

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 5-01-149

WASTE DISCHARGE REQUIREMENTS
FOR
ROCK CREEK FACILITY
CLASS II LANDFILL
CLASS II SURFACE IMPOUNDMENT
CALAVERAS COUNTY

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

1. The County of Calaveras (hereafter Discharger) owns and operates the Rock Creek Facility. The facility is regulated by Waste Discharge Requirements (WDRs) Order No. 97-199 which reflected the expansion of the Phase II-A landfill, clean closure of the Class II surface impoundment, and the design and construction of a new Class II surface impoundment. This revision reflects design changes in the Phase II-A landfill to correct problems associated with water found beneath the liner section along the eastern sideslope
2. The facility is on a 200-acre parcel and is comprised of Assessor's Parcel Numbers 50-025-15 and 50-029-20. Waste treatment, storage, and disposal activities are proposed for 61.4 acres of the facility. The facility is 2/3 mile directly east of Milton, in Sections 11 and 14, T2N, R10E, MDB&M, as shown in Attachment "A", which is incorporated herein and made part of this Order.
3. The waste management facility consists of a Class II landfill to be constructed in four phases with each phase having a surface impoundment for leachate storage and evaporative disposal. Phase I covers a 10-acre area and is partially filled and inactive. Phase II-A is the currently active cell.
4. The Discharger submitted a *Revised Construction Detail for Phase II-A Sideslope Liner Section* dated 9 February 2001 and a Report of Waste Discharge to address water which was found beneath the liner section along the eastern sideslope of the Phase II-A landfill. These WDRs revise Order No. 97-199 to include the revised construction details for the Phase II-A sideslope liner.

Wastes and Their Classification

5. The Discharger proposes to continue to discharge municipal solid waste, ash, sewage treatment plant sludge, petroleum contaminated soil, and miscellaneous contaminated materials in the Class II landfill unit shown on Attachment "B". These wastes are

classified as inert, nonhazardous solid waste, or designated waste, using the criteria set forth in Title 27.

6. Leachate from the landfill unit and surface impoundment leachate collection and removal system (LCRS), is proposed for discharge to a Class II surface impoundment shown on Attachment "B". These wastes are classified as designated wastes using the criteria set forth in Title 27.

Description of the Site

7. The site is in the lower foothills of the Sierra Nevada mountains between elevations 520 feet above Mean Sea Level (MSL) at the ridge of the canyon head on the north property line and elevation 300 feet above MSL at the south end of the property. The proposed landfill area is in the north-south box canyon which contains the entire watershed on the property.
8. Lands within 1000 feet of the facility are open range lands used for grazing and ranching.
9. An easement for Stockton East Water District's proposed Farmington Canal Project crosses the Rock Creek Facility at the downstream or southerly end of the project site. The easement passes approximately 400 feet from the southernmost extremity of the ultimate placement of waste. The proposed canal would cross over the existing site creek in a flume or other structure which would physically separate the two streams of water. The beneficial uses of the water conveyed by the proposed canal include agricultural and domestic use. No other easements are recorded.
10. Based on the Unified Soil Classification system, soils immediately underlying the WMUs are a light brown and gray silty sand (SM) and a red brown sandy silty clay (CL) with remolded permeabilities of 3×10^{-6} cm/sec and 1.15×10^{-6} cm/sec, respectively. These soils are three feet thick and belong to the Valley Springs Formation.
11. The Tertiary aged Valley Springs Formation is the predominate geologic formation at the site and consists of boulder sized gravels, sands, silts, and clays. The Ione Formation underlies the Valley Springs Formation and consists of sands, silts, and clays. The contacts between the two formations vary within the site.
12. The maximum credible earthquake for the facility is estimated to be a Richter magnitude of 6.5. The estimated peak bedrock acceleration at the facility resulting from this earthquake is 0.36g. The facility will be designed to withstand this ground movement.

