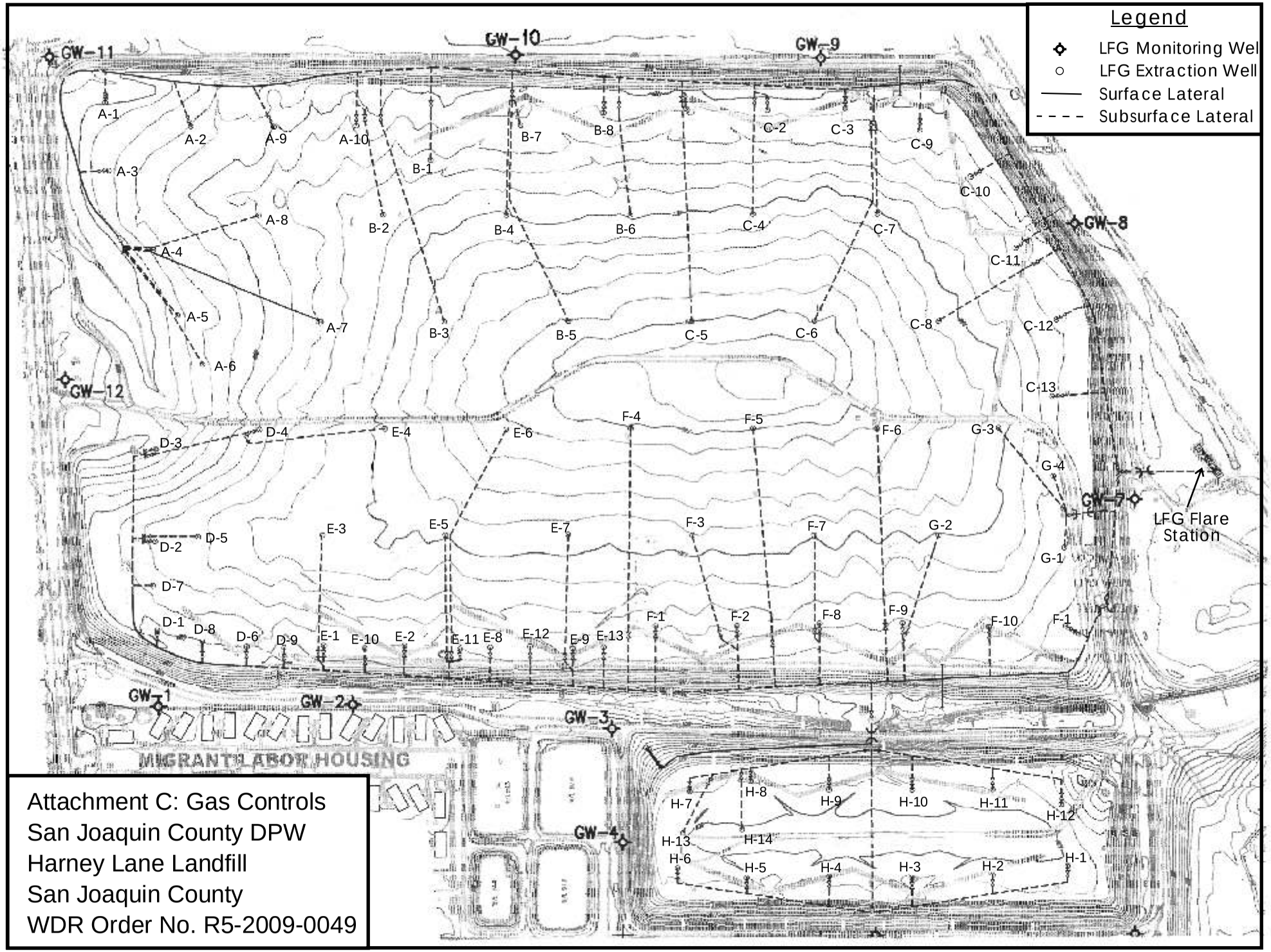
_____
PAMELA C. CREEDON, Executive Officer

JDM: 24 April 2009



Attachment A: Location Map
San Joaquin County DPW
Harney Lane Landfill
San Joaquin County
Section 19, T3N, R8E, MDB&M
WDR Order No. R5-2009-0049


SW-1
MW-2
MW-1
Landfill 1
(Primary Fill Area)
Storm Water
Detention Basin
SW-3
MW-3
SW-2
Harney Lane
Migrant Labor Camp
Storm
Water
Wastewater
Ponds
Landfill 2
(Secondary Fill Area)
MW-4
Legend
Landfill Boundary
Landfill Monitoring Well
Storm Water Flow
Storm Water
Monitoring Point
Migrant Labor Camp
Monitoring Well
0
350
Scale, feet
Attachment B: Site Map
San Joaquin County DPW
Harney Lane Landfill
San Joaquin County
WDR Order No. R5-2009-0049



Attachment C: Gas Controls
San Joaquin County DPW
Harney Lane Landfill
San Joaquin County
WDR Order No. R5-2009-0049

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2009-0049
POSTCLOSURE MAINTENANCE AND CORRECTIVE ACTION
SAN JOAQUIN COUNTY DEPARTMENT OF PUBLIC WORKS
HARNEY LANE LANDFILL
CLASS III LANDFILL
SAN JOAQUIN COUNTY

This monitoring and reporting program (MRP) is issued pursuant to California Water Code section 13267 and incorporates requirements for corrective action, detection, and site maintenance monitoring contained in California Code Regulations title 27, division 2 (Title 27), Waste Discharge Requirements (WDRs) Order No. R5-2009-0049, and the April 2000 Standard Provisions and Reporting Requirements (SPRR). Compliance with this MRP is ordered by the WDRs. The Discharger shall not implement any changes to this MRP unless a revised MRP is issued by the Executive Officer.

Pursuant to Title 27 section 20430(d), the Discharger shall maintain water quality monitoring systems for background and corrective action monitoring.

MRP SUMMARY TABLE

Section	***Requirement***	***Frequency***
A.	Standard Observations	Monthly
B.	Facility Monitoring:	
	1. Maintenance Inspections	Monthly
	2. After Significant Storm Events	Within 7 Days After Event
	3. Site Winterization	Annually
C.	Water Quality Protection Standard	Update as necessary
D.	Unsaturated Zone Monitoring - LFG	
	1. Field Parameters	Quarterly
	2. VOCs	Semiannually
E.	Groundwater Monitoring	
	1. Elevation	Quarterly
	2. Background	Semiannually
	3. Corrective Action	Semiannually
	4. Constituents of Concern	Every 5 years
F.	Surface Water Monitoring:	Per General Storm Water Permit
G.	Reporting	
	1. Semiannual Report[1]	Semiannually
	2. Annual Monitoring Summary	Annually
	3. Constituents of Concern (COCs)	Every 5 years
	4. Notifications[2]	Per SPRR

1. Including certification of standard observations
2. In event of release or leachate seep.

A. STANDARD OBSERVATIONS

Standard observations shall be performed **monthly** at the site and shall include those elements identified in Reporting Requirement F.6.f of the WDRs as applied to the site (e.g., landfill cover, perimeter ditches, detention basin, South Paddy Creek). Each monitoring report shall include a summary and certification of completion of all Standard Observations. Field logs of standard observations shall also be included in the report. Any landfill leachate seeps detected during these inspections (or at any other time) shall be reported in accordance with Reporting Requirement F.7 of the WDRs, and any leachate that enters the facility drainage system shall be sampled and analyzed for the COCs referenced in Table C.1 herein.

B. FACILITY MONITORING

The discharger shall inspect the landfill cover and associated facilities (e.g., cover, precipitation and drainage controls, gas extraction system, monitoring wells, access roads), as necessary, to ensure that such facilities are functioning properly and are in adequate repair. Any damage to the landfill facilities observed during these inspections shall be flagged and repaired. Facility inspections and repairs shall be conducted in accordance with the following schedule:

	Purpose	Inspection Frequency	Complete Repairs[1]
1.	Regular Maintenance	Monthly	Within 30 days
2.	Storm Response	Within one week of significant storm event[2]	Within two weeks of storm event
3.	Site Winterization	By September 30 of each year	By October 31 of each year

1. If necessary repairs cannot be completed within specified time frame, the Discharger shall, within 7 days, notify the Regional Water Board and provide a schedule for completing them.
2. A "significant" storm event shall be one that produces 1.4 inches or more of precipitation within a 24-hour period, as measured at the Linn Ranch Station.

