

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2007-0085
WASTE DISCHARGE REQUIREMENTS
FOR
COUNTY OF PLACER DEPARTMENT OF FACILITY SERVICES
MEADOW VISTA LANDFILL
CLASS III LANDFILL
POST-CLOSURE MAINTENANCE AND CORRECTIVE ACTION
PLACER COUNTY

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

1. Placer County Department of Facility Services (hereafter referred to as "Discharger") owns and operates the Meadow Vista Landfill, an unlined Class III landfill on Combie Road approximately one and one-half miles north of the community of Meadow Vista, as shown in Attachment "A", which is incorporated herein and made part of this Order by reference. The 8-acre landfill is on a 23-acre site in the northwest 1/4 of Section 31, T14N, R9E, MDB&M, corresponding to Assessor Parcel Number 072-030-001.
2. The landfill operated from the mid-1960s to 1983, accepting primarily household waste from the community of Meadow Vista and the surrounding areas. The landfill stopped accepting wastes in 1983 when the onsite transfer station was built. The landfill was covered with soil in 1984, but it did not receive an engineered cover until 1996, when closure was implemented as a corrective action measure under Title 27 regulations. Since startup of the transfer station in 1984, refuse from the area has been sent to the Western Regional Sanitary Landfill near Lincoln.
3. Onsite facilities include the landfill, groundwater monitoring wells, landfill gas monitoring and collection facilities, a landfill gas flare station, leachate collection and storage facilities; storm water drainage facilities, a self-haul transfer station, and associated access roads, as shown in Attachment "B", which is incorporated herein and made part of this Order by reference.
4. Previous Waste Discharge Requirements (WDRs) Order No. 96-217, issued prior to landfill closure in 1996, no longer adequately describe the facility. These revised WDRs describe the closed landfill and prescribe updated requirements for post-closure maintenance and corrective action.
5. Effective 18 July 1997, the water quality regulations for Class II and Class III disposal facilities formerly contained in Chapter 15, Title 23, California Code of Regulations (CCR), and the solid waste regulations formerly in Title 14, CCR, were consolidated into Chapters 1 through 7, Subdivision 1, Division 2, Title 27, CCR (Title 27 or 27 CCR). These WDRs reference Title 27 regulations.

6. The facility is not subject to federal municipal solid waste landfill regulations (Title 40, Code of Federal Regulations, Part 258, or "Subtitle D") because it stopped accepting wastes before the effective date of those regulations, 9 October 1991.

WASTES AND UNIT CLASSIFICATION

7. The landfill accepted solid wastes defined as "inert" and "nonhazardous solid waste" under 27 CCR Sections 20230 and 20220, respectively. The landfill was not authorized to accept hazardous or liquid wastes. Approximately 500,000 tons of household waste was discharged to the landfill. Waste disposal included both canyon fill and trench-and-cover methods. The maximum thickness of wastes is estimated to be about 40 to 45 feet (taking into account the cover thickness) based on comparison of pre-landfill and post closure topographic contours along the axis of the former ravine.
8. Although previous WDRs Order No. 94-220 reclassified the landfill (from a previous sub-Chapter 15 designation) to a Class III waste management unit under Chapter 15 (now Title 27) regulations, the landfill did not operate as a Class III facility after 27 November 1984, the effective date of former Chapter 15 regulations, and is more appropriately considered a "closed, abandoned or inactive" (CAI) unit under 27 CCR Section 20080(g).

SITE DESCRIPTION

9. The landfill site is a former ravine in the western-sloping foothills of the Sierra Nevada Mountains. The terrain in the area consists of rolling hills vegetated with pine and oak trees. Site elevations range from about 1,720 feet above mean sea level (MSL) at the toe of the former ravine to about 1,840 feet MSL up a hill in the northern part of the site. Land uses in the area include medium-to-large tract residential, recreation (e.g., horseback riding, hiking), area roads, a rock quarry (immediately northwest of the site), and undeveloped wooded land.
10. There are about 84 private domestic wells within a one-mile radius of the landfill, of which about 32 are down gradient of the landfill (based on 2005 Department of Water Resources well survey submitted by the Discharger). Well depths typically range from about 125 to 400 feet below ground surface (bgs), averaging about 200 feet bgs. Well rates typically range from about two to 30 gallons per minute. There are four domestic wells within 1,000 feet of the facility.
11. Most residences in the landfill area are connected to drinking water from either the Meadow Vista County Water District or the Midway Heights County Water District, and connection to district water is required for new home construction in the area. Some residences on district water use well water for irrigation purposes, however.
12. The landfill is not within a 100-year floodplain.

SURFACE AND STORM WATER

13. Surface drainage from the site is to two unnamed intermittent drainage courses, one west of the upper deck and the other immediately southeast of the landfill toe. These unnamed drainage courses are tributary of Lake Combie, part of the Bear River, which is tributary to the Feather River and the Sacramento River.
14. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
15. The designated beneficial uses of the Bear River are municipal and domestic supply; agricultural supply; industrial (hydropower generation only); water contact recreation; non-contact water recreation; cold freshwater habitat, warm freshwater habitat; migration of aquatic organisms (potential use); spawning, reproduction and/or early development (potential use); and wildlife habitat.
16. The 100-year, 24-hour precipitation event is about 5.7 inches, based Rainfall Depth Duration Frequency data provided by the State Department of Water Resources for the Auburn Station, about 10 miles southwest of the site. The average annual rainfall for the station is about 34.4 inches per year.
17. The Monitoring and Reporting Program (MRP) No. R5-2007-0085 of this Order (MRP Section F.3) requires that the Discharger inspect the landfill cover and precipitation and drainage facilities for damage within seven days following a “significant storm event”, and implement necessary repairs. The MRP specifies as “significant” for this purpose any storm event that produces 1.5 inches or more of precipitation within a 24-hour period, as measured at the Auburn Station.

GEOLOGY

18. Shallow bedrock at the site consists of Mesozoic-Age metasedimentary rock (e.g., slate, conglomerate, tuff and greywacke), ranging from five thick on the western side of the site to 40 feet thick on the eastern side. Bedrock outcrops are found immediately north of the site. The upper layer of bedrock is underlain by Mesozoic-Age metavolcanic rock (e.g., greenstone). Both types of bedrock are typically weathered, fractured, folded and/or sheared. Pyrite and other minerals (i.e., calcite, epidote, and iron oxides) are typically dispersed within the bedrock fractures.
19. Geologic structure maps indicate that topographically high areas (e.g., the hills north and southwest of the landfill) may be structural anticlines, while topographically low areas (e.g., the natural drain southeast of the landfill) may be synclines. Drilling rate and well log information indicate that the bedrock is typically much more fractured in low areas than it is in higher areas.
20. There are no known active faults in the area (e.g., within a 62 mile (100 kilometer) radius per 27 CCR 21750(f)(7)). The closest potentially active faults include the Honcut Fault (40 miles), Sutter Buttes Faults (42 miles), Tahoe Fault (47 miles),

Dunnigan Hills Fault (50 miles) and the Truckee Fault (52 miles). None of these faults are believed to be capable of producing a peak bedrock acceleration greater than 0.1 g. The inactive Melones Fault is about eight miles east of the site.

21. Soils in the area consist of gravelly/clayey loams and weathered outcrop soils, including Sites-Rock, Mariposa-Rock, and related soils. Boring logs for wells installed along the site perimeter indicate the soil ranges from about 2 to about 40 feet in thickness. It is not generally known whether or how much soil was excavated from the ravine floor prior to placement of wastes, and the thickness of soil beneath the landfill is unknown. The minimum separation between landfill wastes and seasonal high groundwater is also unknown.