13. The first significant water bearing formation is approximately 30 feet below the base of the WMUs. The hydraulic gradient is generally to the south-southwest. Ground water flows at approximately 4-8 feet per year. The quality of this water is good as compared to California Department of Health Services Drinking Water Standards. Springs are present at the east and west facing slopes in the upper part of the canyon. A perimeter drain was constructed to divert these springs away from the WMUs.
14. The beneficial uses of ground water are domestic, municipal, agricultural, and industrial supply.
15. The facility receives an average of 19.42 inches of precipitation per year as measured at New Hogan Dam between the years 1959 and 1986. The mean evaporation for this facility is 75 inches per year as measured at New Hogan Dam between the years 1962 and 1985. Based on these data, average annual net evaporation at the facility is 56 inches.
16. The 1000-year, 24-hour precipitation event for the facility is 5.45 inches, and the 100-year wet season precipitation is 34.6 inches as provided in the State of California Department of Water Resources Rainfall Data Duration Frequency for California, updated August 1986.
17. The facility is not within a 100-year floodplain.
18. Surface drainage is to Rock Creek a tributary to Littlejohns Creek which flows into the San Joaquin River.
19. The beneficial uses of these surface waters are domestic, municipal, agricultural, and industrial supply; ground water recharge; recreation; esthetic enjoyment; navigation; fresh water replenishment; and preservation and enhancement of fish, wildlife and other aquatic resources.

Operation of Facilities

20. Only 'inert wastes', 'nonhazardous solid wastes', and 'designated wastes' as defined in Title 27, will be disposed of at the facility.
21. Disposal of dewatered sewage treatment sludge, water treatment sludge, and ash will require approval by the Discharger.
22. Fluids from the Class II surface impoundment are returned to the Class II landfill to be reused only for controlling dust or moisture-conditioning soils used for daily or intermediate cover. Approximately 50 cubic yards of soil are required for cover on a daily

basis. The soils are stockpiled adjacent to the working face and moisture-conditioned at the location. Approximately 2,000 gallons of fluid are applied to the soil stockpile. Typical initial moisture content of the soil excavated from the borrow area ranges from 6 to 8 percent and the addition of this quantity of water brings the moisture content into the range of 15 to 20 percent.

23. Phase II-A will provide capacity through 2007.

Design of Waste Management Units

Landfill

24. The first stage of the Phase I landfill unit (Phase I-A) was lined with a minimum thickness of 24 inches of compacted clay that displayed a maximum permeability of 1×10^{-6} cm/sec. The compacted clay liner was overlain with a vapor barrier and blanket LCRS. Leachate from the Phase I-A LCRS gravity drains to a Class II leachate impoundment.
25. The second stage of the Phase I landfill unit (Phase I-B) was lined with a composite liner system consisting of a minimum thickness of 24 inches of compacted clay that displayed a maximum permeability of 1×10^{-7} cm/sec. The clay liner was overlain by a 60-mil-thick high density polyethylene (HDPE) liner. The composite liner system was overlain by a one-foot-thick blanket LCRS.
26. The Phase II-A liner system extends down canyon from the southern limits of the existing Phase I-B liner system. The Phase II-A liner system covers approximately 6.9 acres and consists of a single composite liner system with an overlying LCRS. A secondary composite liner and LCRS was constructed beneath the central portions of the Phase II-A LCRS. Composite liners consist of geosynthetic clay liner (GCL) material overlain by 60-mil HDPE flexible membrane liner material. The LCRS is composed of geocomposite drainage layer on the 2:1 sideslopes and a 12-inch thick layer of gravel on the floor wrapped in cushion and separation geotextiles, and overlain by protective covers. The gravel drainage layer is drained by a series of perforated HDPE pipes that gravity drain to the new Class II impoundment by an 8-inch diameter HDPE pipe that is set below grade.
27. The Discharger has petitioned the Board to allow the use of the geosynthetic clay liner (GCL) material in the composite liner system as an engineered alternative to the prescriptive standard (2-foot compacted clay with a maximum permeability of 1×10^{-7} cm/s). The Discharger's petition demonstrated that the proposed design would provide equivalent protection and that application of the prescriptive standard was unnecessarily burdensome.