The results of these inspections, including documentation of any significant damage and/or repairs (e.g., field logs, site map showing location of damage, before and after photos) shall be included in the semiannual monitoring report for the period and summarized in the Annual Report. If no inspection and/or repairs were conducted as required above, the report shall so state, providing the reason and circumstances (e.g., no significant storm event during monitoring period).

C. WATER QUALITY PROTECTION STANDARD (Section 20390[1])

The Water Quality Protection Standard (WQPS) for groundwater shall consist of all Constituents of Concern, Concentration Limits for each constituent of concern, Monitoring Points, Point of Compliance, and the Compliance Period.

[1] Regulatory sections quoted in this MRP's section titles and text are from Title 27 of the CCR unless otherwise noted.

1. **Constituents of Concern (Section 20395)**
   The constituents of concern list includes 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 COCs for the landfill, including monitoring parameters, shall be as listed in Tables G.1 and G.2, which are incorporated herein and made part of this Order by reference. The COC list groups are as follows:

Table C.1

Constituents of Concern	Units	Test Method
Field Parameters	As specified in Table G.1	
Inorganic:		
General Minerals	mg/L	See Table G.1
Dissolved Metals	µg/L	See Table G.1
Organic:		
Volatile Organic Compounds	µg/L	USEPA Method 8260B
Semi-Volatile Organic Compounds	µg/L	USEPA Method 8270
Organophosphorus Pesticides	µg/L	USEPA Method 8141A
Chlorinated Herbicides	µg/L	USEPA Method 8151
Organochlorine Pesticides	µg/L	USEPA Method 8081A
Polychlorinated Biphenols (PCBs)	µg/L	USEPA Method 8082

2. **Concentration Limits (Section 20400)**
   Concentration Limits (CLs) for statistical COCs, including general minerals and dissolved metals generally detected in background, shall be based on interwell data analysis (intrawell analysis shall not be used due to evidence of groundwater impacts) using one of the data analysis methods specified in Monitoring Specification E.18. CLs for nonstatistical COCs, including VOCs, other organic COCs, and dissolved metals not (or not generally) detected in background, shall be equal to the method detection limit (MDL).

   a. Interim CLs

      Fourteen out of 25 dissolved metals were identified as statistical COCs, based on available historical monitoring data from upgradient well MW-1 (four 5-year monitoring events). Interim statistical CLs for these constituents have been estimated as specified in Table G.1. The remaining 11 dissolved metals (i.e., those not detected in any of the four 5-year monitoring events) were assumed nonstatistical COCs for setting interim CLs.

   b. Revised CLs

      Revised CLs shall be developed for general minerals and dissolved metals once additional background monitoring wells have been established per WDR Provision G.5 and a sufficient amount of monitoring data have been collected for statistical determination of CLs. See Footnote 3, Table E.3.c.

3. **Monitoring Points (Section 20405)**
   The monitoring points for groundwater monitoring shall be as identified in Sections E.2.a and E.3.a herein.

4. **Point of Compliance (Section 20405)**
   Title 27 defines the Point of Compliance (POC) as a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit. The POC wells shall consist of the following:

   a. All downgradient (and cross gradient) landfill perimeter wells, including MWs-2, 3, and 4;

   b. All upgradient perimeter wells within the zone of influence of LFG (i.e., MW-1);

   c. Any future wells that meet either (or both) of the criteria in 4a and 4b.

5. **Compliance Period (Section 20410)**
   The compliance period (the minimum period for a landfill during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the Unit) is equal to the active life of the Unit plus the closure period. The compliance period shall be as follows:

   a. Since the landfill operated from 1948 through 1991 and was closed in 1994, the compliance period is 56 (53 + 3) years.

   b. If the landfill is in corrective action at the scheduled end of the compliance period, the compliance period shall be extended until the discharger can demonstrate that the Unit has been in continuous compliance with its WQPS for a period of at least three consecutive years, including proof period under Section 20430(f). See Monitoring Specification E.26 of the WDRs.

D. UNSATURATED ZONE MONITORING

The Discharger shall conduct LFG monitoring, as necessary to assess the effectiveness of LFG extraction in mitigating LFG constituents (i.e., VOCs, carbon dioxide) as a potential source of groundwater impacts and the need for additional LFG controls or other corrective action measures.

1. **Monitoring Points**

   LFG monitoring shall, at a minimum, be conducted at the following locations:

Landfill	Interval	Location	Sample Type	Monitoring Points
1	Middle	Perimeter	Monitoring	GW-9M, GW-10D
1	Deep	In situ	Extraction	East header
2	Deep	In situ	Extraction	East or west header

The LFG monitoring points shall also include, for a given monitoring period, any perimeter gas well that exceeds 5 percent methane by volume during that period, as measured under the perimeter migration monitoring program required by the Local Enforcement Agency.

2. **Monitoring Parameters & Schedule**

The LFG monitoring parameters shall be as follows:

Parameter	Units	Frequency	Method
Gas Pressure	In. w.c.[1]	Quarterly	Meter
Methane	%	Quarterly	Meter
Carbon Dioxide	%	Quarterly	Meter
VOCs[1]	ppbv	Semiannually	EPA Method TO-15 or 8260B

1. Inches water column.

Field meters shall be calibrated for each parameter before use. Field and calibration logs for each monitoring event shall be included in each monitoring report.

E. GROUNDWATER MONITORING

1. **Elevation Monitoring (Section 20415(e)(13))**

The groundwater surface elevation (in feet and hundredths, MSL) in all wells and piezometers shall be measured on a **quarterly** basis. Groundwater elevations taken prior to purging the well and sampling for Monitoring Parameters may be used to fulfill this requirement. Groundwater elevations for all monitoring wells for a given groundwater body shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater gradient and direction. The results of groundwater elevation monitoring shall be displayed on a water table contour map and/or groundwater flow net for the site and included in each monitoring report.

The Discharger shall use the groundwater elevation monitoring data to estimate the following, as feasible:

a. The groundwater flow velocity
b. The gradient direction in the upper aquifer, and in any additional zone of saturation monitored pursuant to this MRP
c. Times of highest and lowest elevations of the water levels in the wells
d. Separation of groundwater from the lowest point of the unit

Each of these estimations shall be included in the semi-annual reports.

2. **Background Monitoring (Section 20415(b)(1)(A))**

Background monitoring shall be performed for the purpose of developing and updating concentration limits as described in Section C.2.

a. Monitoring Points

The Discharger shall install and operate a sufficient number of background monitoring wells at appropriate locations and depths to yield ground water samples from the uppermost aquifer that represent the quality of ground water that has not been affected by a release from the unit. The background monitoring system may include wells that are not hydraulically upgradient of the Unit if:

i. Samples from such wells are more representative than those provided by upgradient wells; or

ii. Installation of an upgradient background well is not feasible; and

iii. It can be demonstrated that samples from such wells are representative of background groundwater quality.

The background monitoring points for groundwater shall be as specified in Section E.3.a herein.

b. Monitoring Parameters

See Section E.3.b.

c. Monitoring Schedule

The background monitoring schedule shall be as specified in Section E.3.c herein, except for five-year inorganic COCs (i.e., dissolved metals) for which concentration limits have not yet been developed. For such COCs, background monitoring shall be conducted annually until a sufficient amount of data has been collected for statistical (or nonstatistical) determination of concentration limits. Thereafter, such monitoring may be reduced to every five years in accordance with Section E.3.c.

3. **Corrective Action Monitoring (Sections 20425 and 20430)**

The Discharger shall install and operate a groundwater corrective action monitoring system for the purpose of monitoring the nature and extent of the

release and the progress of corrective action.

a. Monitoring Points

The corrective action monitoring points shall be as follows:

Table E.3.a: Monitoring Points

Landfill	Aquifer	Monitoring Wells		
		Upgradient	Side gradient	Downgradient
LF-1	Upper	MW-1[1]	MWs-2 and 4[2]	MW- 3
LF-2	Upper	MW-1[1]	MW-4[2]	MW- 3

1. Current background monitoring well.
2. Well contiguously monitors both landfills.

The corrective action monitoring points shall also include any future (onsite or offsite) groundwater monitoring wells installed at the facility, including additional (or alternative) background monitoring points per WDR Provision G.5. All monitoring wells shall comply with the monitoring well performance standards of Title 27 section 20415(b)(4).

b. 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 landfill shall be as listed in Section E.3.c below and Tables G.1 and G.2 herein. Any COC confirmed by retest (per WDR Monitoring Specification E.22) to be a constituent of a release shall also be added to the monitoring parameter list per Monitoring Specification E.24. In such cases, the Discharger shall also follow the Response to Release requirements of the WDRs (Monitoring Specification E.22) and SPRR, as necessary.