GROUNDWATER

22. The beneficial uses of the ground water are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply as designated in *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*.
23. The depth to groundwater varies with topography (and location relative to the gradient), ranging from about 93 feet bgs on a hill in the southwest part of the site to near ground surface in the southeast drainage area where it has historically surfaced as a natural spring. No spring activity has been noted in the toe area since closure of the landfill, however. Average groundwater elevations at the site range from about 1,780 feet MSL upgradient (northeast corner of the site) to about 1,690 feet MSL down gradient (southwest corner of the site), with about five to 10 feet of seasonal variation.
24. A significant component of groundwater flow likely occurs through fractures in the underlying bedrock, which, in addition to the bedrock topography, influences the direction flow and magnitude of the gradient. Groundwater flows across the site to the west, southwest, south, and southeast. The magnitude of the gradient ranges from about 0.05 ft/ft (typically toward the west, south, and southwest) to about 0.17 ft/ft (typically to the southeast). Groundwater velocities are estimated to average about 115 feet per year on the western portion of the site where there is less bedrock fracturing up to about 590 feet per year in the southeastern part of the site where there is more flow through fractures.
25. A 1990 Solid Waste Assessment Test (SWAT) investigation (see June 1991 *Solid Waste Assessment Test Report, Meadow Vista Landfill*, prepared by Emcon Associates) found groundwater impacts at the site, including low concentrations of volatile organic compounds (VOCs) and elevated concentrations of general minerals and dissolved iron. The SWAT report concluded that the landfill had likely impacted groundwater.
26. Previous WDRs required groundwater quality monitoring of 10 groundwater monitoring wells, including one background well (MW-9); four down gradient wells

(MWs-5A, 7A, 11S, and 11D); and four side gradient wells (MWs-2, 3, 4 and 10). Five additional wells, including four gas monitoring wells screened in the uppermost water bearing zone (GMs-1D, 3D, 4D, and 8D) and one offsite well (MW-1) were monitored for groundwater elevation only. A March 2001 groundwater investigation report submitted by the Discharger noted that wells GMs-1D and 8D were upgradient of the landfill and should be monitored as background wells. The report also recommended that MW-9 be abandoned, since it is not hydraulically upgradient of the site. The monitoring program in these WDRs specifies all three wells as background monitoring wells, but allows for abandonment of well MW-9 if representative concentration limits can be developed for all constituents from either (or both) of the other two wells.

27. VOCs have recently been detected in the groundwater down gradient/side gradient of the landfill as follows:

VOC	Concentration (µg/L) ¹			
	(Based on First Quarter 2007, except as footnoted)			Offsite MW-2
	Downgradient			
	MW-5A ¹ SW	MW-7A South	MW-11D SE	
Benzene	< 0.1	0.5	0.6	< 0.1
Carbon Disulfide	< 0.2	< 0.2	< 0.2	< 0.2 - 2.0 ²
Chlorobenzene	< 0.1	2.3	3.7	< 0.1
cis-1,2-Dichloroethylene	0.3	0.6	0.6	< 0.3
1,4-Dichlorobenzene	< 0.1	0.8	1.0	< 0.1
Trichloroethene	0.6	< 0.1	< 0.1	< 0.1

1. Based on Fourth Quarter 2006 sampling (well not sampled in First Quarter 2007).
2. Sporadically detected VOC most recently detected in Third Quarter 2006.

Benzene concentrations have historically exceeded groundwater water quality objectives for chemical constituents (1.0 µg/L California Primary maximum contaminant level, MCL) and toxicity (0.15 µg/L California Public Health Goal, PHG). Time series plots of the monitoring data since 1997, however, indicate moderate declining trends for most VOCs, including benzene, in all wells. Exceptions included chlorobenzene (moderate rise in all wells), 1,4-dichlorobenzene (relatively constant in all wells), and cis-1,2-dichloroethylene (relatively constant in MW-5).

28. Groundwater monitoring data also indicates moderately depressed pH levels and, with the exception of total alkalinity, elevated concentrations of general minerals and certain dissolved metals in down gradient/side gradient wells to the southeast, as follows:

Constituent	Concentration			
	(Based on First Quarter 2007, except as footnoted)			
	Background	Downgradient		Offsite
	<u>MW-9</u>	<u>MW-7A</u>	<u>MW-11D</u>	<u>MW-2</u>
pH	7.1	6.0	5.1	4.7
Total Alkalinity	190	150	25	<5 ¹
Chloride	5	66	80	29
Sulfate	64	350	390	420
TDS	280	540	580	520
Specific Conductance (µmhos/cm)	490	814	795	656
Dissolved iron	0.2	6.4	22	12

1. Based on Fourth Quarter 2006 monitoring (not analyzed for in First Quarter 2007).

Time series plots since 1997 do not indicate any clear rising or declining trends for any of these constituents. Although total alkalinity (a common groundwater impact of landfill gas) is not elevated relative to background well MW-9, spatial variability of alkalinity evident in the monitoring data could be an impact of landfill gas, which can migrate upgradient through the unsaturated zone. Also, elevated concentrations of dissolved iron and sulfate and depressed pH detected in down gradient wells do not appear to be directly from leachate, which collection sump monitoring indicates is typically low in these constituents (see Finding 30) and typically has a relatively neutral pH. The extent to which these exceedances may be associated with natural sources, and/or changes in the groundwater geochemistry caused by the landfill, is unknown. The monitoring program in these WDRs includes oxidation/reduction (Redox) potential and chemical oxygen demand (COD) as field/monitoring parameters to help identify any changes in groundwater geochemistry associated with the landfill.

29. Concentrations of the above constituents exceeded groundwater quality objectives as follows:

Constituent	Objective	
	(mg/L, except where noted)	
	Chemical Constituents	Taste & Odor
pH	6.5 ¹	5 ²
SC, µmhos/cm	700 ⁴	900 ³
Sulfate	250 ³	250 ³
TDS	450 ⁴	500 ³
Dissolved iron	0.3 ³	0.3 ³

1. Federal Secondary MCL
2. National Ambient Water Quality Criteria - human health & welfare protection
3. California Secondary MCL
4. Agricultural Goal

30. Leachate seeps have also been historically detected along the landfill toes slopes in the southeast part of the site. No leachate seeps have been detected at the landfill since closure in 1997, however (see Finding 40). Leachate is currently monitored at a collection sump in the southeast corner of the site (LS-1), and in a leachate monitoring well (LS-2) in the northeastern part of the landfill (formerly a gas monitoring well). Annual volumes of leachate collected and pumped from the sump have ranged from about 13,000 to 557,000 gallons during the past 10 years. Leachate monitoring results indicate VOCs and VOC concentrations similar to impacted groundwater at the site, and typical concentrations of inorganic constituents as follows:

Constituent	Concentration, mg/L¹	
	Collection Sump (LS-1)	Leachate Monitoring Well (LS-2) ²
Total Alkalinity	333	125
Chloride	85	6
Sulfate	67	220
TDS	578	485
Specific Conductance (µmhos/cm)	1,091	735
Dissolved iron	0.34	18

1. Average concentration calculated from 2006 monitoring data.
2. Average based on 1Q06 and 2Q06 sampling only, since well dry during 3Q06 and 4Q06 events.

31. A landfill gas monitoring system consisting of nine perimeter wells (GM-1 through GM-9) was installed along the southern and western perimeters of the landfill in 1994. All wells, except GMs-7 and 9 (which have single, shallow probes) were completed with three probes -- one shallow ("S"), one intermediate ("I"), and one deep ("D") -- with the deep probe set to approximately the lowest elevation of waste nearest the well. Subsequent monitoring of the probes in 1995 revealed methane concentrations

up to 14 percent by volume (in well GM-6 along the southern perimeter of the site). Methane was detected at 48 percent by volume in a probe installed in waste in the lower deck area of the landfill (W-1). TO-14 analysis of samples from the waste probe showed the presence of VOCs, including, but not limited to, vinyl chloride (130 ppbv) and benzene (140 ppbv). See also Finding 41.

32. MRP Order No. R5-2007-0085 requires that the Discharger perform corrective action monitoring to monitor the release and the progress of corrective action.

LANDFILL CLOSURE

33. The landfill was covered with a minimum of three feet of soil after it stopped accepting waste in 1983. Testing of the cover conducted in 1991 indicated that it had an average hydraulic conductivity of about 1.2×10^{-4} cm/sec by the air permeameter method.

Final Closure Plan

34. Previous WDRs required that the Discharger implement landfill closure as a corrective action measure (i.e., per 27 CCR Section 20080(g)) to reduce infiltration into the landfill and to prevent leachate seeps. The WDRs required closure in accordance with an approved Final Closure Plan (FCP), which included the following documents (all prepared by Lawrence & Associates):
 - a. 1995 Corrective Action Program Report And Final Closure and Post Closure Maintenance Plans For The Meadow Vista Landfill, Placer County
Proposed a prescriptive Title 27 cover over main landfill footprint (did not include transfer station area)
 - b. Addendum 1: 20 March 1996 *Addendum 2 to Closure Plan – Compaction of Foundation Layer at Meadow Vista Landfill, Placer County.*
Proposed limiting re-compaction of existing cover soil to upper six inches for foundation layer construction.
 - c. Addendum 2: 2 April 1996 *Addendum 2 to Closure Plan – Use of Asphalt Composite Barrier Layer at Meadow Vista Landfill, Placer County*
Proposed construction of an asphalt composite cover in the transfer station area, where wastes were discovered during pre-construction trenching.
 - d. Addendum 3: 10 June 1996 *Report of Waste Discharge – Use of Geocomposite Clay Layer for the Barrier Layer at Meadow Vista Landfill, Placer County*
Proposed using geosynthetic clay liner (GCL) instead of compacted clay soil in the low hydraulic conductivity (LHC) layer in the cover over the main landfill footprint.