28. Leachate from the landfill LCRS gravity drains to a Class II leachate impoundment.
29. The Discharger has submitted a slope stability report for the Phase II-A landfill (BAS, 1993) that demonstrates that the structural components of the unit will withstand the forces of the Maximum Credible Earthquake (MCE) without failure of containment systems or environmental controls.
30. A subdrain was installed beneath the Phase I-B and Phase II-A landfill and along the bottom of the canyon. The invert of the subdrain lies a minimum of five feet below the top of the composite liner system to ensure the maintenance of at least a five-foot separation between wastes and the highest anticipated elevation of groundwater, including the capillary fringe.
31. In December 1999 after construction of the Phase II-A liner, the Discharger discovered water beneath the liner section at the toe of the eastern sideslope in the Phase II-A landfill. The Discharger submitted a *Revised Construction Detail for Phase II-A Sideslope Liner Section* dated 9 February 2001 to provide for drainage of this water. The revised construction will consist of a subdrain along the toe of the eastern sideslope of the Phase II-A landfill. This subdrain will be constructed in a manner similar to the subdrain beneath the center of the Phase II-A liner and will be designed to maintain at least a five-foot separation between waste and the highest anticipated groundwater. A drainage geocomposite will be placed beneath the GCL of the eastern sideslope and a 60-mil geomembrane will be placed between the geocomposite and the GCL. Water entering the geocomposite will gravity flow to a sump at the toe of the eastern sideslope. The sump will provide for at least five-foot separation between waste and water in the sump. The Discharger proposes to reuse water collected from the sump for dust control within the lined areas of the landfill or to discharge it to the surface impoundment.

Surface Impoundment

32. The initial surface impoundment was decommissioned in accordance with the clean closure requirements prescribed by Discharge Specification 26 herein and Subdivision 1, Chapter 3, Subchapter 4 of Title 27. Free liquids were transferred to the new surface impoundment following Board acceptance of construction. Residual wastes were treated to achieve a minimum solids content of 50 percent and discharged to the Phase I-B landfill. Impoundment construction materials and any contaminated soils underlying the impoundment were discharged to the Phase I-B landfill.
33. The initial surface impoundment was clean closed in accordance with closure requirements for surface impoundments prescribed by Title 27. All materials were removed.

34. The initial surface impoundment was constructed with a double liner system for containment of landfill leachate. The design of this system consists of an inner liner, a synthetic drainage layer, and an outer clay liner at least two feet thick. The existing Class II impoundment is immediately south of the Phase II landfill footprint and has a capacity of approximately two million gallons. The waste containment system of the existing Class II impoundment is composed of a double liner system with an intervening LCRS. The primary liner consists of 60 mil HDPE flexible membrane liner material and the secondary liner system is a composite of GCL overlain by 60 mil HDPE flexible membrane liner. The intervening LCRS is composed of geocomposite drainage layer on the 2:1 sideslopes and a 12-inch thick layer of gravel on the floor wrapped in cushion geotextiles. The gravel drainage layer is drained by a series of perforated HDPE pipes that gravity drain to a sump in the southeastern corner of the impoundment. Access to the sump is provided by riser pipe. A permanently installed-pump de-waters the sump. Leachate is recirculated within the impoundment to enhance evaporation.
35. The Discharger has demonstrated that the existing surface impoundment is adequately sized to accommodate the 100-year wet season through the 1994/1995 winter. Prior to each wet season thereafter, the Discharger will submit an Impoundment Capacity Report that certifies that adequate capacity is provided for storage and/or disposal of leachate through the coming wet season. This Report will be certified by a California-registered civil engineer and will be submitted to the Board before October of each year.

CEQA and Other Considerations

36. On 6 July 1989, the Calaveras County Planning Commission adopted a final environmental impact report (EIR) on the project, in accordance with the California Environmental Quality Act (Public Resources Code Section 21000, et. seq.), and the State Guidelines. The project, as approved by the Planning Commission, will not have significant impacts on water quality. The Board has reviewed the final EIR and concurs with the Planning Commission.
37. This order implements:
 - a. The Water Quality Control Plan, Fourth Edition, for the Sacramento River Basin and the San Joaquin Delta Basin (hereafter Basin Plan), which contains beneficial use designations and water quality objections for all waters of the Basin.
 - b. The prescriptive standards and performance goals of Title 27, California Code of Regulations, Division 2, 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; and
 - d. State Water Resources Control Board Resolution No. 93-62, Policy for Regulation of Discharges of Municipal Solids Waste, adopted 17 June 1993.
38. On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated regulation (Title 40, Code of Federal Regulations, Parts 257 and 258, "federal municipal solid waste (MSW) regulations" or "Subtitle D") that apply, in California, to dischargers who own or operate Class II or Class III landfill units at which municipal solid waste (MSWLF) is discharged.

Procedural Requirements

39. 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.
40. On 14 November 1988, the Calaveras County Board of Supervisors passed Resolution No. 88-484 approving a settlement agreement between the Discharger and Stockton East Water District (SEWD). The settlement agreement specifies the Discharger and SEWD perform specific actions to prevent impacts on the proposed Farmington Canal Project.
41. The Board has notified the Discharger and interested agencies and persons of its intention to revise the WDRs for this facility.
42. In a public hearing, the Board heard and considered all comments pertaining to this facility and discharge.