c. Monitoring Schedule

A sufficient number of samples shall be taken from all monitoring points to satisfy the data analysis requirements for a given reporting period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible. Collection and analysis of samples shall be in accordance with procedures set forth in the Sample Collection and Analysis Plan per Monitoring Specification E.5 of the WDRs. The groundwater corrective action monitoring schedule shall be as follows:

Table E.3.c: Corrective Action Monitoring Schedule

Parameter	Units	Frequency	Data Analysis
Field Parameters			
Elevation	Feet MSL	Quarterly	---
pH	pH units	Semiannually	Statistical
Temperature	^{O}C, ^{O}F	Semiannually	---
Turbidity	NTU	Semiannually	---
Dissolved Oxygen (DO)	%	Semiannually	---
Redox potential	millivolts	Semiannually	---
Specific Conductance	µMhos/cm	Semiannually	Statistical
Monitoring Parameters			
VOCs[1]	µg/L	Semiannually	Nonstatistical
General Minerals:			
Chloride	mg/L	Semiannually	Statistical
TDS	mg/L	Semiannually	Statistical
Total Alkalinity	mg/L	Semiannually	Statistical
Total Hardness	mg/L	Semiannually	Statistical
Chemical Oxygen Demand (COD)	mg/L	Semiannually	Statistical
Major Anions[1]	mg/L	Annually	Statistical
Major Cations[1]	mg/L	Annually	Statistical
COCs[1,2]	See Table C	Every 5 years[3]	Statistical/Nonstatistical

1. See Tables G.1 and G.2 for full list of constituents and EPA test methods.
2. COC monitoring under this Order shall be conducted by **15 December 2009** and at least every five years thereafter.
3. More frequent monitoring may be required if concentration limits not yet developed. See Section E.2.c.

d. Data Evaluation

Corrective Action monitoring data evaluation shall include the following:

i. Background Data

- Developing/updating CLs for monitoring parameters and COCs, as appropriate.

ii. Nature and Extent of Release

- Comparing monitoring data with CLs to characterize the release or identify a new release.
- Water chemistry analysis by ion balance and an appropriate graphical methods (e.g., Piper diagram, Trilinear plot, Stiff diagram)

- Preparation of contaminant contour maps for representative constituents/parameters (e.g., specific conductance, TDS, chloride, Redox potential).

iii. Effectiveness of Corrective Action

- Preparation of time series plots for each constituent for which there are three or more data points (including non-detect values).
- Trend analysis for each constituent for which there are four or more data points above the practical quantitation limit (PQL), using appropriate statistical and graphical methods (e.g., Mann-Kendall, Sen's Slope).
- Comparison of contour maps for different periods to track changes in plume size.
- Comparison of monitoring data with CLs (i.e., cleanup goals).
- Identification of corrective action methods and mechanisms (e.g., source removal, decomposition type, attenuation).
- Gathering other evidence as to whether corrective action is or is not working (e.g., checking for breakdown products, geochemical conditions in groundwater).
- Overall evaluation of corrective action effectiveness and need for additional measures and/or monitoring wells.

The results of the above analysis, including a narrative discussion, shall be included in each semiannual report and summarized in the Annual Report, as specified under Section G.2 below. The semiannual monitoring reports shall also include a discussion of the progress of corrective action toward returning to compliance with the WQPS, as specified in Title 27 section 20430(h).

F. SURFACE WATER MONITORING (Section 20415(c))

1. **Storm Water**

The Discharger shall obtain and maintain coverage under the State Water Resources Control Board General Industrial Storm Water Permit, Water Quality Order No. 97-03-DWQ. The discharger shall also monitor storm water flows semiannually for the semiannual field and monitoring parameters specified in Table E.3.c. Sampling shall be conducted at the following locations (see Attachment B):

Sampling Point	Sampling Location	Area Drained	Type
SW-1	Upstream of landfill	NE of landfill	Runon
SW-2	Culvert to detention basin	NW outfall	Runoff
SW-3	Dentention basin	SW outfall	Runoff

The results of storm water monitoring for these constituents shall be summarized in the monitoring reports submitted under this Order. If there is no discharge from the site during the monitoring period, or the Discharger did not obtain samples of the discharge, the Discharger shall state the reasons and circumstances in the monitoring report.

2. **Surface Water**
Surface water monitoring of South Paddy Creek shall be conducted for the field parameters and semiannual monitoring parameters listed in Table E.3.c, except for Redox potential. Creek elevation may be estimated based on observation. Samples shall be collected at points S-1 and S-2 immediately upstream and downstream of the landfill, as shown on Attachment B: Site Map.

G. REPORTING

1. **Semiannual Reports**
The Discharger shall report monitoring data and information as required in this MRP and as required under WDRs Order No. R5-2009-0049 and the SPRR. Reports shall be submitted **semiannually**. Each semiannual monitoring report shall include the following information:

   a. A compliance evaluation summary and other information specified in WDR Reporting Requirements F.6.

   b. A tabular summary of well information from the installation logs, including well name, top-of-casing elevation, total depth, depths/elevations of screened interval, aquifer or zone (i.e., uppermost), and soil type(s) over the screened interval.

   c. The results of groundwater elevation monitoring, including a summary table, elevation contour map, and historical data table.

   d. Tabular summaries of corrective action monitoring data for the monitoring period, with appropriate headers, showing well, sampling date, concentrations, units, and CLs. Each table shall clearly show any exceedances of CLs that occurred during the monitoring period (i.e. highlight exceedances). Non-detect results shall indicate the applicable detection limit (e.g., “<0.3”).

   e. Plots, graphical summaries and a narrative discussion of the results of correction action monitoring, as specified in Section E.3.d herein.

   f. Field and laboratory tests sheets.

   g. Tabular summaries of LFG monitoring data collected during the monitoring period under this order and as required by the Local Enforcement Agency (i.e., perimeter probe monitoring data).

   h. An electronic copy of the monitoring report in PDF format on compact disk.

2. **Annual Monitoring Summary Report**
An Annual Monitoring Summary Report (Annual Report) shall be prepared and submitted in accordance with the WDR Reporting Requirements F.8 through F.11. The report shall summarize monitoring results for the prior year and include a discussion of compliance with the WDRs and the WQPS. The report may be included in the Second Semiannual Report for each year. The Annual Report shall include the following:

   a. Tabular and graphical summaries of the results of the prior year, including, representative time series plots and contaminant contour maps.

   b. A summary of the results of trend analysis performed on each constituent of the release during the prior year.

   c. A summary of the results of water chemistry analysis of water quality data collected during the prior year.

   d. A summary of the changes in plume and/or groundwater geochemical conditions since initiation of corrective action, based on analysis such as comparison of previous contaminant contour plots.

   e. A copy of the Sample Collection and Analysis Plan per WDR Monitoring Specification E.5.

   f. Electronic copies of the following on compact disk:

      i. Historical groundwater elevation monitoring data for the site;
      ii. Historical analytical monitoring data for each unit;

      The historical data above shall be provided in tabular format(s) necessary for statistical analysis (e.g., Excel). Historical data for at least the previous 10 years shall be provided, or for as long as monitoring has been conducted at a given unit/well if less than 10 years. Each table shall be organized such as specified in C.1.d to clearly show historical concentrations at each well.

      iii. A copy of the monitoring report in PDF format.

   g. Evidence to the Regional Board's Executive Officer, per WDR Provision G.7, that acceptable financial assurance instrument(s) have been provided for post-closure and corrective action (e.g., an acceptance letter from the CIWMB—Financial Assurance Division).

3. **Reporting Schedule**
The semiannual and annual reports shall be submitted to the Board in accordance with the following schedule for the calendar period in which samples were taken or observations made:

Report	End of Reporting Period	Date Report Due
First Semiannual	30 June	**31 July**
Second Semiannual	31 December	**31 January**
Annual Report	31 December	**31 January**

Reports that do not comply with the above-required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the WDRs.