Addendum 1 and Addendum 2 (an engineered alternative design) were approved in March and April 1996 letters from Board staff, while Addendum 3 (also an engineered

alternative design) was approved upon adoption of the previous WDRs in August 1996.

35. The approved engineered alternative cover design for the main landfill footprint was as follows, from top to bottom:

Erosion Resistant Layer	One-foot vegetative cover soil.
LHC Layer	Geosynthetic clay layer, GCL ($k < 1 \times 10^{-8}$ cm/sec)
Foundation Layer	Existing cover soil, two feet (upper six inches re-compacted to 90 percent of maximum dry density)

The GCL was placed so as to locate seams on landfill slope hinge points or benches. All seams were sealed with adhesive and bentonite, and boot material was wrapped around infill landfill gas wells. GCL was wrapped around the gas well boxes prior to installation of the GCL cover in these areas. Compacted aggregate (approximately 5,300 ft²) and asphalt-paving (approximately 1,500 ft²) was used as the erosion resistant layer in lieu of vegetative cover soil over the portion of the landfill footprint within the transfer station area, but outside of the asphalt-capped area.

36. The approved engineered alternative cover design for the transfer station area (4,300 ft²) was as follows, from top to bottom:

Erosion Resistant Layer (Mechanical)	Asphalt composite: <ul style="list-style-type: none"> - asphalt concrete course (1½ inches) - fluid asphalt-impregnated geotextile layer
LHC Layer	<ul style="list-style-type: none"> - asphalt concrete course (1½ inches) - crushed rock (4 inches) - geotextile separator layer
Foundation Layer	Same as main footprint

37. The Discharger completed landfill closure in March 1997 and Regional Water Board staff approved the closure certification report in May 1998 (March 1997 *Construction Quality Assurance Report for Meadow Vista Landfill Closure, Gas Control, and Leachate Collection System*, prepared by Holdrege & Kull).

Grading

38. As-built final cover elevations of the upper deck ranged from about 1795 feet MSL in the middle portion of the landfill to about 1830 feet MSL along the northern perimeter. The upper deck was graded to about 10 Horizontal:1 Vertical (10 percent) sloping to the south. Lower deck elevations ranged from the base of the upper deck (1795 feet

MSL) to about 1785 feet MSL. The lower deck was graded to the southeast, with grades ranging from about 25H:1V (four percent) on the eastern side of the landfill to about 50H:1V (two percent) on the western side in the transfer station area (1793 feet MSL). Toe slope elevations ranged from the base of the lower deck (1785 feet MSL) to 1741 feet MSL in the southeast corner of the site. The toe slopes were also graded to the southeast, but with steeper slopes (3H:1V) separated about every 40 feet horizontally by 10-foot wide benches (four total).

39. Slope stability analysis of the landfill cover (required per 27 CCR Section 21090(a)) determined that the landfill cover slopes should be stable. The vegetative cover/GCL was determined to be the critical interface. This interface had static and dynamic factors of safety of 1.53 and 1.51, respectively using limit equilibrium analysis. A maximum probable earthquake of 0.1g was assumed in the analysis. Friction angles and coefficients used in the analysis were determined by direct shear testing (ASTM D-5321). Higher static and dynamic safety factors (3.03 and 2.76, respectively) were computed for the GCL/foundation layer interface.

Leachate Control

40. To address leachate seeps historically detected at the landfill, a leachate collection system was installed along the landfill toe slopes (prior to the installation of final cover) as a corrective action measure. The system consists of four-inch perforated HDPE pipe installed in trenches and tied into a header line along the southeast perimeter of the toe. The trenches were excavated along each bench to a maximum depth of 4½ feet below foundation grade and up to one foot into waste, and then lined with geotextile. The collection pipe was placed about one-half foot into waste and then backfilled with gravel. The header was plumbed to a 3,000 gallon concrete subsurface storage tank installed at the toe of the landfill and plumbed to a pump station and temporary holding tank in the transfer station area. An additional above ground leachate storage tank (5,200 gallon capacity) has since been installed in the transfer area to provide additional onsite storage capacity and reduce servicing costs. Once full, the holding tank is pumped to a tanker truck and hauled offsite for disposal in the Placer County, Sewer Maintenance District 1 sewage collection system. See also Finding 30.

Landfill Gas Controls

41. A landfill gas extraction system was also installed as part of landfill closure to address methane migration concerns at the site. The system currently consists of 12 perimeter extraction wells (GEXs 1 through 12) and eight infill wells (LFGs-1 through 8), including associated piping, condensate sumps, blower, and flare station. Due to the relatively low overall percentage of methane in the perimeter wells, only the infill well gas is collected and flared. The perimeter gas wells are connected to a separate collection system (including blower) to allow for collecting and venting perimeter gas as needed, but no such need has yet occurred, and the perimeter gas collection system is inactive. Condensate is drawn from the traps by a subsurface vacuum line and stored in an above ground tank in the transfer area pending offsite disposal (i.e., by tanker truck similar to leachate). See also Finding 31.

Drainage Controls

42. Storm water controls installed as part of landfill closure included cover grading (see Finding 38), diversionary berms and ditches, perimeter ditches and pipelines, swales, culverts, drop inlets, velocity controls (e.g., rip rap lined channels and catch basins) and other measures. An asphalt-lined "V" ditch was constructed around the upper deck of the landfill to divert storm water run-on flows away from the landfill, to the southwest and southeast. The northeast portion of the upper deck and the lower deck (including asphalt-covered portion) convey sheet flow to the southern perimeter drain, which consists of 18 inch corrugated drain pipe that begins at the southwest corner of the lower deck and runs southeast to a drop inlet along the southern access road. Downstream of the drop inlet, the drain was installed under the southern access road sloping to a rip rap lined outfall in the southeast portion of the site. Additional drop inlets were installed along the road to capture sheet flow runoff from the road and adjacent portions of the landfill. The drainage system included berms and bench swales constructed along the landfill toe slopes. A soil berm was installed immediately above the toe to divert lower deck flows away from the toe slopes, toward a drop inlet along the southern access road (rip rap was also installed as an erosion control measure in this area).
43. Soil berms were also constructed along the outer edges of the benches to direct flows along the benches, and the surface of each bench was graded into a shallow unlined "V" drain (10H:1V interior slopes). The bench swales were graded to slope at about 1.5 percent to the southeast perimeter, where drop inlets plumbed to a subsurface drain were constructed at the end of each bench. The subsurface drain, consisting of 15 inch corrugated pipe, was plumbed to drain to a rock-lined "stilling basin" (five feet square and two feet deep) southeast of the landfill toe. An unlined drain was also constructed along the eastern side of the landfill to connect an existing rock-lined natural drain to the toe slope header drain.
44. The drainage facilities were designed to have sufficient capacity to accommodate a 24-hour, 100-year storm event.

POST-CLOSURE

45. The Discharger has been conducting post-closure maintenance and monitoring of the landfill since 1997 in accordance with the May 1997 Post-Closure Maintenance Plan (PCMP, *Updated Postclosure Maintenance Plan for Meadow Vista Landfill*, prepared by Holdrege & Kull). Provision G.6 of these WDRs requires that the Discharger submit an updated PCMP to reflect current operations and requirements under this Order.

COST ESTIMATES AND FINANCIAL ASSURANCES

46. The annual post-closure maintenance cost for the landfill facilities, including (but not limited to) landfill gas controls, is currently estimated to be \$65,000 per year (\$1,950,000 for 30 years) in 2006 dollars. The post-closure groundwater monitoring costs are estimated to be \$45,000 per year (\$1,350,000 for 30 years) in 2006 dollars. Provision G.6 of these WDRs specifies that the required updated PCMP include

updated cost estimates for completing post-closure maintenance and monitoring to reflect requirements in the revised WDRs and MRP.

