

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2006-0020

WASTE DISCHARGE REQUIREMENTS
FOR
EL DORADO COUNTY
UNION MINE LANDFILL
CLASS II LANDFILL, CLOSED CLASS III LANDFILL
AND CLASS II SURFACE IMPOUNDMENT
OPERATION, CLOSURE AND POST-CLOSURE MAINTENANCE
EL DORADO COUNTY

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

1. El Dorado County (hereafter “Discharger”) owns and operates the Union Mine Landfill (hereafter “landfill facility”). The Discharger submitted a June 2005 *Report of Waste Discharge and Joint Technical Document* (hereafter “RWD”) to update previous Waste Discharge Requirements (WDRs) Order No. 98-238. Additional information was received on 1 August and 14 November 2005.
2. The landfill facility covered under this Order includes a partially closed unlined Class III landfill, an active Class II landfill, an active Class II surface impoundment, and a landfill gas collection and flare system. The Discharger also operates a septage and leachate treatment facility and wastewater spray fields adjacent to the landfill facility. Treated septage and landfill leachate are discharged to the spray fields under separate waste discharge requirements (WDRs). The overall facility is known as the Union Mine Disposal Site (hereafter “disposal site”).
3. The Union Mine Landfill is approximately three miles south of the town of El Dorado in El Dorado County, in the northwest quarter of Section 12, T9N, R10 E, MDB&M (as shown on Attachment A, which is attached hereto and made part of the Order by reference). The total area of the disposal site is 321.6 acres, consisting of Assessor's Parcel Numbers 92-011-17, -20, -21, and -28, and several U.S. Bureau of Land Management parcels.
4. An underground gold mine, which operated from the 1860s through the 1940s, underlies part of the facility. Three mine tunnels, one mine adit, one stope and one mine shaft are in the vicinity of the Class II and III landfill areas. This Order also includes requirements for monitoring of surface discharges from the mine workings.
5. Most of the County’s solid wastes are currently exported out of the county. Limited amounts of solid wastes are discharged to the Class II landfill. These wastes include dewatered sludge from the onsite wastewater treatment plant. However, the Discharger’s

RWD anticipates that other wastes may be discharged to the Class II landfill on an as needed basis. The Class II surface impoundment accepts leachate from the landfill that is then routed to the wastewater treatment plant. The Class III landfill closed in 1998 and no longer accepts waste.

6. The Discharger filed a Report of Waste Discharge on 7 October 1998 requesting a revision of WDRs to approve an engineered alternative to the prescriptive requirement for the low permeability layer of the Class II landfill liner. The engineered alternative consisted of a geosynthetic clay liner (GCL) in place of two feet of compacted clay. The engineered alternative liner system was approved in previous WDRs Order No. 98-238. The approval of the use of GCL in engineered alternative liner system is continued under this updated Order. However, no expansion of the landfill liner system is authorized by this Order unless the Discharger submits a liner performance demonstration as required by the 17 April 2001 letter from the Executive Officer.

SITE DESCRIPTION

7. The landfill is in an area of steep terrain, surrounded by ridges with elevations ranging from 1,180 to 1,475 feet mean sea level (MSL). Land within 1,000 feet of the facility includes 10- and 20-acre residential lots and 20-acre agricultural parcels, and is adjacent to Bureau of Land Management land.
8. The landfill is underlain by weathered to fresh, thin-bedded slates and phyllite. The weathered zone ranges from 20 to 30 feet in depth. No Holocene faults are within 200 feet of the landfill. The potentially active Melones Fault Zone is 0.6 miles east of the facility. The Melones Fault Zone is part of the Foothills Fault system which has an estimated maximum credible earthquake (MCE) of 6.5 Richter Magnitude and a maximum probable earthquake of 5.5 Richter Magnitude.
9. Groundwater beneath the facility occurs in fractured bedrock, valley alluvium, and the underground mine workings. Groundwater flow direction is towards the east and southeast. Groundwater ranges in depth from less than 10 feet to 80 feet below ground surface.
10. Arsenic and iron are naturally occurring constituents in groundwater throughout the mineralized belt of the Foothills. They are derived from sulfide minerals (primarily Pyrite and Arsenopyrite) that are associated with gold deposits in bedrock. Weathering of the mineralized rock creates acidic conditions and forms soluble metal complexes. Therefore, these constituents are not used for detection monitoring for the landfill units.
11. The groundwater monitoring network for the landfill area consists of three upgradient wells (MW-5, 6 and 10) and four downgradient wells (MW-7, 9 and 11, and UM-3). The groundwater monitoring network for the Class II surface impoundment consists of one

upgradient well (MW-C) and one downgradient well (MW-A). The wells are shown on Attachment B, which is attached hereto and made part of the Order by reference.

12. The beneficial uses of the groundwater are domestic and municipal supply, agricultural supply, and industrial supply as designated in *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*.
13. The facility receives an average 38.7 inches of precipitation per year as measured at the Placerville station. The 100-year wet season is 73.2 inches. The 100-year, 24-hour precipitation event is 6.1 inches. The 1,000-year 24-hour precipitation event is 7.6 inches. The estimated net annual evaporation is 39.7 inches based on pan evaporation data from the Auburn weather station. Maximum evaporation is expected in July with an average value of 11.66 inches. Minimum evaporation is expected in December with an adjusted average value of 1.02 inches.
14. Surface drainage is to Martinez Creek, a perennial stream 500 feet east of the facility. Martinez Creek is tributary to the North Fork Cosumnes River, which is tributary to the Cosumnes River, thence to the Sacramento-San Joaquin Delta.
15. *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. The beneficial uses of the Consumnes River are municipal and domestic supply; agricultural supply; water contact and non-contact water recreation; cold freshwater habitat, warm freshwater habitat; migration, spawning, reproduction and/or early development; and wildlife habitat.
16. Three storm water holding and settling basins at the facility provide removal of sediment in facility storm water run-on and runoff prior to discharge to Martinez Creek under the general storm water permit for industrial facilities.

WASTES AND THEIR CLASSIFICATION

17. The Discharger proposes to accept non-hazardous solid waste and designated waste for disposal in the Class II landfill. The Class II landfill is currently used on an as needed or contingent basis, and since 1997, has only received solid waste from the on-site offices and sludge generated from the on-site Leachate/Septage Treatment Facility.
18. Non-hazardous solid waste to be accepted at the Class II landfill includes non-hazardous, de-watered, wastewater treatment plant sludge and other general non-hazardous solid waste including municipal solid waste, agricultural waste, and construction/demolition waste. Designated wastes to be accepted include contaminated soils, provided they do not contain wastes at or above hazardous concentrations.

19. The Discharger proposes to discharge wastes to the Class II landfill containing greater than one percent (>1%) friable asbestos, which is a hazardous material. However, because these wastes do not pose a threat to groundwater quality, Section 25143.7 of the Health and Safety Code permits their disposal in any landfill which has WDRs that specifically permit the discharge provided that the wastes are handled and disposed of in accordance with other applicable state and federal statutes and regulations.
20. Leachate generated by the landfill is a designated waste. Leachate is discharged to the Class II surface impoundment. Other liquid wastes discharged to the Class II surface impoundment include landfill gas condensate (approximately 60 gallons per day) and runoff from the septage pump truck washout area (approximately 15,000 gallons per year).