IT IS HEREBY ORDERED that Order No. 97-199 is rescinded and that the Calaveras County Department of Public Works and its agents, assigns, and successors, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

- 1. The discharge of 'hazardous waste' at this facility is prohibited. For the purposes of this Order, the term 'hazardous waste' is as defined in Title 27.

2. The discharge to the landfill units of liquid or semi-solid waste (i.e., waste containing less than 50 percent solids), except dewatered sewage, water treatment sludge, or leachate for dust control as provided in Section 20220 of Title 27, is prohibited.
3. The discharge to the landfill units of solid waste containing free liquid or moisture in excess of the waste's moisture holding capacity is prohibited.
4. The discharge of waste from surface impoundments is prohibited.
5. Except for Class II surface impoundments, the discharge of waste to ponded water from any source is prohibited.
6. The discharge of waste within 50 feet of surface waters is prohibited.
7. 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 structures, is prohibited.

B. DISCHARGE SPECIFICATIONS

GENERAL SPECIFICATIONS

1. Wastes shall only be discharged into, and shall be confined to WMUs specifically designed for their containment and/or treatment.
2. The discharge of liquid and semi-solid waste to the surface impoundments is limited to water from the subdrain beneath the toe of the Phase II-A eastern sideslope liner or leachate contact water from the landfill unit and surface impoundment LCRSs.
3. A minimum separation of 5 feet shall be maintained between waste or leachate and the highest anticipated elevation of underlying ground water including the capillary fringe.
4. Prior to the discharge of waste to a waste management unit, all wells within 500 feet of the unit shall have sanitary seals which meet the requirements of the Calaveras County Health Department 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.

5. Water or leachate used for facility maintenance shall be limited to the minimum amount necessary for dust control and moisture-conditioning soils used for daily and intermediate cover as described in Finding No. 24.

General WMU Construction

6. Clay liners and landfill caps shall have a maximum hydraulic conductivity of 1×10^{-7} cm/sec and a minimum relative compaction of 90 percent. 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 field testing in accordance with the Standard Provisions and Reporting Requirements as described in Provision E.3. Construction methods and quality assurance procedures shall be sufficient to insure that all parts of the liner and cap meet the hydraulic conductivity and compaction requirements.
7. 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 the Board prior to operation. Prior to the beginning of construction for each new construction phase, a Final Design Report shall be submitted to the Board for review and approval and shall include, but not be limited to, the engineered design plans for the WMU, 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 the Board prior to construction of the landfill liner or cap. A final construction report shall be submitted for approval by the Board after each phase of construction and prior to the discharge of waste into the constructed phase. The final construction report shall include, but not be limited to, as-built plans for the WMU, 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.
8. Containment systems installed in those portions of an MSWLF where an engineering analysis shows that sideslopes are too steep to permit construction of a stable composite liner that meets the prescriptive standards shall include an alternative liner on the sideslopes that both meets the performance criteria contained in 40 CFR

- 258.40(a)(1) and (c) and either: (1) is a composite liner and includes as its uppermost component a synthetic liner at least 40-mils thick (or at least 60 mils thick if HDPE) that is installed in direct and uniform contact with the underlying materials; or (2) is not a composite liner, but includes a synthetic liner at least 60-mils thick (or at least 80-mils thick if of HDPE) that is installed in direct and uniform contact with the underlying materials.
9. All containment systems shall include a LCRS which shall convey to an appropriately lined sump or other appropriately lined collection area all leachate which reaches the liner. The LCRS shall not rely upon unlined or clay-lined areas for such conveyance.
 10. LCRSs 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 one foot or more of hydraulic head on the underlying liner at any time.

Protection from Storm Events

11. Precipitation and drainage control systems shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 1000-year, 24-hour precipitation conditions, as described in Finding No. 18 above.
12. Any water that comes in contact with waste shall be considered leachate and shall be collected and routed to a surface impoundment.
13. Annually, prior to the anticipated rainy season but no later than 15 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 erosion or flooding of the facility and to prevent surface drainage from contacting or percolating through wastes. The Discharger shall submit an annual report to the Board of 15 October of each year, describing measures taken to comply with this specification.