47. The Discharger is required to demonstrate financial assurances for post-closure maintenance to the Regional Water Board pursuant to 27 CCR Section 22212(a). The Discharger has established a dedicated enterprise account funded by franchise fees collected from solid waste haulers to cover estimated annual post-closure maintenance costs. Provision G.7 of these WDRs requires that the proposed financial assurance mechanism (in the amount of the approved cost estimate) be an irrevocable fund or other mechanism acceptable to the California Integrated Waste Management Board (CIWMB) under Chapter 6 of Title 27. The Discharger is not required to demonstrate financial assurances for post-closure maintenance to the CIWMB because, pursuant to Section 22210(b), the landfill ceased operations before January 1, 1988.
48. The cost of corrective action measures implemented at the site since detection of the release, such as landfill closure construction and installation of a landfill gas controls, is approximately \$1,600,000. The estimated cost of additional corrective action for addressing the known or a reasonably foreseeable release from the landfill, including evaluation monitoring, is estimated to be approximately \$160,000 in 2006 dollars. Provision G.6 of these WDRs specifies that the required updated PCMP include updated corrective action cost estimates for initiating and completing a known or reasonably foreseeable release.
49. The Discharger is required to demonstrate financial assurances for corrective action to the Regional Water Board per 27 CCR Section 22222. The Discharger currently has included in the enterprise account a minimum of \$150,000 (above the costs of post-closure maintenance) to cover estimated costs of any additional corrective action measures necessary to address the existing (i.e., known) release or a reasonably foreseeable release. Provision G.8 of these WDRs requires that the proposed financial assurance mechanism (in the amount of the approved cost estimate) be an irrevocable fund or other mechanism acceptable to the CIWMB under Chapter 6 of Title 27. The Discharger is not required to demonstrate financial assurances for corrective action to the CIWMB, since, pursuant to Section 22220(b), the landfill ceased operations prior to July 1, 1991.

CEQA AND OTHER CONSIDERATIONS

50. The action to revise the WDRs for existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA, Public Resources Code Section 21000, et seq.), in accordance with Title 14, CCR Section 15301.
51. Section 13267(b) of California Water Code provides that: "In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposed to discharge within its region, or any citizen or

domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of having discharged or discharging, or who proposed to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports." The monitoring and reporting program required by this Order (MRP No. R5-2007-0085, attached) is necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

52. This order implements:

- a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*; and
- b. Chapters 1 through 7, Subdivision 1, Division 2, Title 27, of the California Code of Regulations, effective 18 July 1997, and subsequent revisions.

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

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 96-217 is rescinded, and that the Placer County Department of Facility Services, 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 landfill at this facility is prohibited.
2. The discharge of waste constituents to the unsaturated zone or to groundwater is prohibited.
3. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.
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.

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. R5-2007-0085 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 27 CCR Section 20240(c).

C. POST-CLOSURE SPECIFICATIONS

1. The Discharger shall maintain waste containment facilities, the landfill final cover, precipitation and drainage controls, monitoring wells, and shall continue to monitor ground water and surface waters per MRP No. R5-2007-0085 throughout the post-closure maintenance period.
2. All final cover slopes shall be capable of withstanding a maximum probable earthquake.
3. The final cover shall be graded and maintained to promote lateral runoff and to prevent, to the greatest extent possible, soil erosion, ponding, infiltration, inundation, slope failure, and washout.

4. The erosion-resistant layer shall be maintained with native or other vegetation capable of providing effective erosion resistance. The vegetation shall not have a rooting depth greater than the erosion-resistant layer thickness.
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.
6. The Discharger shall conduct an aerial site survey of the site for the purpose of updating the topographic map for the site at least every five years. The next aerial site survey shall be conducted by **30 November 2007**.
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 the site, or
 - c. Causing sedimentation and clogging of the storm drains.
8. The post-closure maintenance period shall continue until the Regional Water Board finds that remaining waste in the landfill will not threaten water quality. Such finding by the Regional Water Board shall release the discharger only from the need to comply with the SWRCB-promulgated portions of Title 27 and not necessarily from the requirements of other state agencies (including the agents of such agencies) such as the CIMWB and Local Enforcement Agency.
9. The Discharger shall implement necessary corrective action measures in the event that the landfill closure fails to:
 - a. Meet or maintain performance standards under Title 27 (e.g. minimize infiltration and leachate generation) and/or
 - b. Is not otherwise effective as a corrective action and the deficiencies cannot be rectified with repairs.
10. Measures proposed to address a known or reasonably foreseeable release shall be considered part of the corrective action program for the landfill and implemented as necessary to address such a known or reasonably foreseeable release.
11. Any proposed change in post-closure use shall be in accordance with 27 CCR 21190.

D. FACILITY SPECIFICATIONS

1. All storm water, leachate, and landfill gas controls shall be maintained and repaired, as necessary, so that they function effectively and for their intended purpose.
2. All wells within 500 feet of the waste management units shall have sanitary seals that meet the requirements of the Placer County Department of Health and Human Services or shall be properly abandoned. A record of the sealing and/or abandonment of such wells shall be sent to the Board and to the State Department of Water Resources.

E. MONITORING SPECIFICATIONS

1. The Discharger shall conduct groundwater and surface water monitoring, as specified in MRP No. R5-2007-0085. Groundwater monitoring shall include background monitoring and corrective action monitoring. Background monitoring shall be conducted for the purpose of establishing and updating concentration limits as part of the Water Quality Protection Standard per 27 CCR 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 (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. R5-2007-0085.
3. The Discharger shall comply with the Water Quality Protection Standard as specified in MRP No. R5-2007-0085 and the Standard Provisions.
4. The concentrations of the constituents of concern in waters passing the Point of Compliance, as defined in Section C of MRP No. R5-2007-0085, shall not exceed concentration limits established in accordance with the MRP.
5. The Discharger shall maintain and implement a Sample Collection and Analysis Plan (see Appendix L, May 1997 *Updated Post Closure Maintenance Plan, Meadow Vista Landfill*, prepared by Holdrege & Kull) including the following:
 - 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;
 - d. Sample quality assurance/quality control (QA/QC) procedures; and
 - e. 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 a number and/or noted as "trace", and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
11. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.
12. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with estimates of the detection limit and quantitation limit actually achieved. The **MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result**. The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be

assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.

13. **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. Some of the monitoring data analysis procedures specified in these WDRs (including the MRP) are different than, or are contradictory to, those specified in the Standard Provisions (incorporated under Provision G.2 of this Order). In particular, Monitoring Specification E.18 specifies that either the interwell Tolerance Interval or interwell Prediction Interval data analysis method proposed by the Discharger (12 January 2007 Fourth Quarter/Annual 2006 Monitoring Report-Meadow Vista Landfill, prepared by SCS Engineers) shall be used, rather than the hierarchal Analysis of Variance (ANOVA) approach described in the Standard Provisions for exceedance detection and retest. Monitoring Specifications E.18, E.19, and E.20 clarify which specific constituent groups shall be evaluated statistically and which constituent groups shall be evaluated non-statistically. Monitoring Specification E.20 treats VOCs as individual monitoring parameters rather than as a single combined monitoring parameter as set forth in the Standard Provisions. In accordance with General Provision 8 of the Standard Provisions, the data analysis specifications in the WDRs and MRP shall govern over those of the Standard Provisions in such cases where they are inconsistent.
17. 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) of Title 27 that is used in the statistical method shall be **the lowest concentration (or**

value) that can be reliably achieved within limits of precision and accuracy specified in the WDRs for routine laboratory operating conditions that are available to the facility. The Discharger's technical report, pursuant to Section 20415(e)(7) of Title 27, shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, California Code of Regulations, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or 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".

18. For inorganic monitoring parameters and Constituents of Concern (COCs) for which at least 10% of the data from background samples equal or exceed their respective MDL, the Discharger shall use either the Tolerance Interval or Prediction Interval statistical method for monitoring data analysis, or an alternate statistical method approved by the Executive Officer in accordance with Section 20415(e)(8)(E), to establish concentration limits pursuant to Section 20400 of Title 27. The Discharger shall conclude that any analyte that exceeds its concentration limit provides a preliminary indication [or, for a retest, provides measurably significant evidence] of a release at that monitoring point. Any COC confirmed by retest as part of a release shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event. The statistical method shall take into account any seasonality in the water quality data.
19. For inorganic monitoring parameters and COCs for which less than 10% of the data from background samples equal or exceed their respective MDL, the Discharger shall use a nonstatistical data analysis method for determining concentration limits and detecting a release. The Discharger shall use the following trigger for these constituents:
 - a. From the constituent of concern or monitoring parameter list, identify each analyte in the current sample that exceeds its 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 the data contains an analyte that exceeds its PQL.

Any COC confirmed by retest as part of a release shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event.

20. For VOCs and other organic COCs (i.e. non-naturally occurring COCs) the

Discharger shall use a nonstatistical data analysis method for determining concentration limits and detecting a release. The Discharger shall use the following trigger these constituents:

- a. From the constituent of concern or monitoring parameter list, identify each analyte in the current sample that exceeds either its respective MDL or PQL. The Discharger shall conclude that the exceedance provides a preliminary indication [or, for a retest, provides measurably significant evidence] of a release (existing or new) at that monitoring point, if either:
 - 1) The data contains two or more analytes that equal or exceed their respective MDLs; or
 - 2) The data contains one analyte that equals or exceeds its PQL.