DESIGN, OPERATION, CLOSURE AND POST-CLOSURE MAINTENANCE

Class III Landfill

21. The existing 35.3-acre Class III landfill unit is unlined and constructed over native materials. The Class III landfill unit was sited above-grade over some of the mine's interconnected stopes, shafts and tunnels. This unit no longer accepts wastes. According to the June 2005 RWD, 19.5 acres of the Class III landfill have received final cover and 15.8 acres remains to be closed.
22. According to the June 2005 RWD, the Discharger installed a prescriptive final cover on 4.9 acres of the northern and southeastern sideslopes of the Class III unit during October of 1997. This cover consists of a two-foot thick foundation layer, a one-foot thick low permeability layer, and a one-foot thick vegetative layer.
23. In the fall of 1998, the Discharger installed an engineered alternative final cover on 14.6 acres of the top and eastern sideslopes of the Class III unit. The engineered alternative final cover uses a GCL in place of the prescriptive one-foot thick low permeability barrier layer. The cover consists of a two-foot thick foundation layer, the GCL, and a one-foot thick vegetative layer. The engineered alternative final cover was approved by the Regional Board in previous WDRs Order No. 98-238. This order continues the approval of that engineered alternative final cover for the Class III landfill.
24. According to the June 2005 RWD, the Discharger has installed an interim cover on the 15.2 acres of the remaining 15.8-acre unclosed area of the Class III landfill. The interim cover consists of a one-foot foundation layer and a one-foot compacted clay with a hydraulic conductivity no greater than 1×10^{-7} cm/sec. The other 0.6-acre "inactive" area has received only one foot of cover soil.
25. The Discharger submitted a 14 November 2005 technical memorandum proposing an engineered alternative final cover on the unclosed portion of the Class III landfill. The engineered alternative final cover will consist of (from bottom to top) the existing one-

foot foundation layer and one-foot compacted clay layer, a 60-mil linear low-density polyethylene (LLDPE) geomembrane, and a one-foot thick vegetative soil layer capable of sustaining plant growth. Section 20190(a) of Title 27 allows the Regional Board to approve any alternative final cover design that it finds will continue to isolate the waste at least as well as would a prescriptive final cover design. The Discharger's proposal provides technical justification indicating that the proposed alternative cover will meet this requirement, including, but not limited to, the following:

- a. Compacted clay layers are prone to desiccation and cracking that can greatly increase permeability.
- b. Compacted clay layers are vulnerable to large increases in permeability from freeze/thaw cycles.
- c. The hydraulic conductivity of an LLDPE geomembrane is 1×10^{-13} cm/s, which is substantially less than a compacted clay layer.
- d. Compacted clay layers must be carefully moisture conditioned during construction, and many factors influence their effectiveness such as clod size, particle size, uniformity, and compaction coverage.
- e. Compacted clay layers are more susceptible to differential settlement than an LLDPE geomembrane.
- f. The cost of a compacted clay layer is much greater, especially since there is no on-site source of clay.

Based on these factors, and since the proposed final cover already includes a compacted clay layer as would be required under the prescriptive final cover, the Regional Board hereby approves the use of the proposed engineered alternative final cover for the Class III landfill at the Union Mine Landfill.

26. A toe drain consisting of a gravel-filled trench runs the length of the junction between the Class III and Class II landfills. The purpose of the drain is to collect leachate generated at the toe of the Class III landfill and transfer the leachate to the Class II surface impoundment.
27. The Discharger submitted a February 2000 *Preliminary and Partial Final Postclosure Maintenance Plan* providing the plan for post-closure maintenance of the landfills. This Order includes requirements for post-closure maintenance of closed landfill units in accordance with this plan.

Class II Landfill

28. The 6.0-acre Class II landfill is lined with a composite liner system consisting of a geomembrane underlain by a two-foot thick low permeability layer on the base and a geosynthetic clay liner on the sideslopes. The unit also has a blanket gravel leachate collection system. The June 2005 RWD states that the 6.0-acre area of the Class II landfill will receive final cover when the area reaches the final permitted grade.
29. The February 2000 closure plan provided the proposed preliminary closure design for the Class II landfill. The proposed final cover is the same engineered alternative design of a two-foot thick foundation layer, a GCL, and a one-foot thick vegetative layer. Given that the estimated life of the 6.0-acre Class II unit was over 33 years in 2000, closure of this unit may be many years or decades away. Therefore, the Regional Board is deferring approval of the alternative cover design for the Class II landfill to a future update or revision of the WDRs. This Order continues to require a prescriptive final cover for the Class II landfill that includes a geomembrane layer in addition to the components in the proposed alternative cover.
30. The Discharger constructed a groundwater underdrain and a compacted fill layer to maintain a 5-foot minimum separation between groundwater and wastes at the side slopes of the landfill. The underdrain consists of one foot of gravel on the base and sideslopes, toe drains, and piping.

Class II Surface Impoundment

31. The Class II surface impoundment is used to contain up to two million gallons of landfill leachate, landfill gas condensate, and runoff from the septage truck washout area. The liner design components are from top to bottom: 60-mil HDPE geomembrane, two foot clay liner with 1×10^{-7} cm/sec hydraulic conductivity, two gravel filled LCRS trenches running the length of the surface impoundment, and two vacuum lysimeters.

CEQA AND OTHER CONSIDERATIONS

32. On 10 May 1994, the El Dorado County Board of Supervisors certified an April 1994 addendum to the January 1992 final environmental impact report (EIR) for the landfill facility. Both the January 1992 final EIR and the April 1994 addendum were for expansion and closure of the facility. El Dorado County filed a Notice of Determination on 27 April 1992 in accordance with the California Environmental Quality Act (Public Resources Code Section 21000 et seq.) and CEQA guidelines (14 CCR Section 15000 et seq.). The EIR concluded that “the proposed project would result in long-term and cumulative impacts to hydrologic resources due to the existing landfill activities, presence of mine shafts, alteration of natural drainage patterns, erosion control, and water quality contamination.” The EIR also stated that “the effects can be reduced to below levels of significance through a number of proposed design, monitoring, control, and mitigation

measures.” The Regional Board considered the EIR and incorporated mitigation measures from the environmental impact report into these waste discharge requirements designed to prevent potentially significant impacts to design facilities and to water quality, including (but not limited to):

- a. Monitoring of groundwater, surface water, and mining features as required in monitoring and reporting as required in MRP No. R5-2006-0020.
- b. A requirement that the Discharger maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management units.
- c. Requirements for composite liner systems and leachate collection for the Class II landfill and surface impoundment.
- d. Requirements for final cover systems for all closed landfill units.
- e. Requirements for precipitation and drainage control systems that are designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 1,000-year, 24-hour precipitation conditions for Class II WMUs and 100-year, 24-hour precipitation conditions for Class III WMUs.

33. This Order implements:

- a. The Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin, Fourth Edition.
- b. The prescriptive standards and performance goals of Title 27, CCR, Division 2, Subdivision 1, effective 18 July 1997, and subsequent revisions.
- c. The prescriptive standards and performance criteria of Part 258, Title 40 of the Code of Federal Regulations, Subtitle D of the Resource Conservation and Recovery Act.
- d. State Water Resources Control Board Resolution No. 93-62, Policy for Regulation of Discharges of Municipal Solid Waste, adopted 17 June 1993.

34. The facility is not within a 100-year floodplain as identified by the Federal Emergency Management Agency (FEMA).

35. 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 discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of discharging, or who proposed to

discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.”

36. The monitoring and reporting program required by this Order and the attached "Monitoring and Reporting Program No. R5-2006-0020" are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

PROCEDURAL REQUIREMENTS

37. The action to revise WDRs for these waste management facilities is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.), in accordance with Title 14, CCR, Section 15301.
38. 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.
39. The Regional Board has notified the Discharger and interested agencies and persons of its intention to revise the waste discharge requirements for this facility.
40. In a public hearing, the Regional Board heard and considered all comments pertaining to this facility and discharge.
41. Any person affected by this action of the Regional Board may petition the State Water Resources Control Board to review the action in accordance with Sections 2050 through 2068, Title 23, California Code of Regulations. The petition must be received by the State Water Resources Control Board, Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812, within 30 days of the date of issuance of this Order. Copies of the laws and regulations applicable to the filing of a petition are available on the Internet at http://www.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. 98-238 is rescinded and that El Dorado County and its agents, assigns and successors, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. The discharge of wastes classified as “hazardous” as defined by Title 27 CCR, is prohibited.