Landfill Specifications

14. Municipal solid waste shall be discharged to either (1) that portion of a module which received wastes (i.e. that active portion of the module which is within the boundaries of the Existing Footprint), or (2) to an area equipped with a containment system which meets the additional requirements for both liners and leachate collection systems specified below.
15. All containment systems installed after 9 October 1993 shall either: (1) include a composite liner which consists of an upper synthetic flexible membrane component (synthetic liner or SL) and a lower component of soil. The SL shall be at least 40-mils thick (or at least 60-mils thick if high density polyethylene) and shall be installed in direct and uniform contact with the underlying compacted soil component. The lower component shall be compacted soil that is at least two feet thick and that has an hydraulic conductivity of no more than 1×10^{-7} cm/sec (this specification is referred to as the Prescriptive Design); or (2) an engineered alternative approved by the Board.
16. All containment systems installed prior to 9 October 1993 where wastes have not been discharged and which will accept wastes after 9 October 1993 shall include a composite liner which features as its uppermost component a synthetic liner (SL). The SL shall be at least 40-mils thick (or at least 60-mils thick if high density polyethylene) and shall be installed indirect and uniform contact with the underlying materials. The composite liner shall meet the performance criteria contained in 40 CFR 258.40(a)(1) and (c).
17. New landfill units and lateral expansions shall not be located in wetlands unless the Discharger has successfully completed, and the Board has approved, all demonstrations required for such discharge under 40 CFR 258.12(a).
18. During the rainy season, the landfill shall be operated and graded to minimize leachate generation.
19. Landfill leachate shall be discharged to the Class II surface impoundments. If the leachate is hazardous, then it shall be discharged to a Class I facility.
20. Leachate generation by a landfill unit LCRS shall not exceed 85% of the design capacity of the LCRS or the sump pump. If leachate generation exceeds this value and/or if the depth of fluid in the LCRS sump exceeds 36 inches, then the Discharger shall immediately cease the discharge of sludge and other high-moisture wastes to the

landfill unit and shall notify the Board in writing within seven days. Notification shall include a time table for corrective action necessary to reduce leachate production.

21. The sumps of all subdrains constructed beneath the lined portions of a landfill must be maintained so that no less than five feet of separation exists between wastes and water in the sump at all times.

Surface Impoundment Specifications

22. The surface impoundment shall be designed, constructed, and operated to accommodate landfill leachate developed from a 100-year wet season precipitation and maintain a minimum freeboard of two feet at all times.
23. Leachate generation shall not exceed 930 gallons per day. If this amount is exceeded, the Discharger shall notify the Board in writing within seven days. Notification shall include an assessment of the integrity of the lower liner, and timetable for remedial action, if necessary. The Board may require repair of the upper liner of the impoundment or other action necessary to reduce leachate production.

WMU Closure Specifications

Landfill Closure

24. At closure, the landfill unit shall receive a final cover which is designed and constructed to function with minimum maintenance and consists, at a minimum, of a two-foot thick foundation layer which may contain waste materials, overlain by a one-foot thick clay liner, and finally by a one-foot thick vegetative soil layer, or an engineered equivalent final cover approved by the Board pursuant to Subsections 20080 of Title 27.
25. 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.
26. Closed landfill units shall be graded to at least a three-percent grade and maintained to prevent ponding.

Surface Impoundment Closure

27. At closure of surface impoundments, all residual wastes, including liquids, sludges, precipitates, settled solids, and liner materials and adjacent natural geologic materials contaminated by wastes, shall be completely removed and discharged to a WMU approved by the Board. If after reasonable attempts to remove contaminated natural geologic materials, the Discharger demonstrates that removal of all remaining contamination is infeasible, the impoundment shall be closed as a landfill.
28. If 1) residual wastes are classified as nonhazardous pursuant to Title 22, CCR, Division 4, Chapter 30; 2) containment features of the impoundment meet Class II landfill construction standards and performance goals as defined by Title 27; 3) all liquid waste are removed or treated to eliminate free liquids; and 4) residual moisture does not exceed the moisture-holding capacity of residual wastes, even under closure conditions, a surface impoundment may be closed as a landfill.

C. FINANCIAL ASSURANCE

The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management units. The Discharger shall also establish and maintain an irrevocable closure fund or other means to ensure closure and post-closure maintenance of each waste management unit.