The Discharger shall implement the above monitoring program on the effective date of this Program. The transmittal letter accompanying monitoring reports submitted under this Order shall, as required under WDR Reporting Requirement F.9, contain a statement by the discharger, or the discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate and complete.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

24 April 2009
(Date)

Attachments
JDM: 24 April 2009

INORGANIC CONSTITUENTS OF CONCERN (COCs),
APPROVED USEPA ANALYTICAL METHODS, & CONCENTRATION LIMITS

Table G.1

	USEPA Test Method	**Concentration Limit**[1]
Field Parameters		
Elevation, Ft. MSL	----	----
pH, pH units	150.1 or meter	<6, >8
Temperature, ^{O}C, ^{O}F	----	----
Turbidity, NTU	----	----
Dissolved Oxygen	360.1 or meter	----
Oxidation-Reduction (Redox) Potential, Millivolts	----	----
Specific conductance, µMhos/cm	120.1 or meter	----[2]
General Minerals, mg/L		
Total Dissolved Solids (TDS)	2540C	----[2]
Total Alkalinity	2320B	----[2]
Total Hardness	2340B	----[2]
Chemical Oxygen Demand (COD)	410.4	----[2]
Major Anions		
Bicarbonate	2310B	----[2]
Chloride	300	45
Nitrate – Nitrogen	300	25
Sulfate	300	20
Major Cations		
Calcium	200.7/6010	----[2]
Magnesium	200.7/6010	----[2]
Potassium	200.7/6010	----[2]
Sodium	200.7/6010	----[2]
Dissolved Metals, µg/L[3]		
Aluminum	200.7/6010	345
Antimony	200.7/6010	25
Arsenic	200.9/200.8	4
Barium	200.7/6010	150
Beryllium	200.7/6010	MDL
Boron	200.7/6010	105
Cadmium	200.7/6010	MDL
Chromium	200.7/6010	10
Hexavalent Chromium	7199/1636	3

Table G.1

	USEPA Test Method	Concentration Limit[1]
Cobalt	200.7/6010	MDL
Copper	200.7/6010	MDL
Cyanide	335.4/9010	MDL
Iron	200.9/200.8	132
Lead	200.9/200.8	5
Manganese	200.7/6010	2
Mercury	7470A	MDL
Molybdenum	200.7/6010	MDL
Nickel	200.9/200.8	MDL
Selenium	200.9/200.8	MDL
Silver	200.7/6010	MDL
Sulfide	9030	MDL
Thallium	200.7/6010	MDL
Tin	200.7/6010	MDL
Vanadium	200.7/6010	36
Zinc	200.7/6010	MDL

1. Statistical concentration limits not yet calculated for inorganic COCs due to insufficient monitoring data. Table lists interim limits set equal to 1.5 x highest concentration historically detected, excluding outlier(s).
2. Insufficient data to compute interim concentration limit for this constituent.
3. Samples shall be filtered prior to performing dissolved inorganics analysis.

ORGANIC COCs & APPROVED USEPA ANALYTICAL METHODS
(CONCENTRATION LIMITS = MDL)

Table G.2

Volatile Organic Compounds (VOCs)[1] (USEPA Method 8260B)
Acetone
Acetonitrile
Acrolein
Acrylonitrile
Allyl chloride (3-Chloropropene)
Tert-Amyl methyl ether
Benzene
Bromobenzene
Bromochloromethane
Bromodichloromethane
Bromoform (Tribromomethane)
Tert-Butyl alcohol
n-Butlybenzene

Table G.2

sec-Butlybenzene
tert-Butlybenzene
tert-Butyl ethyl ether
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Chloroprene
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- l ,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC-12)
1,1-Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1-Dichloroethylene (1,1-Dichloroethene; Vinylidene chloride)
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
1,3-Dichloropropane
2,2-Dichloropropene
1,1-Dichloropropene
cis- 1,3-Dichloropropene
trans- 1,3-Dichloropropene
Ethylbenzene
Ethyl methacrylate
Hexachlorobutadiene
Hexachloroethane
2-Hexanone (Methyl butyl ketone)
Iodomethane (Methyl iodide)
Isobutyl alcohol
di-Isopropyl ether
Methacrylonitrile
Methyl bromide (Bromomethene)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK: 2-Butanone)

Table G.2

4-Methyl-2-pentanone (Methyl isobutylketone)
Methyl tert-butyl ether (MtBE)
Naphthalene
2-Nitropropane
n-Propylbenzene
Propionitrile
Styrene
1,1,1,2-Tetrachloroethane
1,1.2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloethane (Methylchloroforrn)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
Vinyl chloride
Xylenes (total)

Semi-VOCs[1] (USEPA Method 8270 - base, neutral, & acid extractables):
Acenaphthene
Acenaphthylene
Acetophenone
2-Acetylaminofluorene (2-AAF)
4-Aminobiphenyl
Anthracene
Benzo[a]anthracene (Benzanthracene)
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[g,h,i]perylene
Benzo[a]pyrene
Benzyl alcohol
Bis(2-ethylhexyl) phthalate
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl) ether (Dichloroethyl ether)
Bis(2-chloro-1-methyethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)
4-Bromophenyl phenyl ether
Butyl benzyl phthalate (Benzyl butyl phthalate)
p-Chloroaniline
p-Chloro-m-cresol (4-Chloro-3-methylphenol)
2-Chloronaphthalene
2-Chlorophenol

Table G.2

4-Chlorophenyl phenyl ether
Chrysene
o-Cresol (2-methylphenol)
m-Cresol (3-methylphenol)
p-Cresol (4-methylphenol)
Dibenz[a,h]anthracene
Dibenzofuran
Di-n-butyl phthalate
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
Diethyl phthalate
p-(Dimethylamino)azobenzene
7,12-Dimethylbenz[a]anthracene
3,3'-Dimethylbenzidine
2,4-Dimehtylphenol (m-Xylenol)
Dimethyl phthalate
m-Dinitrobenzene
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
Diphenylamine
Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachloropropene
Indeno(1,2,3-c,d)pyrene
Isophorone
Isosafrole
Kepone
Methapyrilene
3-Methylcholanthrene
Methyl methanesulfonate
2-Methylnaphthalene
1,4-Naphthoquinone
1-Naphthylamine
2-Naphthylamine
o-Nitroaniline (2-Nitroaniline)
m-Nitroaniline (3-Nitroaniline)
p-Nitroaniline (4-Nitroaniline)
Nitrobenzene
o-Nitrophenol (2-Nitrophenol)
p-Nitrophenol (4-Nitrophenol)
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)
N-Nitrosodiethylamine (Diethylnitrosamine)

Table G.2

N-Nitrosodimethylamine (Dimethylnitrosamine)
N-Nitrosodiphenylamine (Diphenylnitrosamine)
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)
N-Nitrosomethylethylamine (Methylethylnitrosamine)
N-Nitrosopiperidine
N-Nitrosospyrrolidine
5-Nitro-o-toluidine
Pentachlorobenzene
Pentachloronitrobenzene (PCNB)
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
p-Phenylenediamine
Polychlorinated biphenyls (PCBs; Aroclors)
Pronamide
Pyrene
Safrole
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
o-Toluidine
2,4,5-Trichlorophenol
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene

Organochlorine Pesticides[1] (USEPA Method 8081A)
Aldrin
α-BHC
β-BHC
γ-BHC (Lindane)
δ-BHC
Chlorobenzilate
α-Chlordane
γ-Chlordane
Chlodane – not otherwise specified
DBCP
4,4'-DDD
4,4'-DDE
4,4'-DDT
Diallate
Dieldrin
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Endrin ketone
Heptachlor

Table G.2

Heptachlor epoxide
Hexachlorocyclopentadiene
Isodrin
Methoxychlor
Toxaphene

Polychlorinated Biphenols[1] (PCBs, USEPA Method 8082)
Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260

Organophosphorus Pesticides[1] (USEPA Method 8141A):
Chlorpyrifos
Diazinon
Dimethioate
Disulfoton
Ethion
Famphur
Malathion
Parathion
Parathion-ethyl
Parathion-methyl
Phorate

Chlorinated Herbicides[1] (USEPA Method 8151A):
2,4-D (2,4-Dichlorophenoxyacetic acid)
Dicamba
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)
MCPA
MCPP
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)
Pentachlorophenol

1. Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of the unknown analyte per WDR Monitoring Specification G.13.

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for Title 27 (27 CCR §20005, et seq.) and Subtitle D (40 CFR 258)
April 2000

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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)

APRIL 2000

I. APPLICABILITY

A. These Standard Provisions and Reporting Requirements are applicable to nonhazardous solid waste disposal sites that are regulated pursuant to the provisions of Title 27 of the California Code of Regulations, §20005 et seq. (27 CCR or Title 27), and municipal solid waste landfills that are subject to the Federal Subtitle D regulations contained in 40 CFR 258 in accordance with State Water Resources Control Board, Resolution No. 93-62.

B. "Order," as used throughout this document, means the Waste Discharge Requirements to which these Standard Provisions and Reporting Requirements are incorporated.

C. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, and do not protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.

D. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.

E. If there is any conflicting or contradictory language between the Waste Discharge Requirements (WDRs), the Monitoring and Reporting Program (MRP), or the Standard Provisions and Reporting Requirements (SPRR), then language in the WDRs shall govern over either the MRP or the SPRR, and language in the MRP shall govern over the SPRR.