2. The discharge of waste to the Class III landfill unit is prohibited.
3. The discharge to landfill units of liquid or semi-solid waste (i.e., waste containing less than 50 percent solids), except dewatered sewage or water treatment sludge as provided in this Order, is prohibited.
4. The discharge of solid waste containing free liquid or moisture in excess of the waste's moisture holding capacity to landfill units is prohibited.
5. The discharge of wastes to the Class II landfill other than those specified in Finding Nos. 17, 18, and 19 is prohibited.
6. The discharge of wastes to the Class II surface impoundment other than those specified in Finding No. 20 is prohibited.
7. Discharge outside specified waste management units is prohibited.
8. The direct discharge of wastes to surface waters or surface water drainage courses is prohibited.
9. No waste management units shall be located in the 100-year floodplain.
10. The unauthorized discharge of liquid waste from the Class II surface impoundment is prohibited.
11. The discharge of waste within 50 feet of surface waters is prohibited.
12. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the unit, could produce violent reaction, heat, or pressure, fire or explosion, toxic by-products, or reaction products which in turn:
 - a. require a higher level of containment than provided by the unit;
 - b. are restricted "hazardous wastes"; or
 - c. impair the integrity of containment structuresis prohibited.

B. DISCHARGE SPECIFICATIONS

1. The waste discharges shall remain within the designated disposal areas at all times.

2. The dissolved oxygen content of the Class II surface impoundment and the storm water holding and settling basins shall not be less than 1.0 mg/l.
3. The Class II surface impoundment shall have sufficient storage capacity to accommodate leachate, landfill gas condensate, septage pump truck washout, design seasonal precipitation, and ancillary infiltration and inflow during the winter months. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
4. At least two-feet of freeboard shall be maintained in the Class II surface impoundment at all times.
5. By **1 November** each year, available capacity in the Class II surface impoundment shall at least equal the volume necessary to comply with Discharge Specifications No. 3 and No. 4.
6. The Class II surface impoundment shall be managed to prevent breeding of mosquitoes.
7. Public contact with wastes and leachate shall be precluded through such means as fences, signs, and other acceptable alternatives.
8. Dewatered sewage or water treatment sludge may be accepted for disposal in the Class II landfill if the sludge contains at least 20 percent solids (primary sludge) or 15 percent solids (secondary sludge), is mixed with refuse or soil at a minimum solids-to-liquid ratio of 5:1 by weight, and does not exceed the initial moisture holding capacity of the solid waste.
9. Any proposed change in sludge use or disposal practice shall be reported to the Executive Officer at least 90 days in advance of the change.

GENERAL WMU CONSTRUCTION

10. Municipal solid waste shall be discharged to an area equipped with a containment system which meets the minimum requirements for liners, covers, and leachate collection systems specified below.
11. All new landfill unit liners shall be a composite liner consisting of a 60-mil thick high-density polyethylene flexible membrane and either at least two feet thick of soil that has an hydraulic conductivity of no more than 1×10^{-7} cm/sec or a geosynthetic clay liner (GCL).

12. All liner systems shall include a leachate collection and removal system (LCRS) that shall convey to an appropriately lined sump or other appropriately lined collection area all leachate that reaches the liner. The LCRS shall not rely upon unlined or clay-lined areas for such conveyance.
13. Leachate generation by a landfill unit LCRS shall not exceed 85% of the design capacity of the sump pump. If leachate generation exceeds this value or if the depth of fluid in an LCRS exceeds the minimum needed for pump operations, then the Discharger shall immediately cease the discharge of sludges and other high-moisture wastes to the landfill unit and shall notify the Regional Board in writing within seven days. Notification shall include a timetable for corrective action necessary to reduce leachate production.
14. Prior to any expansion of the Class II landfill liner system, the Discharger shall submit a liner performance demonstration showing that the proposed liner system meets the Class II performance standard given in Section 20310(a) of Title 27.
15. Each landfill unit phase constructed after the effective date of this Order shall be designed and constructed in accordance with Title 27 and this Order and approved by Regional Board staff prior to operation. **Ninety days** prior to the beginning of construction for each new construction phase, a Final Design Report shall be submitted to Regional Board staff for review and approval and shall include, but not be limited to, the engineered design plans, the contract specifications, a construction quality assurance (CQA) plan to verify that construction specifications will be met, and a revised water quality monitoring plan. Approval of the final design report shall be obtained from Regional Board staff prior to the construction of the landfill liner or cover. A final construction report shall be submitted for approval by Regional Board staff after each phase of construction and prior to the discharge of waste into the constructed phase. For cover construction, the final construction report shall be submitted within **ninety days** of completion of construction for approval by Regional Board staff. The final construction report shall include, but not be limited to, as-built plans, a CQA report with a written summary of the CQA program and all test results, analyses, and copies of the inspector's original field notes, and a certification as described in the Standard Provisions and Reporting Requirements.
16. The hydraulic conductivity of the low permeability barrier layer for the Class III landfill covers shall be 1×10^{-6} cm/sec or less. Class II landfill clay liners shall have a hydraulic conductivity of 1×10^{-7} cm/sec or less and covers shall have a hydraulic conductivity of 1×10^{-6} cm/sec or less. The minimum relative compaction shall be 90 percent of maximum dry density. GCL materials shall have a maximum permeability of 5×10^{-9} cm/sec. Hydraulic conductivities of liner materials shall be determined by laboratory tests using solutions with similar properties as the fluids that will be contained. Hydraulic conductivities of cap materials shall be determined by laboratory tests using water. Hydraulic conductivities determined through laboratory

methods shall be confirmed by an appropriate number of field tests in accordance with the Standard Provisions and Reporting Requirements.

17. LCRS shall be designed, constructed, and maintained to collect twice the anticipated daily volume of leachate generated by the WMU and to prevent the buildup of hydraulic head on the underlying liner at any time.
18. All unlined landfill areas that do not have an approved final cover shall have an interim cover constructed of soil with a permeability of 1×10^{-5} cm/sec or less and a minimum relative compaction greater than 90 percent, or a geosynthetic cover to preclude rainwater percolation to the waste, consistent with a Regional Board staff approved construction quality assurance plan. All lined landfill areas that do not receive wastes for 180 days or more shall have an interim cover designed and constructed to minimize percolation of liquids through wastes.

Supervision and Certification of Construction

19. All containment structures shall be designed and constructed under the direct supervision of a California registered civil engineer or a certified engineering geologist and shall be certified by that individual as meeting the prescriptive standards and performance goals of Title 27 prior to waste discharge.

LANDFILL CLOSURE SPECIFICATIONS

20. The remaining 15.8-acre unclosed area of the Class III landfill unit shall receive a final cover consisting of, at a minimum, the following:
 - a. The existing foundation layer and compacted clay layer that in combination shall be at least two-feet thick, except at the 0.6-acre "inactive" area that shall include at least two-feet of foundation layer.
 - b. A 60-mil LLDPE geomembrane that shall be textured on one or both sides pending the results of a slope stability analysis.
 - c. A geocomposite drainage layer on slopes where determined necessary by the required slope stability analysis.
 - d. A one-foot thick vegetative soil layer capable of sustaining vegetation necessary to prevent erosion.

21. At closure, the Class II landfill unit shall receive a final cover consisting of, at a minimum, the following:
 - a. A two-foot thick foundation layer that may contain waste materials.
 - b. A one-foot thick clay cover or a GCL.
 - c. A 60-mil geomembrane.
 - d. A geocomposite drainage layer.
 - e. A one-foot thick vegetative soil layer capable of sustaining vegetation necessary to prevent erosion.
22. Vegetation shall be planted and maintained over each closed landfill unit. Vegetation shall be selected to require a minimum of irrigation and maintenance and shall have a rooting depth not in excess of the vegetative layer thickness.
23. Closed landfill units shall be graded to at least a three percent grade and maintained to prevent ponding.