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 or other cause not associated with a release from the unit shall not trigger notification of a tentative release, and shall not trigger a retest unless a retest is necessary to make the demonstration.

Discrete Retest

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 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 and, within 30 days of such indication, shall collect two new (retest) samples from the monitoring point where the release is preliminarily indicated.
 - a. For any given retest sample, the Discharger shall include, in the retest analysis, only the laboratory analytical results for those analytes detected in the original sample. As soon as the retest data are available, the Discharger shall apply the same tests [i.e. 18 for statistical constituents, 19.a or 20.a 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 (18, 19.a or 20.a), then the Discharger shall conclude that there is measurably significant evidence of a release at that monitoring point for the analyte(s) indicated in the validating retest sample(s) and shall:
 - 1) 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

2) Comply with 22, below.

Any COC confirmed by retest as part of a release shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event. Exceedances for any other constituents 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. Exceedances for constituents that have been previously confirmed as part of the release at a given monitoring point, including COCs regularly-detected and sporadically-detected (e.g. as a result of seasonal or lateral fluctuations in the plume), shall be considered confirmed without notification and retest.

22. 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 of Response To A Release, contained in the Standard Provisions and Reporting Requirements.
23. 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 E.3 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).

F. REPORTING REQUIREMENTS

1. The Discharger shall comply with the reporting requirements specified in this Order, in MRP Order No. R5-2007-0085 and in the Standard Provisions.
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. 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 the Standard Provisions (Reporting Requirement 5) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a

violation of the California Water Code. Transfer of this Order shall be approved or disapproved by the Regional Water Board.

4. 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)

G. PROVISIONS

1. The Discharger shall comply with the MRP No. R5-2007-0085, 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 (Standard Provisions), dated August 1997, which are incorporated herein and made part of this Order by reference. The Standard Provisions contain important provisions and requirements with which the Discharger must comply. A violation of any of the Standard Provisions is a violation of these waste discharge requirements.
3. The Discharger shall maintain the waste containment facilities, landfill final cover, precipitation and drainage controls, landfill gas controls, and groundwater monitoring wells, and shall continue to monitor ground water and surface waters per MRP No. R5-2007-0085 throughout the post-closure maintenance period.
4. 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 post-closure maintenance period of the landfill and during subsequent use of the property for other purposes.
5. 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.

By **31 July 2009**, in consideration of the possible need to submit an amended RWD as described above, the Discharger shall submit a technical report containing an evaluation of the effectiveness of the corrective action program based on monitoring under this Order. At a minimum, the report shall consider progress toward remediating releases from the landfill and achieving compliance with the Water Quality Protection Standard. If the Discharger determines that an amended RWD is needed, the report shall include a schedule for submission of the amended RWD within 90 days. If the Discharger determines that the corrective action program is adequate and that an amended RWD does not need to be submitted under this provision, the report shall explain the adequacy of the existing program, addressing why additional corrective action measures and/or monitoring are not necessary. Such determination shall not preclude a contrary determination by Board staff.

6. The Discharger shall submit an updated Post-Closure Maintenance and Monitoring Plan to reflect current operations and requirements under these WDRs and MRP No. R5-2007-0085. A copy of the updated plan shall be provided to the Regional Water Board by **31 October 2007**. The updated plan shall include updated cost estimates for post maintenance and monitoring costs, and for initiating and completing corrective action for all known or reasonably foreseeable releases.
7. The Discharger shall obtain and maintain assurances of financial responsibility for post-closure maintenance and monitoring costs for the landfill in the amount of the approved cost estimate. The financial assurances mechanism shall be an irrevocable fund or other acceptable mechanism under the California Integrated Waste Management Board (CIWMB)-promulgated sections of Chapter 6, Title 27, but with the Regional Water Board named as beneficiary.

8. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill in the amount of the approved cost estimate. The financial assurances mechanism shall be an irrevocable fund or other acceptable mechanism under the California Integrated Waste Management Board (CIWMB)-promulgated sections of Chapter 6, Title 27, but with the Regional Water Board named as beneficiary.
9. 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.
10. 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.
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 22 June 2007.

PAMELA C. CREEDON, Executive Officer

JDM: 22 June 2007

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2007-0085
MONITORING AND REPORTING PROGRAM
COUNTY OF PLACER DEPARTMENT OF FACILITY SERVICES
MEADOW VISTA LANDFILL
CLASS III LANDFILL
POST-CLOSURE MAINTENANCE AND CORRECTIVE ACTION
PLACER COUNTY

This monitoring and reporting program (MRP) incorporates requirements for corrective action monitoring and maintenance of the landfill. This MRP is issued pursuant to California Water Code Section 13267. Compliance with this MRP is ordered by Waste Discharge Requirements (WDRs) Order No. R5-2007-0085. The Discharger shall not implement any changes to this MRP unless a revised MRP is issued by the Executive Officer.

Pursuant to 27 CCR Section 20080(d)(1), the Discharger shall maintain water quality monitoring systems for background and corrective action monitoring.

A. SUMMARY OF REPORTING & MONITORING FREQUENCIES

Table A

<i>Section</i>	<i>Reporting:</i>	<i>Frequency</i>
B.	Periodic Reports:	
	1. Semiannual Report	Semiannually
	2. Annual Monitoring Summary Report	Annually
	3. Constituents of Concern Report	Every 5 years
C.	Water Quality Protection Standard Report	Update as necessary
	<i>Monitoring:</i>	
D.	1. Leachate Seeps	
	a. Wet Season	Monthly
	b. Dry Season	Quarterly
	2. Leachate Collection Sump	See Section D.2
E.	1. Groundwater Elevation	Quarterly
	2. Background and Corrective Action	
	a. Field Parameters, VOCs, general minerals and dissolved iron	Semiannually
	b. Major Anions and Cations	Annually
	c. Dissolved Inorganics	Every two years
	3. Constituents of Concern	Every five years
F.	Facility Monitoring:	
	1. Standard Observations	
	A. Wet Season (October 1 – April 30)	Monthly
	B. Dry Season (May 1 – September 30)	Quarterly
	2. Maintenance Inspections	Quarterly
	3. After Significant Storm Events	Within 7 Days After Event
	4. Site Winterization	Annually
G.	Surface Water Monitoring:	If spring activity in toe area.

B. REPORTING

1. Semiannual Reports

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required under Order No. R5-2007-0085 and the August 1997 Standard Provisions and Reporting Requirements (SPRR). Reports shall be submitted **semiannually**. Each semiannual monitoring report shall include the following information:

- a. A compliance evaluation summary for the monitoring period as specified in the SPRR (Requirement 2, *Reports to be Filed with the Board, REPORTING REQUIREMENTS*).
- 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.
- d. Tabular summaries of corrective action monitoring data for the monitoring period for each waste management unit, showing sampling date, well, constituents, concentrations, units, and concentration limits. The table shall also clearly show whether new monitoring data exceedances occurred during the monitoring period (i.e. highlight exceedances).
- e. Tables of historical monitoring data, as available, for each waste management unit, showing well, sampling dates, constituents, concentrations, units, and concentration limits. The data shall be presented so as to clearly show historical concentrations at each well.
- f. Plots, graphical summaries and a narrative discussion of the results of correction action monitoring, as specified in Section E.3.a herein.
- g. Field and laboratory tests sheets.
- h. An electronic copy of historical analytical data for at least the previous five years, as available, in a digital format necessary for statistical analysis (e.g., Excel format).

2. Annual Monitoring Summary Report

An Annual Monitoring Summary Report (Annual Report) shall also be prepared and submitted in accordance with this section of the MRP and the SPRR (Requirement 4, *Reports to be Filed with the Board, REPORTING REQUIREMENTS*). The report shall summarize monitoring results for the prior year and include a discussion of compliance with the WDRs and the Water Quality Protection Standard. The report may be included in the Second Semiannual Report for each year, but shall also include the following:

- a. Tabular and graphical summaries of the results of the prior year, including, but not necessarily limited to, 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 comparisons of contaminant contour maps of representative constituents/parameters with those of prior years to track changes in plume and/or groundwater geochemical conditions since initiation of corrective action.
- e. A copy of the Sampling and Analysis Plan per WDR Monitoring Specification E.5 and the SPRR (Requirement 1, *Provisions for Monitoring*).

Reports which do not comply with the above-required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the waste discharge requirements.