F. Unless otherwise stated, all terms are as defined in §13050 of the California Water Code (CWC) and in §20164 of Title 27.

II. TERMS AND CONDITIONS

A. Failure to comply with any waste discharge requirement, monitoring and reporting requirement, or Standard Provisions and Reporting Requirement, or other order or prohibition issued, reissued, or amended by the Regional Board or the State Water Resources Control Board, or intentionally or negligently discharging waste, or causing or permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of these waste discharge requirements and the California Water Code, which can result in the imposition of civil monetary liability [CWC §13350(a)]

B. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [CWC §13381]:

1. Violation of any term or condition contained in this Order;

2. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;

3. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge; or

4. A material change in the character, location, or volume of discharge.

C. Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall file a new report of waste discharge, or other appropriate joint technical document, with the Regional Water Quality Control Board (hereafter Board) [CWC §13260(c) and §13264(a)]. A material change includes, but is not limited to, the following:

1. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements;

2. A significant change in disposal method, location, or volume (e.g., change from land disposal to land treatment); or

3. A change in the type of waste being accepted for disposal.

D. Representatives of the Board may inspect the facilities to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting the public health or safety, an inspection may be made without consent or the issuance of a warrant [CWC §13267(c)].

E. The Board will review this Order periodically and will revise these waste discharge requirements when necessary [CWC §13263(e) and 27 CCR §21720(b)].

F. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Board [CWC §13267(b)]. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.

G. A discharge of waste into the waters of the state is a privilege, not a right. No discharge of waste into waters of the state, whether or not the discharge is made pursuant to waste discharge requirements, shall create a vested right to continue the discharge [CWC §13263(g)].

III. GENERAL PROVISIONS

A. In the event of any change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of the waste discharge facilities described in this Order, the Discharger shall notify the Board prior to the effective date of the change and shall include a statement by the new Discharger that construction, operation, closure, or post-closure maintenance will be in compliance with this Order and any revisions thereof [27 CCR §21710(c)(1)].

B. The Discharger shall notify the Board of a material change in; the types, quantity, or concentrations of wastes discharged; site operations and features; or proposed closure procedures, including changes in cost estimates. This notification shall be given a reasonable time before the changes are made or become effective. No changes shall be made without Board approval following authorization for closure pursuant to the site Notification of Closure [27 CCR §21710(a)(4)].

C. The Discharger shall maintain legible records of the volume and type of each waste discharged at each waste management unit (Unit) or portion of a Unit, and the manner and location of discharge. Such records shall be maintained by the Discharger until the beginning of the post-closure maintenance period. These records shall be on forms approved by the State Water Resources Control Board or Regional Board and shall be maintained at the waste management facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the State Water Resources Control Board or Regional Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Regional Board [27 CCR §21720(f)].

IV. FINANCIAL ASSURANCE PROVISIONS

A. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the Unit [27 CCR §20380(b) and §22222].

B. The Discharger shall establish an irrevocable fund for closure and post-closure maintenance to ensure closure and post-closure maintenance of each classified Unit in accordance with an approved closure and post-closure maintenance plan [27 CCR §20950(f) and §22207(a)].

V. GENERAL PROHIBITIONS

A. The discharge of liquid or semi-solid waste (i.e., waste containing less than 50 percent solids) is prohibited, except dewatered sewage or water treatment sludge as described in 27 CCR §20220(c) above a composite liner with a leachate collection and removal system [27 CCR §20200(d)(3)].

B. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the waste management unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products, which, in turn:

1. require a higher level of containment than provided by the unit; or

2. are ‘restricted wastes’; or

3. impair the integrity of containment structures;

is prohibited [27 CCR §20200(b)].

C. Internal site drainage from surface or subsurface sources shall not contact or percolate through wastes. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the Unit [27 CCR §20365(e)].

D. New Units or lateral expansions of existing Units shall not be sited in a “wetland” [as defined in 40 CFR 232.29(r)] unless there is no practical alternative; steps have been taken to assure no net loss of wetland; the Unit will not degrade the wetland; the Unit will not jeopardize threatened or endangered species or produce adverse modification of a critical habitat or violate any requirement of the Marine Protection, Research, and Sanctuaries Act of 1972 [40 CFR 258.12].

VI. DISCHARGE SPECIFICATIONS

A. The Discharger is responsible for accurate characterization of wastes, including a

determination of whether or not wastes will be compatible with containment features and other wastes at the Unit and whether or not the wastes are required to be managed as a hazardous waste [27 CCR §20200(c)] or designated waste [27 CCR §20210].

B. All Units shall be designed, constructed, and operated to ensure that wastes will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater [27 CCR §20240(c)], including the capillary fringe.

C. The Discharger shall submit operation plans describing those Unit operations which could affect water quality, including, but not limited to [27 CCR §21760(b)]:

1. A description of proposed treatment, storage, and disposal methods;

2. Contingency plans for the failure or breakdown of waste handling facilities or containment systems, including notice or any such failure, or any detection of waste or leachate in monitoring facilities, to the Board, local governments, and water users downgradient of the Unit(s); and

3. A description of inspection and maintenance programs which will be undertaken regularly during disposal operations and the post-closure maintenance period.

D. Leachate and landfill gas condensate collected from a Unit shall be discharged to the Unit from which it came, or discharged to an appropriate waste management unit in accordance with Title 27 and in a manner consistent with the waste classification of the liquid [27 CCR §20200(d) and §20340(g)].

E. The discharge of leachate or gas condensate is restricted to those portions of a Unit that has a composite liner system and leachate collection and removal system meeting the Federal Subtitle D requirements. A Unit shall not receive leachate or gas condensate from another Unit [40 CFR 258.28].

F. Any discharge of waste outside the portion of the landfill that was already covered with waste as of the Unit's respective Federal Deadline constitutes a "lateral expansion" and requires the installation of an approved composite liner system and leachate collection and removal system [40 CFR 258.40(b)].

G. The Discharger shall notify the Board that a closure and post-closure maintenance plan has been prepared in accordance with Closure and Post-Closure Specification IX. G., and placed in the operating record by the date of initial receipt of waste at any new Unit or lateral expansion of any existing Unit [40 CFR 258.60(d)].

VII. FACILITY SPECIFICATIONS

A. Surface and subsurface drainage from outside of a Unit shall be diverted from the

Unit [27 CCR §20365(e)].

B. Intermediate cover consisting of compacted earthen material of at least twelve (12) inches shall be placed on all surfaces of the fill where no additional solid waste will be deposited within 180 days [27 CCR §20700(a)].

C. Interim cover over wastes discharged to a landfill shall be designed and constructed to minimize percolation of liquids through the wastes [27 CCR §20705(b)].

D. The Discharger shall promptly notify the Board of any slope failure occurring at a Unit. Any failure which threatens the integrity of containment features or the Unit shall be promptly corrected in accordance with an approved method [27 CCR §21710(c)(2)].

VIII. CONSTRUCTION SPECIFICATIONS

A. All containment structures shall be designed by, and construction shall be supervised by, a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, in accordance with this Order prior to waste discharge. Units shall receive a final inspection and approval of the construction by Board staff before use of the Unit commences [27 CCR §20310(e)].

B. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a Unit's containment features or monitoring systems shall be approved by a registered civil engineer or a certified engineering geologist [27 CCR §21710(d)].

C. Materials used in containment structures shall have appropriate chemical and physical properties to ensure that such structures do not fail to contain waste because of pressure gradients, physical contact with waste or leachate, chemical reactions with soil or rock, climatic conditions, the stress of installation, or because of the stress of daily operations [27 CCR §20320(a)].

D. Units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping [27 CCR §20365(a)].

E. All Units shall be designed to withstand the maximum probable earthquake without damage to the foundation or to the structures that control leachate, or surface drainage, or erosion, or gas [27 CCR §20370(a)].

F. All landfills shall be sited where soil characteristics, distance from waste to groundwater, and other factors will ensure no impairment of beneficial uses of surface water or of groundwater beneath or adjacent to the landfill [27 CCR §20260(b)].

G. New Units and expansions of existing Units shall not be located on a known Holocene fault [27 CCR §20260(d)].

H. Liners shall be designed and constructed to contain the fluid, including landfill gas, waste, and leachate [27 CCR §20330(a)].

I. Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. The results of laboratory tests with both water and leachate, and field tests with water, shall be compared to evaluate how the field permeabilities will be affected by leachate. It is acceptable for the Discharger to use appropriate compaction tests in conjunction with laboratory hydraulic conductivity tests to determine field permeabilities as long as a reasonable number of field hydraulic conductivity tests are also conducted [27 CCR §20320(c)].