LANDFILL POST-CLOSURE MAINTENANCE SPECIFICATIONS

24. During the closure and post-closure maintenance period, the Discharger shall conduct routine maintenance of the final cover, areas with interim cover, the precipitation and drainage control facilities, the groundwater, unsaturated zone and landfill gas monitoring systems, the landfill gas extraction system, and any facilities associated with corrective action.
25. The Discharger shall, in a timely manner, repair any areas of the final cover that have been damaged by erosion, cracking, differential settlement, subsidence or any other causes that could allow ponding of surface water or percolation of surface water into the wastes.
26. The Discharger shall conduct an annual test of all LCRS's to ensure they are functioning as designed.
27. The Discharger shall perform all post-closure maintenance activities specified in the facility's Final Closure and Post-Closure Maintenance Plan that are not specifically referred to in this Order.

PROTECTION FROM STORM EVENTS

28. Precipitation and drainage control systems shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 1,000-year, 24-hour precipitation conditions for Class II WMUs and 100-year, 24-hour precipitation conditions for Class III landfills.
29. Waste management units shall be designed, constructed, and operated in compliance with precipitation and flood conditions contained in the Standard Provisions and Reporting Requirements.
30. Annually, prior to the anticipated rainy season, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the facility and to prevent surface drainage from contacting or percolating through wastes.

C. RECEIVING WATER LIMITATIONS

Water Quality Protection Standards

The concentrations of Constituents of Concern in waters passing through the Points of Compliance shall not exceed the Concentration Limits established pursuant to Monitoring and Reporting Program No. R5-2006-0020, which is attached to and made part of this Order.

D. PROVISIONS

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements, dated August 1997, and which are hereby incorporated into this Order. A violation of any of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.
2. The Discharger shall submit reports required by this Order pursuant to Section 13267 of the California Water Code. Failure to submit the reports by the due dates shown may lead to enforcement action pursuant to Section 13268.
3. The Discharger shall submit to the Regional Board all documentation (i.e., reports, plans, designs) required by this Order for review and approval by Regional Board staff before discharging waste to containment areas or WMUs constructed after the effective date of this Order.
4. The Discharger shall comply with all applicable provisions of Title 27 and 40 CFR Part 258 that are not specifically referred to in this Order.

5. By **30 March 2006**, the Discharger shall submit a Final Closure and Post-Closure Maintenance Plan for those areas of the Class III landfill that have not yet received a final cover. The plan shall include a slope stability analysis for the final cover.
6. By **15 October 2006**, the Discharger shall complete closure of the Class III landfill.
7. By **30 November 2006**, the Discharger shall submit a Construction Quality Assurance Report that documents the completion of final cover installation for the Class III landfill.
8. The Discharger shall remove and relocate any wastes discharged at this facility in violation of this Order.
9. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to the facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
10. The Discharger shall maintain legible records of the volume and type of each waste discharged at each WMU and the manner and location of the discharge. Such records shall be maintained at the facility until the beginning of the post-closure maintenance period. These records shall be available for review by Regional Board staff.
11. The Discharger shall provide proof to the Regional Board **within sixty days after completing final closure** that the deed to the landfill facility property, or some other instrument that is normally examined during title search, has been modified to include, in perpetuity, a notation to any potential purchaser of the property stating that:
 - a. The parcel has been used as a municipal solid waste landfill (MSWLF);
 - b. Land use options for the parcel are restricted in accordance with the post-closure land uses set forth in the post-closure plan and in WDRs for the landfill; and
 - c. In the event that the Discharger defaults on carrying out either the post-closure maintenance plan or any corrective action needed to address a release, then the responsibility for carrying out such work falls to the property owner.
12. The Discharger shall maintain waste containment facilities and precipitation and drainage controls, and shall continue to monitor groundwater, leachate from the landfill units, the vadose zone, and surface waters per Monitoring and Reporting

Program No. R5-2006-0020 throughout the active life of the waste management units and post-closure maintenance period.

13. The post-closure maintenance period shall continue until the Regional Board determines that remaining wastes in all WMUs will not threaten water quality.

E. FINANCIAL ASSURANCE

The Discharger shall maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management units. The Discharger shall also maintain an irrevocable closure fund or other means to ensure adequate closure and post-closure maintenance of each waste management unit for a period of not less than 30 years following the closure of each waste management unit.

F. REPORTING REQUIREMENTS

1. The Discharger shall comply with the reporting requirements specified in this Order, in Monitoring and Reporting Program Order No. R5-2006-0020 and in the Standard Provisions and Reporting Requirements, which are attached hereto and made part of this Order.
2. Closure and post-closure maintenance plans shall comply with 40 CFR 258.60 and 258.61, with Title 27, and with Title 14 of the CCR.
3. The Discharger shall notify the Regional Board in writing of any proposed change in ownership or responsibility for construction or operation of the WMUs. The Discharger shall also notify the Regional Board of a material change in the character, location or volume of the waste discharge and of any proposed expansions or closure plans. This notification shall be given 120 days prior to the effective date of the change and shall be accompanied by an amended Report of Waste Discharge and any technical documents that are needed to demonstrate continued compliance with these WDRs.
4. In the event of any change in ownership of this waste management facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Regional Board.
5. Beginning on **1 May 2006**, and every five years thereafter, the Discharger shall submit a status report to the Regional Board regarding financial assurances for corrective action, closure, and post-closure maintenance that either validates the ongoing viability of the financial instrument or proposes and substantiates any needed changes.

I, KENNETH D. LANDAU, Acting Executive Officer, do hereby certify 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 26 January 2006.

KENNETH D. LANDAU, Acting Executive Officer

Attachments

WLB

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2006-0020
EL DORADO COUNTY
UNION MINE LANDFILL
CLASS II LANDFILL, CLOSED CLASS III LANDFILL
AND CLASS II SURFACE IMPOUNDMENT
EL DORADO COUNTY

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

Waste Discharge Requirements Order No. R5-2006-0020 and Standard Provisions and Reporting Requirements require compliance with this Monitoring and Reporting Program. Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements, constitutes non-compliance with the WDRs and with the Water Code, which can result in the imposition of civil monetary liability.

A. REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in the Standard Provisions and Reporting Requirements. Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in non-compliance with the WDRs. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The Discharger shall summarize the data to clearly illustrate compliance with waste discharge requirements or the lack thereof. A short discussion of the monitoring results, including notations of any water quality violations, shall precede the tabular summaries.

The Discharger shall report field and laboratory test results in semi-annual monitoring reports. The Discharger shall submit the semi-annual monitoring reports to the Regional Board by **31 January** (Fall report) and **31 July** (Spring report) of each year. The Spring report shall constitute the semi-annual report for data collected between the previous 1 January and 30 June. The Fall report shall constitute the semi-annual report for data collected between 1 July and 31 December of the previous calendar year. The Fall report shall also constitute the annual report for the previous calendar year summarizing data collected over the entire calendar year. The annual report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous twelve months, so as to show historical trends at each well. The Discharger shall report to the Regional Board the results of any monitoring done more frequently than specified herein.

The Discharger shall report method detection limits and practical quantitation limits. The report shall include all method peaks, including those which the Discharger cannot quantify and/or specifically identify.

B. REQUIRED MONITORING REPORTS

1. Water Quality Protection Standard Report

The Discharger submitted a water quality protection standard in February 1998. The Discharger shall describe any changes to the water quality protection standard in the annual monitoring report.

2. Detection Monitoring Report

The Discharger shall submit reports of the results of detection monitoring in accordance with the schedules specified in this Monitoring and Reporting Program.

3. Annual Monitoring Summary Report

The Discharger shall submit the Annual Monitoring Summary Report as specified in the Standard Provisions and Reporting Requirements and in this Monitoring and Reporting Program.

4. Constituents-of-Concern Five-Year Monitoring Program

The Discharger shall sample all Monitoring Points and Background Monitoring Points for each monitored medium for all Constituents of Concern (COCs) every fifth year, beginning with the Spring of 2006, with subsequent COC monitoring efforts being carried out every fifth year thereafter alternately in the Spring and Fall.