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:

<u>Report</u>	<u>End of Reporting Period</u>	<u>Date Report Due</u>
First Semiannual	30 June	31 July
Second Semiannual	31 December	31 January
Annual Report	31 December	31 January

C. WATER QUALITY PROTECTION STANDARD (Section 20390)

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

1. Constituents of Concern (Section 20395 of Title 27)

The constituents of concern (COCs) for the landfill, including monitoring parameters, shall be as listed in Tables F and G, which are incorporated herein and made part of this Order by reference. The constituent groups are as follows:

Constituents of Concern	Units	Test Method
Field Parameters:	See Table G	
General Minerals:	See Table G	
Inorganics (dissolved)	µg/L	See Table G
Volatile Organic Compounds	µg/L	USEPA Method 8260B
Semi-Volatile Organic	µg/L	USEPA Method 8270

Constituents of Concern	Units	Test Method
Compounds		
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)

- a. For VOCs and other organic COCs the concentration limit shall be the MDL.
- b. For inorganic monitoring parameters and COCs for which at least 10% of the data from background samples equal or exceed their respective MDL, the concentration limit shall be determined as follows:
 - i. By either the interwell Tolerance Interval or Prediction Interval statistical procedure applied to historical background data, or
 - ii. Using an alternative statistical method approved by the Executive Officer per Monitoring Specification E.18 of the WDRs.
- c. For inorganic monitoring parameters and COCs for which less than 10% of the data from background samples equal or exceed their respective MDL, the concentration limit shall be the PQL.

Statistical concentration limits shall be based on historical background data and updated as necessary to reflect current background conditions. Prior to calculating concentration limits, historical background data shall be screened for trends to ensure that the data used is of a single statistical population (i.e. does not show appreciable variation per Section 20415(e)(10)). 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 concentration limits. Otherwise concentration limits shall include prior historical data. Concentration limits shall also take into account any seasonality in the data.

3. Monitoring Points (Section 20405)

The monitoring points for groundwater monitoring shall be as identified in Sections E.2 and E.3 herein.

4. Point of Compliance (Section 20405)

The point of compliance (POC) for the water standard is a vertical surface located at the hydraulically down gradient limit of the Unit that extends through the uppermost aquifer underlying the Unit. The POC wells for the landfill are MWs-4A, 5A, 7A, and 11S.

5. **Compliance Period (Section 20410)**

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

D. LEACHATE MONITORING

1. **Seeps**

The Discharger shall monitor the landfill (including the landfill toe area) for leachate seeps **monthly** during the wet season and **quarterly** during the dry season as part of standard observations. Any leachate seeps observed during these inspections or at any other time shall be sampled and analyzed for the constituents of concern referenced in Table C herein. Reporting shall be conducted in accordance with the Standard Provisions (*Provision 3, Reports to be Filed with the Board, REPORTING REQUIREMENTS*).

2. **Leachate Collection Sump**

Collected leachate shall be monitored in accordance with Table E.3.B herein, except that volume collected and pumped shall be monitored instead of elevation.

E. GROUNDWATER MONITORING

1. **Groundwater 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 upgradient and down gradient 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 determine the following:

- 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. Estimated separation of groundwater from the lowest point of the unit

The results of these determinations shall be included in the semi-annual reports.

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

The Discharger shall install and operate a sufficient number of Background Monitoring Points 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 units per Section 20415(b)(1)(A) of Title 27. Background monitoring data analysis shall include developing/updating concentration limits for statistical monitoring parameters and COCs, as necessary.

Background groundwater monitoring points shall include the following wells:

<u>Well</u>	<u>Distance from Landfill (feet)</u>	<u>Orientation from Landfill</u>	<u>Flow Direction at Well</u>
GM-1	250	To NE	West, SW
GM-8	175	To east	South, SE
MW-9	500	To north	NW ¹

1. Since offsite well MW-9 is not hydraulically upgradient of the landfill, it may be abandoned if monitoring of wells GM-1 and 8 under this Order indicates either (or both) of these wells are more representative of background conditions for the site and that representative concentration limits for all monitoring parameters and COCs can be developed from these wells.

Background groundwater monitoring points shall also include any future wells installed upgradient of the landfill for background monitoring. The monitoring schedule shall be as specified in Table E.3B.

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 sufficient number of samples shall be taken from all Monitoring Points and Background Monitoring Points to satisfy the data analysis requirements for a given Reporting Period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible. Collection and analysis of samples shall be in accordance with procedures set forth in the Sampling Collection and Analysis Plan per Monitoring Specification E.5 of the WDRs.

The corrective action monitoring points at this facility shall include onsite wells MWs-4A, 5A, 7A, 10, 11S, and 11D; offsite wells MWs-2 and 3; and any future wells installed along the point of compliance, down gradient, and/or side gradient of the unit to monitor the nature and extent of the release and/or progress of corrective action. Groundwater samples shall be collected and analyzed in accordance with the following schedule:

Table E.3B
Corrective Action Monitoring Schedule

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>	<u>Data Analysis</u>	
			<u>Nature/Extent</u>	<u>Trends</u>
Field Parameters				
Elevation	Feet MSL	Quarterly	---	---
Specific Conductance	µMhos/cm	Semiannually	---	---
pH	pH units	Semiannually	---	---
Redox potential	millivolts	Semiannually	---	---
Temperature	°C	Semiannually	---	---
Turbidity	NTU	Semiannually	---	---
Monitoring Parameters (Table F)				
VOCs	µg/L	Semiannually	Intrawell	Intrawell
General Minerals:				
Chloride	mg/L	Semiannually	Interwell	Intrawell
Sulfate	mg/L	Semiannually	Interwell	Intrawell
TDS	mg/L	Semiannually	Interwell	Intrawell
Total Alkalinity	mg/L	Semiannually	Interwell	Intrawell
Total Hardness	mg/L	Semiannually	Interwell	Intrawell
Chemical Oxygen Demand (COD)	mg/L	Semiannually	Interwell	Intrawell
Dissolved Iron	mg/L	Semiannually	Interwell	Intrawell
Major Anions	mg/L	Annually	Interwell	Intrawell
Major Cations	mg/L	Annually	Interwell	Intrawell
Dissolved Inorganics	µg/L	Every 2 years	Interwell/Intrawell	Intrawell
Constituents of Concern (Table C and Table G)		Every 5 years	Interwell/Intrawell	Intrawell

COC monitoring under this Order shall be conducted by **15 December 2007** and at least every five years thereafter. Any COC that is confirmed by retest (i.e. per WDR Monitoring Specification E.21) to be a constituent of a release shall be added to the monitoring parameter list per Table 3B herein and Table F. In such cases, the Discharger shall also follow the Response to Release requirements of the WDRs (Monitoring Specification E.22) and 1997 Standard Provisions, as necessary.

Monitoring data analysis shall include the following:

a. Background Data

Updating concentration limits for statistical monitoring parameters and COCs, as necessary.

b. Nature and Extent of Release

i. Comparisons with concentration limit to identify any new or previously undetected constituents at a monitoring point.

ii. Water chemistry analysis by ion balance and an appropriate graphical method, such as Piper diagram, Trilinear plot, or Stiff diagram

- iii. Preparation of contaminant contour maps for representative constituents/parameters (e.g., specific conductance, TDS, COD, Redox potential).
- c. Effectiveness of Corrective Action
 - i. Preparation of time series plots for each constituent for which there are three or more data points (including non-detect values).
 - ii. 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).
 - iii. Comparison of contaminant contour maps for representative constituents/parameters with those of prior years to track changes in plume concentrations and/or groundwater geochemical conditions.
 - iv. The ongoing effectiveness of the landfill cover, landfill gas controls and precipitation and drainage controls as corrective action measures.
 - v. The need for additional corrective action measures and/or monitoring wells.

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

F. FACILITY MONITORING

1. Standard Observations

Standard Observations shall be performed **monthly** during the wet season (October 1 to April 30) and **quarterly** during the dry season (May 1 to September 30) and shall include those elements identified in Definition 24 of the Standard Provisions. Each monitoring report shall include a summary and certification of completion of all Standard Observations in accordance with the Standard Provisions (*Provision 2h, Reports to be Filed with the Board, REPORTING REQUIREMENTS*). Field logs of standard observations shall also be included in the report.

2. Regular Maintenance Inspections

Landfill facilities (i.e. monitoring wells) shall be inspected **quarterly** to identify the need for maintenance and repairs. Necessary repairs shall be completed within 30 days of each inspection. Field logs of these inspections and documentation of the repairs shall be included in each semiannual monitoring report.