J. Hydraulic conductivities specified for containment structures other than the final cover shall be relative to the fluids (leachate) to be contained. Hydraulic conductivities for the final cover shall be relative to water [27 CCR §20320(b)].

K. A test pad for each barrier layer and final cover shall be constructed in a manner duplicating the field construction. Test pad construction methods, with the designated equipment, shall be used to determine if the specified density/moisture-content/hydraulic conductivity relationships determined in the laboratory can be achieved in the field with the compaction equipment to be used and at the specified lift thickness [27 CCR §20324(g)(1)(A)].

L. Performance requirements for geosynthetic membranes shall include, but are not limited to, a need to limit infiltration of water, to the greatest extent possible; a need to control landfill gas emissions; mechanical compatibility with stresses caused by equipment traffic, and for final covers the result of differential settlement over time and durability throughout the post-closure maintenance period [27 CCR §20324(i)(1)].

M. Leachate collection and removal systems are required for Class II landfills and surface impoundments, municipal solid waste landfills, and for Class III landfills which have a liner or which accept sewage or water treatment sludge [27 CCR §20340(a)].

N. All new Units or lateral expansions of existing Units that require a leachate collection and removal system shall have a blanket-type leachate collection and removal system that covers the bottom of the Unit and extends as far up the sides as possible. The leachate collection and removal system shall be of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and by any equipment used at the Unit [27 CCR §20340(e)].

O. The leachate collection and removal system shall be designed, constructed,

maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the Unit [27 CCR §20340(b)].

P. Leachate collection and removal systems shall be designed and operated to function without clogging through the scheduled closure of the Unit and during the post-closure maintenance period. The systems shall be tested at least annually to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions [27 CCR §20340(d)].

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

R. All construction of liner systems and final cover systems shall be performed in accordance with a Construction Quality Assurance Plan certified by a registered civil engineer or a certified engineering geologist [27 CCR §20323] and approved by the Executive Officer.

S. The Construction Quality Assurance (CQA) program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer [27 CCR §20324(b)(2)].

IX. CLOSURE AND POST-CLOSURE SPECIFICATIONS

A. The Discharger shall carry out both mandatory closure and normal closure of a Unit or a portion of a Unit in accordance with a closure and post-closure maintenance plan approved by the Board [27 CCR §20950(a)(1)] through the issuance of closure waste discharge requirements.

B. The Discharger shall notify the Board in writing that a Unit or portion of a Unit is to be closed either at the same time that the California Integrated Waste Management Board is notified or **180 days** prior to beginning any final closure activities, whichever is sooner [27 CCR §21710(c)(5)]. The notice shall include a statement that all closure activities will conform to the most recently approved closure plan and that the plan provides for site closure in compliance with all applicable federal and state regulations.

C. The final closure and post-closure maintenance plan for the Unit shall include at least the following: an itemized cost analysis, closure schedule, final treatment procedures, map; changes to the Unit description presented in the most recent ROWD; federal requirements for a municipal solid waste facility; and land use of the closed Unit [27 CCR §21769(c)].

D. Closure of each Unit shall be under the direct supervision of a registered civil engineer or certified engineering geologist [27 CCR §20950(b)].

E. The final cover of closed landfills shall be designed, graded, and maintained to prevent ponding and soil erosion due to high run-off velocities [27 CCR §21090(b)(1)(A)].

F. The final grading design shall be designed and approved by a registered civil engineer or certified engineering geologist [27 CCR §21090(b)(1)(C)].

G. In addition to the applicable provisions of Title 27, the closure and/or the post-closure maintenance plan shall include the following:

1. A final cover design with a minimum 1-foot thick erosion resistant layer [27 CCR §21090(a)(3)(A)];

2. An estimate of the largest area of the Unit(s) ever requiring a final cover at any time during the active life of the Unit(s) [40 CFR 258.60(c)(2)];

3. An estimate of the maximum inventory of wastes ever on-site over the active life of the waste management facility [40 CFR 258.60(c)(3)];

4. Initiation of closure activities within 30 days of final waste receipt, or within one year of receipt of most recent waste if additional capacity remains [40 CFR 258.60(f)];

5. Completion of closure activities within 180 days of the beginning of closure activities [40 CFR 258.60(g)];

6. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion [27 CCR §21090(b)(2)];

7. Closed Units shall be provided with at least two permanent surveying monuments, installed by a licensed land surveyor or by a registered civil engineer, from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period [27 CCR §20950(d)]; and

8. Notifying the Executive Officer that the deed to the landfill facility property, or some other instrument that is normally examined during a title search, has been recorded and a copy placed in the operating record. The notation on the deed shall in perpetuity notify any potential purchaser of the property that the land has been used as a landfill facility and that use of the land is restricted to

the planned used described in the post-closure maintenance plan [27 CCR §20515(a)(4) and §21170, and 40 CFR 258.60(c)(2)].

H. Construction or repair of the final cover system's low-hydraulic conductivity layer is to be carried out in accordance with an approved construction quality assurance (CQA) plan [27 CCR §21090(b)(1)(E)].

I. For landfills closed after 18 July 1997, The Discharger shall incorporate into the closure and post-closure maintenance plan a cover-integrity monitoring and maintenance program which includes at least the following: a periodic leak search, periodic identification of other problem areas, prompt cover repair, and vegetation maintenance [27 CCR §21090(4)]. For these landfills, the Discharger shall complete final cover surveys. The final cover surveys shall include an initial survey and map and a five-year iso-settlement map [27 CCR §21090(e)].

J. The post-closure maintenance period shall continue until the Board determines that wastes remaining in the Unit(s) no longer pose a threat to water quality [27 CCR §20950(a)(1)].

K. Within 30 days of completion of all closure activities, the Discharger shall certify that all closure activities were performed in accordance with the most recently approved final closure plan and in accordance with all applicable regulations. The Discharger shall also certify that closed Units shall be maintained in accordance with and approved post-closure maintenance plan [27 CCR §21710(c)(6)].

L. Throughout the post-closure maintenance period, the Discharger shall maintain the structural integrity and effectiveness of all containment structures, maintain the final cover as necessary to correct the effects of settlement and other adverse factors, continue to operate the leachate collection and removal system as long as leachate is generated and detected, maintain the monitoring systems, prevent erosion and related damage of the final cover due to drainage, and protect and maintain surveyed monuments [27 CCR §21090(c)].

X. MONITORING SPECIFICATIONS

A. Technical and monitoring reports specified in this Order are requested pursuant to the California Water Code [§13267(b)]. Failure to furnish the reports by the specified deadlines or falsifying information in the reports, are misdemeanors that may be liable civilly in accordance with §13268(b) of the California Water Code [CWC §13268(a)].

B. The water quality monitoring program shall include appropriate and consistent sampling and analytical procedures and methods designed to ensure that monitoring results provide a reliable indication of water quality at all monitoring points and background monitoring points [27 CCR §20415(e)(4) and 40 CFR §258.53(b)].

C. All monitoring systems shall be designed and certified by a registered geologist or a registered civil engineer [27 CCR §20415(e)(1)].

D. All monitoring wells shall be cased and constructed in a manner that maintains the integrity of the monitoring well bore hole and prevents the bore hole from acting as a conduit for contaminant transport [27 CCR §20415(b)(4)(A)].

E. All sample chemical analyses of any material shall be performed by a laboratory certified by the California Department of Health Services [CWC §13176(a)].

F. The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative groundwater samples [27 CCR §20415(b)(4)(B)]. Groundwater samples shall not be field-filtered prior to laboratory analysis [40 CFR §258.53(b)].

G. Groundwater elevations shall be measured in each well immediately prior to purging, each time groundwater is sampled. The owner or operator shall determine the rate and direction of groundwater flow each time groundwater is sampled. Groundwater elevations in wells which monitor the same waste management area shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction [40 CFR §258.53(d)].

H. Monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design specifications throughout the life of the monitoring program [40 CFR §258.51(c)(2)].

I. All borings are to be logged during drilling under the direct supervision of a registered geologist or registered civil engineer with expertise in stratigraphic well logging [27 CCR §20415(e)(2)].

J. Soils are to be described according to the Unified Soil Classification System [27 CCR §20415(e)(2)(A)]. Rock is to be described in a manner appropriate for the purpose of the investigation [27 CCR §20415(e)(2)(B)].

K. The water quality protection standard shall consist of the constituents of concern (COC), concentration limits, and the point of compliance. The water quality protection standard shall apply during the active life of the Unit, closure period, post-closure maintenance period, and any compliance period under §20410 of Title 27 [27 CCR §20390].