Standard Observations

Each monitoring report shall include a summary and certification of completion of all Standard Observations for the waste management unit (WMU), for the perimeter of the WMU, and for the receiving waters. The Discharger shall conduct standard observations weekly and shall include those elements as defined in the Standard Provisions and Reporting Requirements.

C. MONITORING

If the Discharger, through a detection monitoring program, or the Regional Board finds that there is a measurably significant increase in indicator parameters or waste constituents over the water quality protection standards (established pursuant to Monitoring and Reporting Program No. R5-2006-0020) at or beyond the Points of Compliance, the Discharger shall notify the Regional Board or acknowledge the Regional Board's finding in writing within seven days, and shall immediately resample for the constituent(s) or parameter(s) at the point where the standard was exceeded. Within 90 days, the Discharger shall submit to the Regional Board the results of the re-sampling and either:

- a. a report demonstrating that the water quality protection standard was not, in fact, exceeded; or
- b. an amended Report of Waste Discharge for the establishment of an evaluation monitoring program, per Section 20415 and 20425 of Title 27, which is designed to evaluate changes in water quality due to the release from the landfills.

If the Discharger, through an evaluation monitoring program, or the Regional Board verifies that water quality protection standards have been exceeded at or beyond the Points of Compliance, the Discharger shall notify the Regional Board or acknowledge the Regional Board's finding in writing within seven days. Within 180 days, the Discharger shall submit to the Regional Board an amended Report of Waste Discharge for the establishment of a corrective action program, per Section 20430 of Title 27, which is designed to remediate releases from the facility and to achieve compliance with the water quality protection standards.

D. REQUIRED MONITORING PROGRAMS

1. Solid Waste, Leachate, and LCRS Monitoring Program

Designated and Non-hazardous Solid Waste Monitoring

The Discharger shall monitor all wastes discharged to the Class II landfill on a monthly basis and submit the results with the corresponding semi-annual report:

<u>Parameter</u>	<u>Report in Units of</u>	<u>Monitoring Frequency</u>
Quantity Discharged to: Class II landfill	Yds ³ or tons	Monthly
Capacity of Landfill Unit Remaining	Percent	Yearly

Liquid and Semi-Liquid Waste Monitoring

The Discharger shall monitor all wastes discharged to the Class II surface impoundment and report to the Regional Board on a semi-annual basis:

<u>Parameter</u>	<u>Report in Units of</u>	<u>Monitoring Frequency</u>
Quantity discharged	Gallons/day	Continuous
Type of Material Discharged	- -	Continuous
Minimum Freeboard	Feet and Tenths	Weekly

In addition, the Discharger shall collect grab samples of the Class II surface impoundment contents and analyze the samples for the parameters and constituents listed below under "Leachate Monitoring" at the frequencies indicated thereunder.

Leachate Monitoring

The Class III landfill unit does not have a Leachate Collection and Removal System (LCRS). However there is a leachate collection toe drain along the junction of the Class III and Class II landfills and around the northern perimeter of the Class III unit. In addition, the Class II landfill has an LCRS. The Class II surface impoundment has a geonet LCRS and collection sump.

The Discharger shall inspect all landfill unit and surface impoundment LCRS sumps and conveyance systems weekly for leachate generation. If leachate is present in any sumps and conveyance systems, the Discharger shall immediately sample the leachate and continue to sample at the frequencies listed in Table 1. Sampling locations shall include

the pipe that discharges leachate to the Class II surface impoundment, the liquid within the Class II surface impoundment, and any liquid in the sump for the Class II surface impoundment. The Discharger shall also measure the quantity of leachate pumped from the Class II surface impoundment LCRS and report the quantity as Leachate Volume (in gallons/day). The Discharger shall report the data in the semi-annual monitoring reports.

TABLE 1 - LEACHATE AND CLASS II SURFACE IMPOUNDMENT MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Monitoring Frequency</u>
Field Parameters		
Flow Rate	gallons/day	Monthly
pH	Number	Monthly
Specific Conductance	µmhos/cm	Monthly
Monitoring Parameters		
Bicarbonate Alkalinity	mg/L	Annually
Carbonate	mg/L	Annually
Chloride	mg/L	Annually
Nitrate Nitrogen	mg/L	Annually
Sulfate	mg/L	Annually
Total Dissolved Solids (TDS)	mg/L	Annually
Volatile Organic Compounds (EPA Method 8260B, Attachment C)	µg/l	Annually
Constituents of Concern		
Inorganics ¹	µg/L	5-year
Total Organic Carbon	mg/L	5-year
Volatile Organic Compounds (EPA Method 8260B, Attachment D)	µg/L	5-year
Semi-volatile Organic Compounds (EPA Method 8270C, Attachment D)	µg/L	5-year
Chlorinated Herbicides (EPA Method 8150A, Attachment D)	µg/L	5-year
Organophosphorus Compounds (EPA Method 8141A, Attachment D)	µg/L	5-year
¹ Inorganics (dissolved): Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Cyanide, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Sulfide, Thallium, Tin, Vanadium, and Zinc.		

LCRS Monitoring

The Discharger shall test all LCRSs annually to demonstrate operation in conformance with waste discharge requirements. The Discharger shall report the results of these tests

to the Regional Board and shall include comparisons with earlier tests made under comparable conditions. The Discharger shall report the data in the annual monitoring report.

2. Detection Monitoring Program

Once each Spring and Fall, the Discharger shall monitor all Monitoring Points assigned to detection monitoring and all Background Monitoring Points (for each monitored medium) for the Monitoring Parameters listed in this Program.

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

Groundwater sampling shall include an accurate determination of the groundwater surface elevation and field parameters (pH, temperature, electrical conductivity, turbidity) for all monitoring points. The Discharger shall measure groundwater elevations prior to purging and sampling the wells to fulfill the groundwater gradient and direction requirements. For each monitored groundwater body, the Discharger shall measure the water level in each well (in feet and hundredths, MSL) and determine groundwater gradient and direction at least semi-annually, including the times of expected highest and lowest water level elevations for the respective groundwater body. The Discharger shall display this information on a water table contour map and/or groundwater flow net for the site and submit the map with the semi-annual monitoring reports.

The Discharger shall measure groundwater elevations for all background and downgradient wells for a given groundwater body within a period of time short enough to avoid temporal groundwater flow variations which could preclude accurate determination of groundwater gradient and direction.

The Discharger shall perform statistical or non-statistical analysis when the monitoring data are available.

3. Groundwater Monitoring

The monitoring network shall consist of background monitoring wells MW-5, MW-6, MW-10, and MW-B, and downgradient monitoring wells MW-7, MW-9, UM-3, MW-A, and MW-11. Attachment B of Order No. R5-2006-0020 shows the locations of these wells. Prior to abandonment of monitoring wells due to construction or expansion activities at the site, the Discharger shall install replacement monitoring wells. The Discharger shall collect samples from the wells at the frequency and for the parameters specified in Table 2. The Discharger shall report the data in the semi-annual monitoring reports.

The Discharger shall sample all new monitoring wells on a quarterly basis for the parameters in Table 2 until there is sufficient data for statistical analysis. Thereafter, the Discharger shall sample the new monitoring wells semi-annually.