3. After Storm Events

Within seven days following each significant storm event (i.e. one which produces 1.5 inches or more of precipitation within a 24-hour period, as measured at the Auburn Station), the Discharger shall inspect the landfill cover and precipitation and drainage facilities for damage. Areas of erosion or sedimentation observed during the inspection(s) shall be flagged and repaired within seven days of identification. If repairs cannot be completed within the seven-day time frame, the Discharger shall notify the Regional Board of such and provide a schedule for completing necessary repairs. Findings and repairs implemented as a result of these inspections shall be included in each semiannual monitoring report. If no inspection was conducted because there was no significant storm event during the semiannual period, the report shall state such fact.

4. Site Winterization

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility for the purpose of winterizing the site. The inspection shall identify any damage to the landfill cover, grade, precipitation and drainage controls, access roads and other landfill facilities. Any necessary construction, maintenance, or repairs to these facilities shall be completed by **31 October**. The Discharger shall document the results of the winterization inspection and any repair measures implemented in the Annual Report.

Documentation of the results of the above inspections and any repairs implemented shall include field observations, the location of any damage observed (i.e. on a site map), photographs of the damage, and a description of any repairs implemented, including post-repair photographs.

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

The Discharger shall conduct surface water monitoring as necessary during periods of spring activity (as indicated by standard observations in landfill toe area) to monitor potential surface water impacts from the landfill due to hydraulic communication with impacted groundwater. The monitoring locations shall be as follows (Attachment B: Site Map):

<u>Monitoring Point</u>	<u>Location</u>	<u>Drain</u>
SW-5	Western side of landfill	Outfall to western drain
SW-1	Downstream of landfill toe	Natural drain at landfill toe

Surface water sampling shall be conducted at least semiannually during such periods for the field and monitoring parameters specified in Table E.3.B (except for elevation). Five-year COC monitoring shall not be required for surface water. If monitoring data

analysis (see Monitoring Specifications E.18 through E.20) indicates that there has been a release to surface water from the landfill, the Discharger shall propose additional monitoring locations to delineate the extent of the impact and design corrective measures, as necessary, in accordance with Sections 20425 and 20430 of Title 27.

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 the Standard Provisions (*Provision 5, General Requirements, REPORTING REQUIREMENTS*), 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

22 June 2007

(Date)

Attachments
JDM:6/22/07

Table F

**MONITORING PARAMETERS &
 APPROVED USEPA ANALYTICAL METHODS**

Field Parameters	USEPA Test Method
Groundwater Elevation	----
pH	----
Oxidation-Reduction (Redox) Potential	----
Specific conductance	----
Temperature	----
Turbidity	----
General Minerals	
Total Dissolved Solids (TDS)	2540C
Total Alkalinity	2320B
Total Hardness	2340B
Chemical Oxygen Demand (COD)	410.4
<u>Major Anions</u>	
Bicarbonate	2310B
Chloride	300 (anion scan)
Nitrate – Nitrogen	300 (anion scan)
Sulfate	300 (anion scan)
<u>Major Cations</u>	
Calcium	200.7/6010
Magnesium	200.7/6010
Potassium	200.7/6010
Sodium	200.7/6010
Dissolved Inorganics¹	
Antimony	200.7/6010
Arsenic	200.9/200.8
Barium	200.7/6010
Cadmium	200.7/6010
Chromium	200.7/6010
Copper	200.7/6010
Cyanide	335.4/9010
Iron	200.7/6010
Lead	200.9/200.8
Manganese	200.7/6010
Mercury	7470A
Nickel	200.9/200.8
Silver	200.7/6010
Zinc	200.7/6010

Table F (Continued)

Volatile Organic Compounds² (VOCs, by 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-Butylbenzene
sec-Butylbenzene
tert-Butylbenzene
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-1,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC-12)
1,1-Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1 -Dichloroethylene (1,1 -Dichloroethene; Vinylidene chloride)
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
1,3-Dichloropropane
2,2-Dichloropropene
1,1-Dichloropropene
cis- 1,3-Dichloropropene
trans- 1,3-Dichloropropene

Table F (Continued)

Ethylbenzene
Ethyl methacrylate
Hexachlorobutadiene
Hexachloroethane
2-Hexanone (Methyl butyl ketone)
Iodomethane (Methyl iodide)
Isobutyl alcohol
di-Isopropyl ether
Methacrylonitrile
Methyl bromide (Bromomethene)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK: 2-Butanone)
4-Methyl-2-pentanone (Methyl isobutylketone)
Methyl tert-butyl ether (MtBE)
Naphthalene
2-Nitropropane
n-Propylbenzene
Propionitrile
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane (Methylchloroform)
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)

-
1. Samples shall be filtered prior to performing dissolved inorganics analysis.
 2. Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of the unknown analyte per WDR Monitoring Specification E.13.

Table G

CONSTITUENTS OF CONCERN &
 APPROVED USEPA ANALYTICAL METHODS

Field Parameters	USEPA Test Method
Groundwater Elevation	----
pH	----
Oxidation-Reduction (Redox) Potential	----
Specific conductance	----
Temperature	----
Turbidity	----
General Minerals	
Total Dissolved Solids (TDS)	2540C
Total Alkalinity	2320B
Total Hardness	2340B
Chemical Oxygen Demand (COD)	410.4
<u>Major Anions</u>	
Bicarbonate	2310B
Chloride	300 (anion scan)
Nitrate – Nitrogen	300 (anion scan)
Sulfate	300 (anion scan)
<u>Major Cations</u>	
Calcium	200.7/6010
Magnesium	200.7/6010
Potassium	200.7/6010
Sodium	200.7/6010
Dissolved Inorganics¹	
Aluminum	200.7/6010
Antimony	200.7/6010
Arsenic	200.9/200.8
Barium	200.7/6010
Beryllium	200.7/6010
Cadmium	200.7/6010
Chromium	200.7/6010
Hexavalent Chromium	7199/1636
Cobalt	200.7/6010
Copper	200.7/6010
Cyanide	335.4/9010
Iron	200.7/6010

Table G (Continued)

Lead	200.9/200.8
Manganese	200.7/6010
Mercury	7470A
Molybdenum	200.7/6010
Nickel	200.9/200.8
Selenium	200.9/200.8
Silver	200.7/6010
Sulfide	9030
Thallium	200.7/6010
Tin	200.7/6010
Vanadium	200.7/6010
Zinc	200.7/6010

Volatile Organic Compounds² (VOCs, by 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-Butylbenzene
sec-Butylbenzene
tert-Butylbenzene
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-1,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC-12)
1,1-Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1 -Dichloroethylene (1,1 -Dichloroethene; Vinylidene chloride)

Table G (Continued)

cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
1,3-Dichloropropane
2,2-Dichloropropene
1,1-Dichloropropene
cis- 1,3-Dichloropropene
trans- 1,3-Dichloropropene
Ethylbenzene
Ethyl methacrylate
Hexachlorobutadiene
Hexachloroethane
2-Hexanone (Methyl butyl ketone)
Iodomethane (Methyl iodide)
Isobutyl alcohol
di-Isopropyl ether
Methacrylonitrile
Methyl bromide (Bromomethene)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK: 2-Butanone)
4-Methyl-2-pentanone (Methyl isobutylketone)
Methyl tert-butyl ether (MtBE)
Naphthalene
2-Nitropropane
n-Propylbenzene
Propionitrile
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane (Methylchloroform)
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)

Semivolatile Organic Compounds² (USEPA Method 8270 - base, neutral, & acid extractables):

Acenaphthene
Acenaphthylene
Acetophenone
2-Acetylaminofluorene (2-AAF)

Table G (Continued)

4-Aminobiphenyl
Anthracene
Benzo[a]anthracene (Benzoanthracene)
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-methylethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)
4-Bromophenyl phenyl ether
Butyl benzyl phthalate (Benzyl butyl phthalate)
p-Chloroaniline
p-Chloro-m-cresol (4-Chloro-3-methylphenol)
2-Chloronaphthalene
2-Chlorophenol
4-Chlorophenyl phenyl ether
Chrysene
o-Cresol (2-methylphenol)
m-Cresol (3-methylphenol)
p-Cresol (4-methylphenol)
Dibenz[a,h]anthracene
Dibenzofuran
Di-n-butyl phthalate
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
Diethyl phthalate
p-(Dimethylamino)azobenzene
7,12-Dimethylbenz[a]anthracene
3,3'-Dimethylbenzidine
2,4-Dimethylphenol (m-Xylenol)
Dimethyl phthalate
m-Dinitrobenzene
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
Diphenylamine
Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachloropropene
Indeno(1,2,3-c,d)pyrene

Table G (Continued)