L. The point of compliance at which the water quality protection standard applies is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit [27 CCR §20405).

M. The compliance period is the minimum period of time during which the Discharger shall conduct a water quality monitoring program and is the number of years equal to the active life of the Unit plus the closure period [27 CCR §20410(a)].

N. The groundwater monitoring system shall include a sufficient number of monitoring points, installed at appropriate locations, to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater that has not been affected by a release from the Unit [27 CCR §20415(b)(1)(A)].

O. The detection monitoring program shall include a sufficient number of monitoring points, installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater passing the point of compliance to allow the detection of a release from the Unit [27 CCR §20415(b)(1)(B)1.].

P. Additional monitoring points shall be added as necessary to provide the best assurance of the **earliest possible detection** of a release from the Unit [27 CCR §20415(b)(1)(B)2.].

Q. The detection monitoring program shall also include a sufficient number of monitoring points installed at appropriate depths and locations to yield groundwater samples from other aquifers or perched zones not already monitored to provide the **earliest possible detection** of a release from the Unit [27 CCR §20415(b)(1)(B)3. and 4., and §20420(b)].

R. A surface water monitoring system shall be established to monitor each surface water body that could be affected by a release from the Unit [27 CCR §20415(c)].

S. An unsaturated zone monitoring system shall be established for each Unit [27 CCR §20415(d)].

T. The Discharger shall notify the Board **within seven days** if fluid is detected in a previously dry leachate collection and removal system, unsaturated zone monitoring system, or if a progressive increase is detected in the volume of fluid in a leachate collection and removal system [27 CCR §21710(c)(3)].

U. Driller’s logs for all monitoring wells shall to be submitted to the Board and the Department of Water Resources [CWC §13751 and 27 CCR §20415(b)(3)].

V. Groundwater elevation, temperature, electrical conductivity, turbidity, and pH are to be accurately measured at each well each time groundwater is sampled [27 CCR §21415(e)(13)].

W. The groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation being monitored shall be determined at least quarterly [27 CCR §20415(e)(15)].

X. For each Unit, the Discharger shall collect all data necessary for selecting appropriate data analysis methods for establishing background values for each constituent of concern and for each monitoring parameter [27 CCR §20420(c)]. The Discharger shall propose a data analysis method that includes a detailed description of the criteria to be used for determining "measurably significant" evidence of a release from the Unit and determining compliance with the water quality protection standard [27 CCR §20415(e)(6) and (7)].

Y. For statistical analysis of data, the Discharger shall use one of the methods described in §20415(e)(8)(A)-(E) of Title 27. A non-statistical data analysis method can be used if the method can achieve the goal of the particular monitoring program at least as well as the most appropriate statistical method [27 CCR §20415(e)(8)]. The Discharger shall use a statistical or nonstatistical data analysis method that complies with §20415(e)(7, 8, 9, and 10) of Title 27, to compare the downgradient concentration of each constituent of concern or monitoring parameter with its respective background concentration to determine whether there has been a "measurably significant" evidence of a release from the Unit. For any given monitoring point at which a given constituent has already exhibited a measurably significant indication of a release at that monitoring point, the Discharger may propose to monitor the constituent, at that well, using a concentration-versus-time plot.

Z. The Discharger shall graph all analytical data from each monitoring point and background monitoring point and shall submit the graphs to the Board annually [27 CCR §20415(e)(14)].

AA. **Verification Procedure.** If the data analysis procedures above indicate that a release has tentatively been identified from the Unit, the Discharger shall implement a verification procedure/retest option, in accordance with §20415(e)(8)(E) and §20420(j)(2) of Title 27. The new sample(s) shall be obtained **within 30 days** of the original indication [27 CCR §20415(e)(3)]. For any indicated monitoring parameter or constituent of concern, if the retest results of either (or both) of the retest data suites confirms the original indication, the Discharger shall conclude that a release has been discovered and shall carry out the requirements of Section XI, Response To A Release, below. All retests shall be carried out only for those monitoring point(s)

at which a release is tentatively indicated, and only for the constituents of concern or monitoring parameter which triggered the indication there, as follows:

1. **Statistical Retest Method**. The statistical test method used by the Discharger to analyze the monitoring data shall include a procedure to verify that there is "measurably significant" evidence of a release from the Unit. The verification procedure shall include either a single "composite" retest (i.e., a statistical analysis that augments and reanalyzes the data from the monitoring point that indicated a release) or shall consist of at least two "discrete" retests (i.e., statistical analyses each of which analyzes only newly-acquired data from the monitoring point that indicated a release) [27 CCR §20415(e)(8)(E)]. The verification procedure shall comply with the requirements of §20415(e)(8)(E) of Title 27 in addition to the performance standards of §20415(e)(9) of Title 27.

XI. RESPONSE TO A RELEASE

A. Monitoring Point Evidence of a Release

1. If the Discharger determines that there is "measurably significant" evidence of a release from the Unit (i.e. the initial statistical comparison or nonstatistical comparison indicates, for any constituent of concern or monitoring parameter, that a release is tentatively identified), the Discharger shall [27 CCR §20420(j)]:

   a) **Notification — immediately notify Board staff verbally** of the finding and provide written notification by certified mail **within seven days** of such determination. The notification shall, for each affected monitoring point, identify the monitoring parameters and constituents of concern that have indicated "measurably significant" evidence of a release from the Unit [27 CCR §20420(j)(1)];

   b) **Retest Optional** — can immediately initiate the verification (retest) procedure pre-approved by the Board [pursuant to §20415(e)(8)(E) of Title 27] to verify that there is "measurably significant" evidence of a release from the Unit for a parameter or constituent which has indicated a release at a monitoring point [27 CCR §20420(j)(2)]; and

   c) **Next Step** — immediately following detection of a release [or after completing the retest pursuant to b) above and confirming the existence of a release], shall comply with the requirements of C.

(Release Has Been Verified) below [27 CCR §20420(j)(3)].

B. **Physical Evidence of a Release**

1. If the Discharger determines that there is a significant **physical** evidence of a release, the Discharger shall notify the Board **by certified mail within 7 days** of such determination, and within 90 days shall submit an amended report of waste discharge to make any appropriate changes to the detection monitoring program [27 CCR §20420(l)(1) & (2)].

C. **Release Has Been Verified**

1. If the detection was made based upon sampling and analysis for monitoring parameters, **immediately** sample all monitoring points in the affected medium at that Unit and determine the concentration of all constituents of concern. Because this constituent of concern scan does not involve statistical testing, the Discharger need collect and analyze only a single water sample from each monitoring point in the affected medium [27 CCR §20420(k)(1)].

2. The Discharger, **within 90 days** of determining "measurably significant" evidence of a release, shall submit an amended report of waste discharge to establish an evaluation monitoring program meeting the requirements of §20425 of Title 27 [27 CCR §20420(k)(5)].

3. The Discharger, **within 180 days** of determining "measurably significant" evidence of a release, shall submit to the Board an initial engineering feasibility study for a corrective action program necessary to meet the requirements of §20430 of Title 27. At a minimum, the engineering feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern [27 CCR §20420(k)(6)].

4. If the Discharger determines that there is "measurably significant" evidence of a release from the Unit at any monitoring point, the Discharger may demonstrate that a source other than the Unit caused the evidence of a release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in groundwater, surface water, or the unsaturated zone. The Discharger may make a demonstration pursuant to §20420(k)(7) of Title 27 in addition to or in lieu of submitting both an amended report of waste discharge or an engineering feasibility study; however, the Discharger is not relieved of the requirements of §20420(k)(6) & (7) of Title 27 unless the demonstration successfully shows that a source other than the Unit caused the evidence of a release or that the evidence resulted from error in sampling, analysis, or statistical evaluation or from natural variation in groundwater, surface water, or the unsaturated zone. In

making this demonstration, the Discharger shall notify the Board by certified mail of the intent to make the demonstration **within seven days** of determining "measurably significant" evidence of a release. The report shall be submitted to the Board **within 90 days** of determining "measurably significant" evidence of a release demonstrating that a source other than the Unit caused the evidence [27 CCR §20420(k)(7)].