TABLE 2 - GROUNDWATER MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Monitoring Frequency</u>
Field Parameters		
Groundwater Elevation	Ft. & 100ths, MSL	Semiannually
pH	Number	Semiannually
Specific Conductance	µmhos/cm	Semiannually
Temperature	°F	Semiannually
Turbidity	Turbidity units	Semiannually
Monitoring Parameters		
Anions/Cations ¹	mg/L	Semiannually
Chloride	mg/L	Semiannually
Dissolved Arsenic ³	mg/L	Semiannually
Dissolved Iron ³	mg/L	Semiannually
Total Dissolved Solids (TDS)	mg/L	Semiannually
Volatile Organic Compounds (EPA Method 8260B, Attachment C)	µg/L	Semiannually
Constituents of Concern		
Inorganics ²	µg/L	5-year
Total Organic Carbon	mg/L	5-year
Volatile Organic Compounds (EPA Method 8260B, Attachment D)	µg/L	5-year
Semi-volatile Organic Compounds (EPA Method 8270C, Attachment D)	µg/L	5-year
Chlorinated Herbicides (EPA Method 8150A, Attachment D)	µg/L	5-year
Organophosphorus Compounds (EPA Method 8141A, Attachment D)	µg/L	5-year
<hr/> <p>1 Anions/Cations: Bicarbonate, Carbonate, Nitrate, Sulfate, Calcium, Magnesium, Potassium, and Sodium.</p> <p>2 Inorganics (dissolved): Aluminum, Antimony, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Cyanide, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Sulfide, Thallium, Tin, Vanadium, and Zinc.</p> <p>3 These parameters have been excluded from detection monitoring in order to reduce the risk of false positive indications and to therefore increase the reliability of detecting a leachate release. They are included as supplemental parameters for water quality trend analysis.</p>		

4. Surface Water Monitoring

The Discharger shall sample Martinez Creek upstream of the waste management facility at upstream monitoring point S-6 and downstream at monitoring point S-7, and at surface

water discharge points S-1 and S-2. The Discharger shall collect surface water samples after the first storm of the rainy season which produces significant flow and quarterly thereafter when water is present. The Discharger shall collect samples from all stations and analyze at the frequency and for the monitoring parameters specified in Table 3. The Discharger shall submit the surface water monitoring reports with the corresponding semi-annual groundwater monitoring reports. The Discharger shall include an evaluation of surface water quality impacts and compliance with the Water Quality Protection Standard.

The Discharger shall continue to monitor storm water discharges in accordance with Water Quality Order No. 97-03-DWQ (Discharges of Storm Water Associated with Industrial Activities).

TABLE 3 - SURFACE WATER MONITORING PROGRAM		
<u>Parameter</u>	<u>Units</u>	<u>Monitoring Frequency</u>
Field Parameters		
pH	Number	Quarterly
Specific Conductance	µmhos/cm	Quarterly
Temperature	°F	Quarterly
Turbidity	Turbidity units	Quarterly
Monitoring Parameters		
Anions/Cations ¹	mg/L	Quarterly
Chloride	mg/L	Quarterly
Dissolved Arsenic	mg/L	Quarterly
Dissolved Copper	mg/L	Quarterly
Dissolved Iron	mg/L	Quarterly
Dissolved Zinc	mg/L	Quarterly
Total Dissolved Solids (TDS)	mg/L	Quarterly
Total Suspended Solids	mg/L	Quarterly
Constituents of Concern		
Total Organic Carbon	mg/L	5-year
Inorganics ²	µg/L	5-year
<hr/> ¹ Anions/Cations: Bicarbonate, Carbonate, Nitrate, Sulfate, Calcium, Magnesium, Potassium, and Sodium.		
² Inorganics (dissolved): Aluminum, Antimony, Barium, Beryllium, Cadmium, Chromium, Cobalt, Cyanide, Lead, Manganese, Mercury, Nickel, Silver, Thallium, Tin, Selenium, Sulfide, and Vanadium.		

In addition, the Discharger shall sample one seep (designated MS-1) from along the western side of Church Mine Road, downslope of the Class II surface impoundment. The Discharger shall analyze the seep quarterly for TDS, pH, chloride, arsenic, and iron. The Discharger shall report the data in the semi-annual monitoring reports.

5. Unsaturated Zone Monitoring

The unsaturated zone monitoring network shall consist of two vacuum lysimeters beneath the Class II surface impoundment (L2N and L2S). The Discharger shall install additional lysimeters beneath new landfill expansion areas at locations approved by Regional Board staff pursuant to Discharge Specification B.13 of the WDRs. The Discharger shall analyze soil-pore liquid samples (when sufficient liquid is recovered for analysis) at the frequency and for the monitoring parameters specified in Table 4.

The Discharger shall submit unsaturated zone monitoring reports with the corresponding semi-annual monitoring report and shall include evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

TABLE 4 - UNSATURATED ZONE MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Monitoring Frequency</u>
Field Parameters		
pH	Number	Quarterly
Specific Conductance	µmhos/cm	Quarterly
Monitoring Parameters		
Bicarbonate Alkalinity	mg/L	Semiannually
Carbonate	mg/L	Semiannually
Chloride	mg/L	Semiannually
Nitrate Nitrogen	mg/L	Semiannually
Sulfate	mg/L	Semiannually
Total Dissolved Solids (TDS)	mg/L	Semiannually
Volatile Organic Compounds (EPA Method 8260B, Attachment C)	µg/L	Semiannually
Constituents of Concern		
Inorganics ¹	µg/L	5-year
Total Organic Carbon	mg/L	5-year
Volatile Organic Compounds (EPA Method 8260B, Attachment D)	µg/L	5-year
Semi-volatile Organic Compounds (EPA Method 8270C, Attachment D)	µg/L	5-year
Chlorinated Herbicides (EPA Method 8150A, Attachment D)	µg/L	5-year
Organophosphorus Compounds (EPA Method 8141A, Attachment D)	µg/L	5-year
¹ Inorganics (dissolved): Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Cyanide, Iron, Lead, Mercury, Manganese, Nickel, Selenium, Silver, Sulfide, Thallium, Tin, Vanadium, and Zinc.		

6. Pendar Tunnel and Groundwater Drains Monitoring

The Discharger shall monitor discharges from the Pendar Tunnel and the three groundwater drains (the Class II Underdrain: GWD-1, the Union Mine Road Underdrain: GWD-2, and the groundwater drain west of the spray fields: GWD-3) shown on Attachment B. These locations shall be inspected monthly. For each discharge point the Discharger shall collect water samples within one month after flows begin and quarterly thereafter when water is present. The Discharger shall analyze the samples for pH (field), specific conductance (field), total dissolved solids, dissolved arsenic, dissolved iron, and sulfate.

The Discharger shall submit the Pendar Tunnel and the groundwater drains monitoring reports with the corresponding semi-annual monitoring report and shall include evaluation of potential impacts of these discharges on Martinez Creek.

E. WATER QUALITY PROTECTION STANDARDS

The Water Quality Protection Standard (Standard) shall consist of the following elements:

1. Constituents of Concern;
2. Concentration Limits;
3. Monitoring Points;
4. Points of Compliance;
5. Compliance Period.

Each of these is described as follows:

1. Constituents of Concern

The 'COC list' (list of Constituents of Concern required under 27 CCR 20395) shall include all constituents listed in Tables 1, 2, 3, and 4 and in Waste Discharge Requirements Order No. R5-2006-0020.

2. Concentration Limits

The Discharger shall determine the Concentration Limit for any given Constituent of Concern or Monitoring Parameter in a given monitored medium (i.e., groundwater, surface water, and the unsaturated zone) at WMUs. The Discharger shall use background wells to establish concentration limits for groundwater for each constituent of concern and shall update concentration limits at least annually. The Discharger shall use the limits as the basis of comparison with data from the Monitoring Points in that monitored medium.

3. Monitoring Points

Attachment B shows the approximate locations of the following monitoring points:

Groundwater Monitoring Points

The groundwater monitoring network for the landfill area consists of three upgradient wells (MW-5, 6 and 10) and four downgradient wells (MW-7, 9 and 11, and UM-3). The groundwater monitoring network for the Class II surface impoundment consists of one upgradient well (MW-C) and one downgradient well (MW-A).

Unsaturated Zone Monitoring Points

The unsaturated zone monitoring points shall be the lysimeters located within the Class II surface impoundment (L2N and L2S).

Seep Monitoring Point

The seep monitoring point shall be MS-1 (along the western side of Church Mine Road, downslope of the Class II surface impoundment).

Surface Water Monitoring Points

The surface water monitoring points for detection monitoring shall be:

- S-1 In the tributary (formerly the unnamed creek) channel downgradient of the Springfield Shaft and Springfield West Adit to sample for any potential seeps developing from the mine seals.
- S-2 Outfall from north sedimentation pond before discharge enters Martinez Creek.
- S-6 Martinez Creek, 600 feet upstream from north sedimentation pond discharge.
- S-7 Martinez Creek, approximately 450 feet downstream from north sedimentation pond discharge. S-7 is the surface water point of compliance.