Isophorone
Isosafrole
Kepone
Methapyrilene
3-Methylcholanthrene
Methyl methanesulfonate
2-Methylnaphthalene
1,4-Naphthoquinone
1-Naphthylamine
2-Naphthylamine
o-Nitroaniline (2-Nitroaniline)
m-Nitroaniline (3-Nitroaniline)
p-Nitroaniline (4-Nitroaniline)
Nitrobenzene
o-Nitrophenol (2-Nitrophenol)
p-Nitrophenol (4-Nitrophenol)
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)
N-Nitrosodiethylamine (Diethylnitrosamine)
N-Nitrosodimethylamine (Dimethylnitrosamine)
N-Nitrosodiphenylamine (Diphenylnitrosamine)
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)
N-Nitrosomethylethylamine (Methylethylnitrosamine)
N-Nitrosopiperidine
N-Nitrosopyrrolidine
5-Nitro-o-toluidine
Pentachlorobenzene
Pentachloronitrobenzene (PCNB)
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
p-Phenylenediamine
Polychlorinated biphenyls (PCBs; Aroclors)
Pronamide
Pyrene
Safrole
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
o-Toluidine
2,4,5-Trichlorophenol
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene

Organochlorine Pesticides² (USEPA Method 8081A)

Aldrin
 α -BHC
 β -BHC
 γ -BHC (Lindane)
 δ -BHC

Table G (Continued)

Chlorobenzilate
 α -Chlordane
 γ -Chlordane
Chlordane – not otherwise specified
DBCP
4,4'-DDD
4,4'-DDE
4,4'-DDT
Diallate
Dieldrin
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Endrin ketone
Heptachlor
Heptachlor epoxide
Hexachlorocyclopentadiene
Isodrin
Methoxychlor
Toxaphene

Polychlorinated Biphenols² (PCBs, USEPA Method 8082)

Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260

Organophosphorus Pesticides² (USEPA Method 8141A):

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

Chlorinated Herbicides² (USEPA Method 8151A):

2,4-D (2,4-Dichlorophenoxyacetic acid)
Dicamba

Table G (Continued)

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

-
1. Samples shall be filtered prior to performing dissolved inorganics analysis.
 2. Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of the unknown analyte per WDR Monitoring Specification E.13.

INFORMATION SHEET

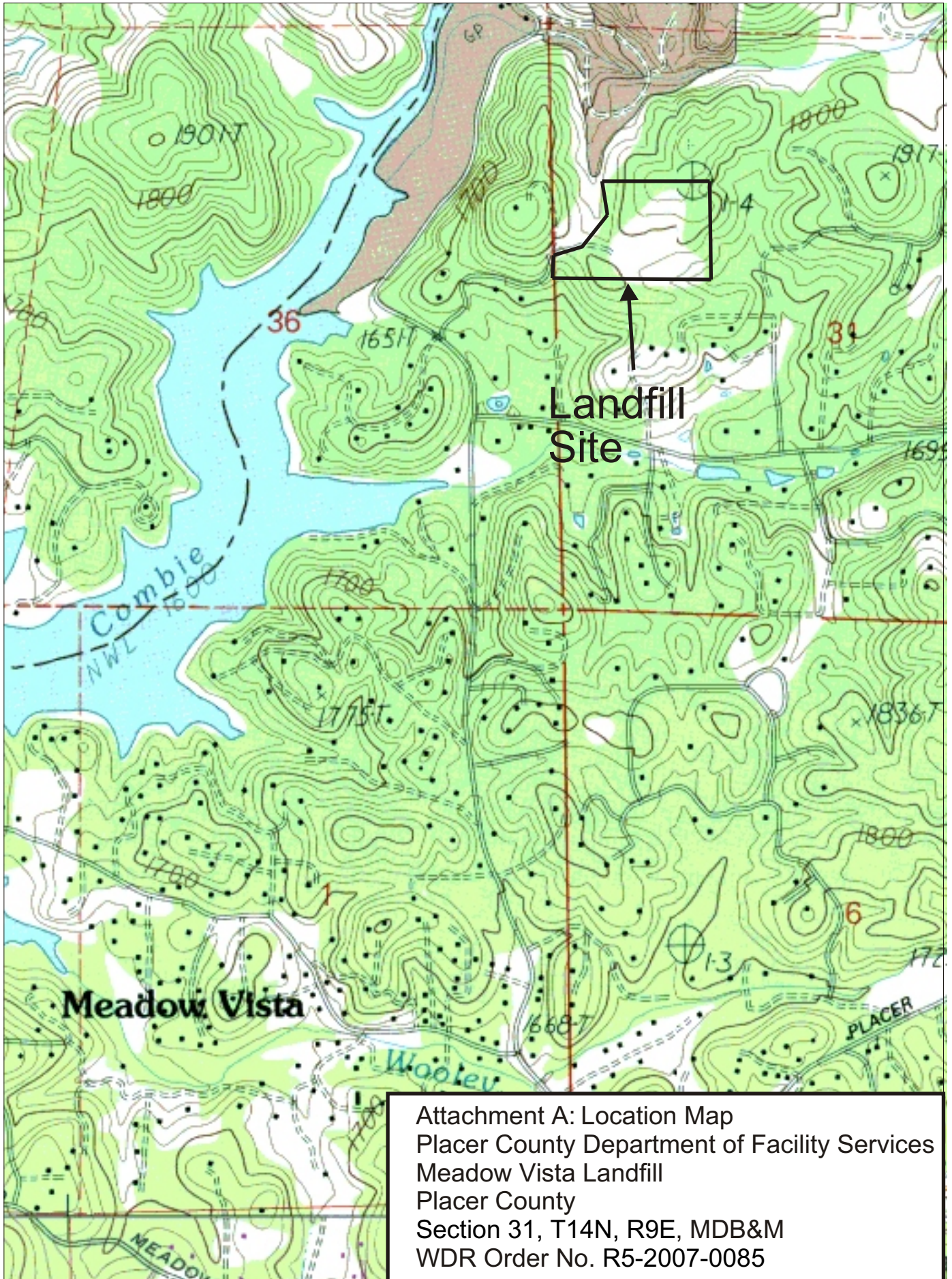
ORDER NO. R5-2007-0085
PLACER COUNTY DEPARTMENT OF FACILITY SERVICES
MEADOW VISTA LANDFILL
PLACER COUNTY

The eight-acre Meadow Vista Landfill is a closed, Class III landfill on Combie Road two miles north of the community of Meadow Vista. The unlined landfill operated from the mid-1960s to 1983, accepting primarily household wastes. The landfill stopped accepting wastes in 1983 and in 1997 was closed as a corrective action measure to address leachate seeps and groundwater impacts historically detected at the landfill. The groundwater impacts included low concentrations of benzene-related volatile organic compounds (VOCs) and elevated concentrations of inorganic constituents. Closure activities also included the installation of facilities to control leachate, landfill gas, and precipitation and drainage.

Monitoring results show a moderate decline in the concentrations of most VOCs detected in groundwater since landfill closure, while the concentrations of inorganic constituents have not significantly changed. One VOC, benzene (0.6 µg/L), remains above its water quality objective (California Public Health Goal, 0.15 µg/L), and several inorganic constituents, including total dissolved solids (580 mg/L), sulfate (420 mg/L), and dissolved iron (22 mg/L), remain above their respective secondary drinking water standards (500 mg/L, 250 mg/L, and 0.3 mg/L). Groundwater pH (5.1) also remains below background levels.

These WDRs prescribe updated requirements for post-closure maintenance and corrective action for the landfill. Provision G.6 of the WDRs requires that the Discharger update the Post-Closure Maintenance Plan consistent with the revised WDRs and Monitoring and Reporting Program (MRP), including updated cost estimates for post-closure maintenance, monitoring, and anticipated corrective action measures. The WDRs require that the updated plan be submitted to the Regional Board for approval by **31 October 2007**. Provisions G.7 and G.8 require that the Discharger obtain and maintain financial assurances for post-closure maintenance and corrective action in the amount of the approved cost estimates, and that the financial assurance mechanisms be acceptable to the California Integrated Waste Management Board (CIWMB). Specification C.6 requires that the Discharger conduct an aerial topographic survey of the site by **30 November 2007** and at least every five years thereafter. The MRP requires semiannual groundwater monitoring for field parameters, VOCs and general minerals; annual monitoring for major anions and cations; monitoring every two years for dissolved metals; and monitoring every five years for a broad list of additional constituents. The next five-year monitoring event is required to be conducted by **30 November 2007**.

Surface drainage in the area is to an intermittent drainage course upstream of Lake Combie, part of the Bear River and tributary to the Feather and Sacramento Rivers.



Attachment B: Site Map
 Placer County Department of
 Facility Services
 Meadow Vista Landfill
 Placer County
 WDR Order No. R5-2007-0085

Legend

-  Groundwater Monitoring Well
-  Gas Monitoring Well
-  Storm Water Monitoring Point