5. The Discharger, **within 90 days** of establishing an Evaluation Monitoring Program, shall conduct an evaluation monitoring program used to assess the nature and extent of the release from the Unit and to design a corrective action program meeting the requirements of §20430 of Title 27. At a minimum, an evaluation monitoring program for a Unit shall include:

   a) An assessment of the nature and extent of the release from the Unit. This assessment shall include a determination of the special distribution and concentration of each constituent of concern throughout the zone affected by the release. The Discharger shall submit this assessment to the Board **within 90 days** of establishing an evaluation monitoring program [27 CCR §20425(b)].

   b) For MSW landfills, the Discharger shall comply with the additional notification and monitoring system requirements incorporated by reference into State Water Resources Control Board Resolution No. 93-62, regarding notification and monitoring relative to offsite or potential off-site migration of waste constituents [see 40 CFR 258.54, 40 CFR 258.55, and 27 CCR §20425(b)].

   c) Update the initial engineering feasibility study for corrective action based on the data collected to delineate the release and from the ongoing monitoring program. The Discharger shall submit this updated engineering feasibility study to the Board **within 90 days** of establishing an evaluation monitoring program [27 CCR §20425(c)].

   d) For MSW landfills, the Discharger shall discuss the results of the updated engineering feasibility study, prior to the selection of a remedy, in a public meeting with interested and affected parties [40 CFR 258.56(d)].

   e) Submit an amended report of waste discharge to establish a corrective action program meeting the requirements of §20430 of Title 27 based on the data collected to delineate the release and on the updated engineering feasibility study. The Discharger shall submit this report to the Board **within 90 days** of establishing an evaluation monitoring program [27 CCR §20425(d)].

6. The Discharger, **within 14 days** of determining "measurably significant" evidence of a release, shall notify all persons who own the land or reside on the land that directly overlies any portion of the plume of contamination if contaminants have migrated off-site if indicated by sampling of detection monitoring wells [40 CFR 258.55(g)(1)(iii)].

XII. STORM WATER PROVISIONS

A. New and existing Class III landfills shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return period [27 CCR §20260(c)].

B. New and existing Class II landfills shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return period [27 CCR §20250(c)].

C. MSW landfills located in a 100-year floodplain shall demonstrate that the Unit will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health or the environment [40 CFR 258.11(a)].

D. The Discharger of an MSW landfill shall design, construct, and maintain the Unit to include a run-off control system from the active portion of the landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm [40 CFR 258.26(a)].

E. Units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under the precipitation conditions for the unit [27 CCR §20365(a)].

F. Precipitation on landfills or waste piles which is not diverted by covers or drainage control systems shall be collected and managed through the leachate collection and removal system, which shall be designed and constructed to accommodate the precipitation conditions for each class Unit [27 CCR §20365(b)].

G. Diversion and drainage facilities shall be designed, constructed, and maintained to [27 CCR §20365(c)]:

1. accommodate the anticipated volume of precipitation and peak flows from surface runoff and under the precipitation conditions for the Unit:

2. effectively divert sheet flow runoff laterally, via the shortest distance, into the drainage and collection facilities;

3. prevent surface erosion;

4. control and intercept run-on, in order to isolate uncontaminated surface waters from water that might have come into contact with waste; and

5. take into account:

   a) for closed Units and for closed portions of Units, the expected final contours of the closed Unit, including its planned drainage pattern;

   b) for operating portions of Units other than surface impoundments, the Unit's drainage pattern at any given time;

   c) the possible effects of the Unit's drainage pattern on and by the regional watershed;

   d) the design capacity of drainage systems of downstream and adjacent properties by providing for the gradual release of retained water downstream in a manner which does not exceed the expected peak flow rate at the point of discharge if there were no waste management facility; and

6. preserve the system's function. The Discharger shall periodically remove accumulated sediment from the sedimentation or detention basins as needed to preserve the design capacity of the system.

H. Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system [27 CCR §20365(d)].

I. Surface and subsurface drainage from outside of a Unit shall be diverted from the Unit [27 CCR §20365(e)].

J. 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 [27 CCR §20365(f)].

K. Any drainage layer in the final cover shall be designed and constructed to intersect with the final drainage system for the Unit in a manner promoting free drainage from all portions of the drainage layer [27 CCR §20365(f)].

INFORMATION SHEET

ORDER NO. R5-2009-0049
SAN JOAQUIN COUNTY DEPARTMENT OF PUBLIC WORKS
HARNEY LANE LANDFILL
SAN JOAQUIN COUNTY

Background

The Harney Lane Landfill is a closed, Class III landfill on East Harney Lane approximately six miles east of Lodi. The landfill is on a 127-acre site and includes two unlined landfill units -- Landfill 1 (97-acres) and Landfill 2 (15-acres), and associated precipitation and drainage controls, landfill gas (LFG) controls, monitoring wells, access roads, and other facilities. The landfill operated from 1948 to 1991, accepting primarily household wastes. The landfill was previously owned and operated by the City of Lodi, which sold the facility to the Discharger in the mid-1980s. In 1994, both landfill units were closed (i.e., graded and clay capped) in accordance with Chapter 15 (now Title 27) regulations. Approximately 7 million cubic yards of waste, including household waste, commercial refuse, construction debris, and agricultural waste, are estimated to be in place at the facility. The maximum thicknesses of waste in the landfill units are estimated to be at least 80 feet in LF-1 and 50 feet in LF-2, respectively.

In 1991, the Discharger installed a LFG monitoring system along the site perimeter. The system consists of 12 LFG monitoring wells with nested probes screened in the upper, intermediate, and lower portions of the unsaturated zone. Subsequent LFG monitoring showed high concentrations of methane and the presence of several volatile organic compounds (VOCs) in LFG, including tetrachloroethene (PCE), which has also been detected in groundwater at the site.

Groundwater

The average depth to groundwater at the site is about 127 feet bgs (-36 feet MSL) and the ground water gradient is typically about 0.003 feet/feet to the south-southwest. The upper water-bearing zone occurs in alluvial deposits of the Turlock Lake and Laguna formations, which consist of laterally discontinuous layers of gravel, sand, silt and clay. Four groundwater monitoring wells, including one upgradient (MW-1), two cross-gradient (MWs-2 and 4), and one downgradient (MW-3), were installed at the site in 1987.

Low concentrations of various volatile organic compounds (VOCs) have been historically detected in groundwater at the site, including benzene, PCE, dichlorodifluoromethane (Freon 12), 1,2-dichloropropane, toluene, total xylenes, and trace concentrations of various other VOCs. Most of the VOCs have been detected in cross- gradient well MW-2. Elevated concentrations of general minerals have also been historically detected in groundwater at the site, primarily in downgradient well MW-4.

Closure/Corrective Action

In 1994, both landfill units were closed (i.e., graded and clay capped) with a prescriptive clay cover in accordance with land disposal regulations formerly in the California Code of Regulations (CCR), title 23, chapter 15, division 3; and now in Title 27. Closure of the landfill, including installation of cover and storm water controls, was also intended as a corrective action measure to minimize storm water infiltration into the landfill. These efforts were

targeted at reducing leachate as a source of groundwater impacts. As a further corrective action measure, in 1996, the Discharger installed a landfill gas extraction system in the landfill to control methane and mitigate LFG as a potential source of VOCs in groundwater. The system has since been expanded and presently includes 82 vertical extraction wells at Landfill 1 and 14 vertical extraction wells at Landfill 2

Historical monitoring data for the site generally indicates declining concentrations of VOCs coincident with improvements to the LFG extraction system. Since 2007, the primary VOCs historically detected in groundwater at the site (e.g., PCE, Freon 12, and 1,2-Dichloropropane) have been detected at trace or non-detect levels. In 2008, two VOCs, PCE [0.5 micrograms per liter (µg/L)] and benzene (0.7 µg/L) were sporadically detected above their California Public Health Goals (0.06 µg/L and 0.15 µg/L), but below their respective maximum contaminant levels (MCLs) of 5 µg/L and 1 µg/L, respectively. Elevated concentrations of general minerals, including chloride (120 mg/L) and total dissolved solids (TDS, 510 mg/L) also continue to be detected in groundwater.

Revised WDRs

These revised WDRs prescribe updated requirements for postclosure maintenance and corrective action monitoring. To improve background monitoring, the WDRs require that the Discharger submit (by 15 June 2009**)** a work plan for establishing additional background wells at the site. The WDRs also require that (by 30 July 2009) the Discharger submit for approval an updated postclosure maintenance plan, including updated cost estimates for postclosure maintenance and corrective action financial assurances, as necessary. The monitoring and reporting program (MRP) in the WDRs requires semiannual groundwater monitoring for representative parameters, and monitoring every five years for all landfill constituents of concern. The MRP also requires that the Discharger perform semiannual surface water monitoring at the site and maintain coverage under the General Industrial Storm Water Permit. Surface drainage at the site is to South Paddy Creek, tributary to Paddy Creek, Bear Creek, and the San Joaquin River. (JDM)