4. Point of Compliance

The Point of Compliance for groundwater shall be the vertical surface located at the hydraulically downgradient limit of the waste management units that extends through the uppermost aquifer underlying the units.

5. Compliance Period

The Compliance Period is the number of years equal to the active life of the waste management unit plus the closure period. Each time the Discharger exceeds the Water Quality Protection Standard (i.e., a release is discovered), the facility begins a Compliance Period on the date the Regional Board directs the Discharger to begin an Evaluation Monitoring Program. If the Discharger's Corrective Action Program (CAP) has not achieved compliance with the Standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the facility has been in continuous compliance for at least three consecutive years.

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

Ordered by _____
KENNETH D. LANDAU, Acting Executive Officer

26 January 2006
(Date)

INFORMATION SHEET

ORDER NO. R5-2006-0020
EL DORADO COUNTY
UNION MINE LANDFILL
CLASS II LANDFILL, CLOSED CLASS III LANDFILL
AND CLASS II SURFACE IMPOUNDMENT
OPERATION, CLOSURE AND POST-CLOSURE MAINTENANCE
EL DORADO COUNTY

El Dorado County (Discharger) owns and operates the Union Mine Landfill. The landfill facility includes Class II and Class III landfills and a Class II surface impoundment. A wastewater treatment plant with wastewater spray fields is also located on the property and is regulated under separate waste discharge requirements (WDRs).

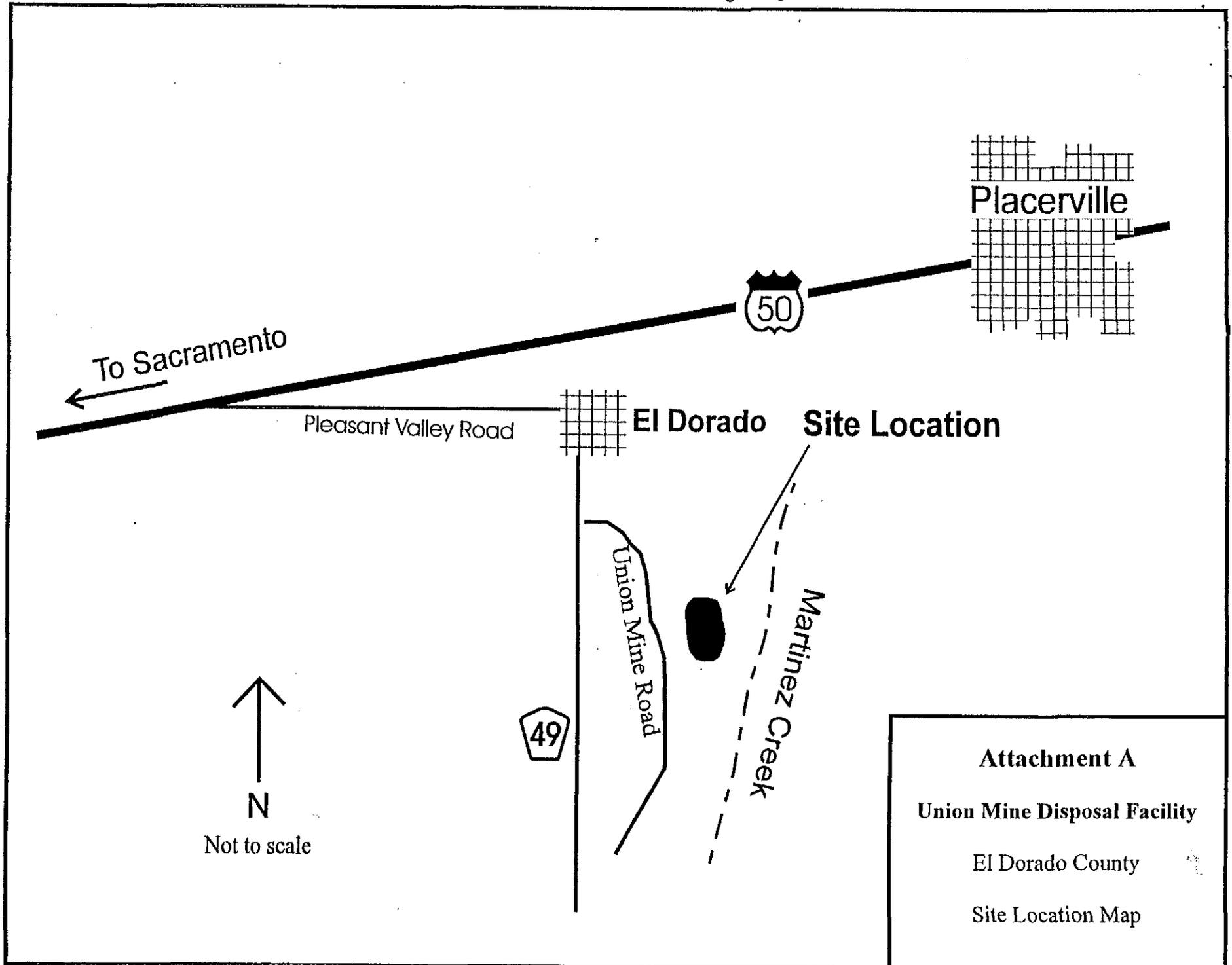
The Class III landfill is unlined and inactive. Final cover has been placed on 19.5 acres of the Class III landfill and 15.8 acres remains to be closed. The Regional Board approved an engineered alternative final cover in previous WDRs for use of a geosynthetic clay liner (GCL) in place of one-foot of clay barrier soil. The Discharger closed 14.6 acres of the Class III landfill using the engineered alternative and 4.9 acres using a prescriptive final cover. 15.8 acres of the Class III landfill remain to be closed and currently have interim cover. The Discharger proposed to close the remaining 15.8 acres of the Class III landfill using a different engineered alternative final cover that includes a 60-mil geomembrane in place of the GCL layer. This Order approves that engineered alternative. These WDRs require the submittal of a Final Closure Plan for the remaining unclosed portion of the Class III landfill, and require the completion of closure during 2006.

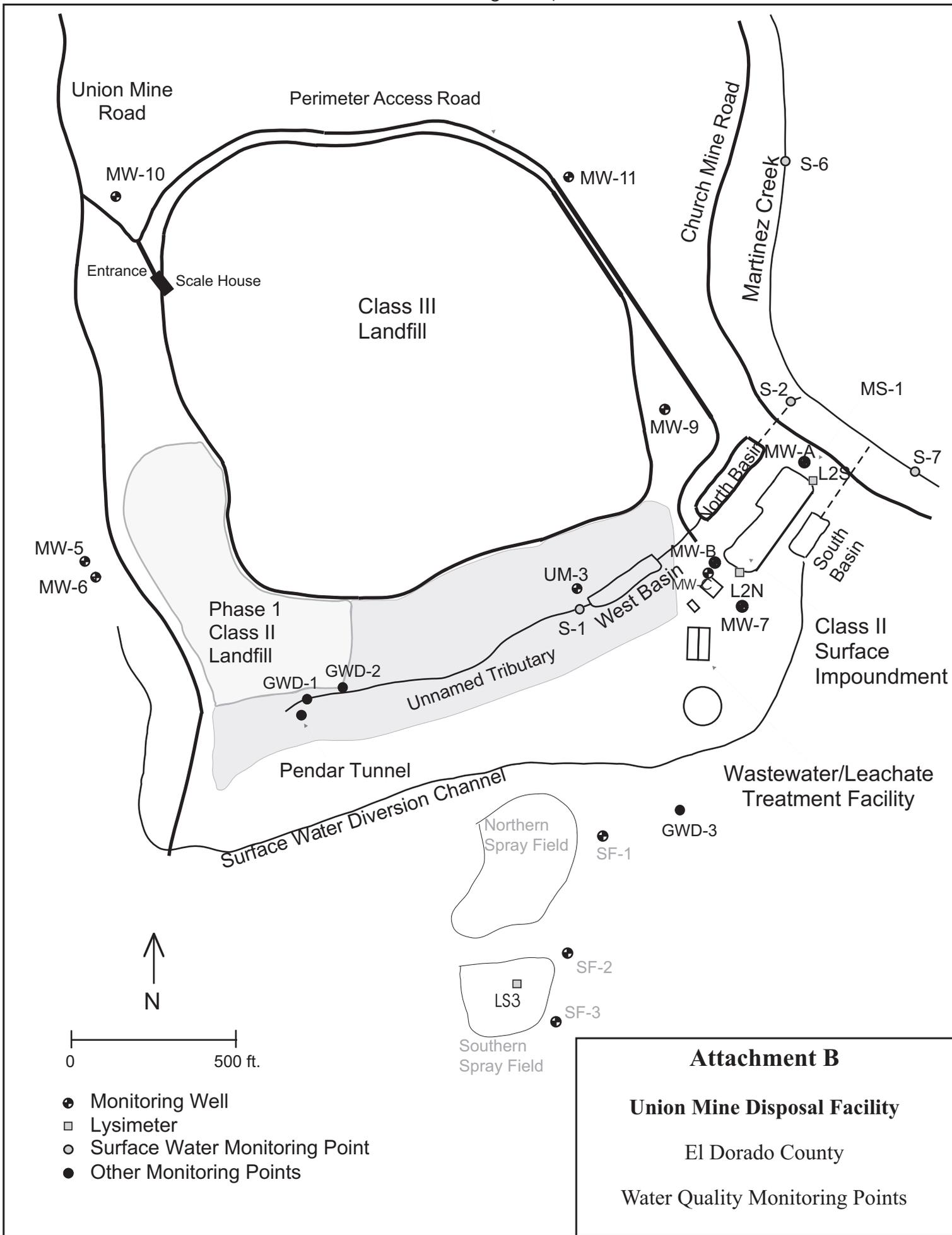
Most of the County's solid wastes are currently exported out of the county. The Class II landfill is currently used on an as needed or contingent basis, and since 1997, has only received solid waste from the on-site offices and sludge generated from the on-site Leachate/Septage Treatment Facility. Leachate from the Class II landfill drains to the lined Class II surface impoundment for storage. Leachate from the Class III landfill is also collected at a toe drain and discharged to the Class II surface impoundment.

Surface water drainage is to Martinez Creek. Martinez Creek is tributary to the North Fork Cosumnes River, which is tributary to the Cosumnes River, thence to the Sacramento-San Joaquin Delta.

3 January 2006

WLB





- Monitoring Well
- Lysimeter
- Surface Water Monitoring Point
- Other Monitoring Points

Attachment B

Union Mine Disposal Facility

El Dorado County

Water Quality Monitoring Points

WDRS ORDER NO. R5-2006-0020

ATTACHMENT C

Constituents included in VOC_{water} (by USEPA Method 8260B):

Acetone
Acrylonitrile
Benzene
Bromochloromethane
Bromodichloromethane
Bromoform (Tribromomethane)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans-1,4-Dichloro-2-butene
1,1-Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1-Dichloroethylene (1,1-Dichloroethene; Vinylidene chloride)
cis-1,2-Dichloroethylene (cis-1,2-Dichloroethene)
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Ethylbenzene
2-Hexanone (Methyl butyl ketone)
Methyl bromide (Bromomethane)
Methyl chloride (Chloromethane)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl ethyl ketone (MEK; 2-Butanone)
Methyl iodide (Iodomethane)
4-Methyl-2-pentanone (Methyl isobutylketone)
Methyl-tertiary butyl ether
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene
1,1,1-Trichloroethane (Methylchloroform)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene)

Constituents included in VOC_{water} (by USEPA Method 8260B), continued:

Trichlorofluoromethane (CFC-11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride
Xylenes

WDRS ORDER NO. R5-2006-0020

ATTACHMENT D

Inorganics (USEPA Method):

Aluminum	6010	Copper	6010	Silver	6010
Antimony	6010	Cyanide	9010	Sulfide	9030
Arsenic	7061	Iron	6010	Thallium	7841
Barium	6010	Lead	7421	Tin	6010
Beryllium	6010	Manganese	6010	Vanadium	6010
Cadmium	6010	Mercury	7470	Zinc	6010
Chromium	6010	Nickel	7520		
Cobalt	6010	Selenium	7741		

Volatile Organics (USEPA Method 8260B):

Acetone
Acetonitrile (Methyl cyanide)
Acrolein
Acrylonitrile
Allyl chloride (3-Chloropropene)
Benzene
Bis(2-ethylhexyl) phthalate
Bromochloromethane (Chlorobromomethane)
Bromodichloromethane (Dibromochloromethane)
Bromoform (Tribromomethane)
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)

Volatile Organics (continued):

1,3-Dichloropropane (Trimethylene dichloride)
2,2-Dichloropropane (Isopropylidene chloride)
1,1-Dichloropropene
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Ethylbenzene
Hexachlorobutadiene
2-Hexanone (Methyl butyl ketone)
Isobutyl alcohol
Isodrin
Methacrylonitrile
Methyl bromide (Bromomethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK; 2-Butanone)
Methyl iodide (Iodomethane)
Methyl methacrylate
4-Methyl-2-pentanone (Methyl isobutyl ketone)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl-tertiary butyl ether
Naphthalene
Propionitrile (Ethyl cyanide)
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane, Methylchloroform
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene; TCE)
Trichlorofluoromethane (CFC-11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride (Chloroethene)
Xylene (total)

Semivolatile Organics (USEPA Method 8270C - base, neutral, & acid extractables):

Acenaphthene
Acenaphthylene
Acetophenone
2-Acetylaminofluorene (2-AAF)
Aldrin
4-Aminobiphenyl
Anthracene
Benzo[a]anthracene (Benzanthracene)
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[g,h,i]perylene
Benzo[a]pyrene
Benzyl alcohol
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC (Lindane)
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl) ether (Dichloroethyl ether)
Bis(2-chloro-1-methylethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)
4-Bromophenyl phenyl ether
Butyl benzyl phthalate (Benzyl butyl phthalate)
Chlordane
p-Chloroaniline
Chlorobenzilate
p-Chloro-m-cresol (4-Chloro-3-methylphenol)
2-Chloronaphthalene
2-Chlorophenol
4-Chlorophenyl phenyl ether
Chrysene
o-Cresol (2-methylphenol)
m-Cresol (3-methylphenol)
p-Cresol (4-methylphenol)
4,4'-DDD
4,4'-DDE
4,4'-DDT
Di-allyl ether
Dibenz[a,h]anthracene
Dibenzofuran
Di-n-butyl phthalate
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
3,3'-Dichlorobenzidine

Semivolatile Organics (continued):

2,4-Dichlorophenol
2,6-Dichlorophenol
Dieldrin
Diethyl phthalate
p-(Dimethylamino)azobenzene
7,12-Dimethylbenz[a]anthracene
3,3'-Dimethylbenzidine
2,4-Dimethylphenol (m-Xylenol)
Dimethyl phthalate
m-Dinitrobenzene
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
Diphenylamine
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Ethyl methacrylate
Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachloropropene
Indeno(1,2,3-c,d)pyrene
Isophorone
Isosafrole
Kepone
Methapyrilene
Methoxychlor
3-Methylcholanthrene
Methyl methanesulfonate
2-Methylnaphthalene
Naphthalene
1,4-Naphthoquinone

Semivolatile Organics (continued):

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
Toxaphene
1,2,4-Trichlorobenzene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene

Organophosphorus Compounds (USEPA Method 8141A):

0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)
Dimethoate
Disulfoton
Methyl parathion (Parathion methyl)
Parathion
Phorate

Chlorinated Herbicides (USEPA Method 8150A):

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