D. 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. 5-01-149, which is attached to and made part of this Order.

E. PROVISIONS

1. The Discharger shall receive approval from the Board before discharging waste to containment areas or waste management units constructed after the effective date of the Order. The Discharger shall submit to the Board all documentation (i.e., reports, plans, designs) required by this Order for review and approval by the Board prior to implementation.
2. The Discharger shall submit to the Board for approval, at least 90 days prior to construction, plans and specifications for Phases II, III, and IV of the facility.

3. Except as specifically modified herein, the Discharger shall comply with the Standard Provisions and Reporting Requirements, dated August 1997, which are hereby incorporated into this Order. The Standard Provisions and Reporting Requirements contain important provisions and requirements with which the Discharge must comply. A violation of any of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.
4. The Discharger shall comply with Monitoring and Reporting Program No. 5-01-149, which is attached to and made part of this Order. A violation of Monitoring and Reporting Program No. 5-01-149 is a violation of these waste discharge requirements.
5. If the MSWLF is located in an unstable area, the Discharger shall demonstrate to the Board that engineering measures have been incorporated into the design of the waste management unit to ensure that the integrity of the structural components of the unit will not be disrupted (40 CFR 258.15). Units which cannot comply with this requirement shall close by 9 October 1996, unless otherwise extended by the Board (40 CFR 258.16).
6. New MSWLF units and lateral expansions shall not be located in wetlands unless the Discharger has successfully completed, and the Board has approved, all demonstrations required for such discharge under 40 CFR 258.12(a).
7. The Discharger shall maintain waste containment facilities and precipitation and drainage controls, and shall continue to monitor ground water, leachate from the landfill unit, the vadose zone, and surface waters per Monitoring and Reporting Program No. 5-01-149 throughout the post-closure maintenance period.
8. The Discharger shall comply with all applicable provisions of Title 27, CCR, Division 2 and 40 CFR, Part 258 that are not specifically referred to in this Order. If there is a conflict either between Title 27 and Part 258, or between this Order, the most stringent requirement shall apply.
9. The Board will review this Order periodically and will revise these requirements when necessary.

F. REPORTING REQUIREMENTS

1. The Discharger shall comply with the reporting requirements specified in this Order, in Monitoring and Reporting Program No. 5-01-149, and in the Standard Provisions and Reporting Requirements which are attached hereto and made part of this Order.

2. Within 120 days of the approval of this Order, the Discharger shall submit an updated closure and post-closure maintenance plan that complies with 40 CFR 258.60 and 258.61, Subdivision 1, Chapter 4 of Title 27.
3. The Discharger shall notify the Board in writing of any proposed change in ownership or responsibility for construction or operation of the MSWLF. 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 Board.
4. The Discharger shall notify the 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 180 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.
5. Within 60 days after completing final closure, the Discharger shall provide proof to the Board 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: (1) the parcel has been used as an MSWLF; (2) land use options for the parcel are restricted in accordance with 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.
6. The Discharger shall submit an annual report to the Board by **15 October** of each year, describing measures taken to comply with the precipitation and drainage control requirements of Discharge Specification B.16.
7. Prior to each wet season thereafter, the Discharger will submit an Impoundment Capacity Report that certifies that adequate capacity is provided for storage and/or disposal of leachate through the coming wet season. This Report will be certified by a California-registered civil engineer and will be submitted to the Board before **15 October**.
8. Prior to the discharge of waste to a waste management unit, a record of the sealing and/or abandonment of any well within 500 feet of the unit shall be sent to the Board and to the State Department of Water Resources.
9. The Discharger shall submit to the Board all documentation (i.e., reports, plans, designs) required by this Order for review and approval by the Board before

discharging waste to containment areas or waste management units constructed after the effective date of the Order.

10. If leachate generation exceeds the requirements of Discharge Specification B.20. and/or if the depth of fluid in the LCRS sump exceeds 36 inches, then the Discharger shall notify the Board in writing within seven days.
11. If leachate generation from the surface impoundment exceeds 930 gallons per day, the Discharger shall notify the Board in writing within seven days.
12. The Discharger shall submit to the Board for approval, at least 90 days prior to construction, plans and specifications for Phases II, III, and IV of the facility.

<u>Task</u>	<u>Compliance Date</u>
a. Construction of new cells for Phases II, III, IV, and new surface impoundment(s)	
(1) Submit revised monitoring system and program	18 months prior to start
(2) Submit design plans, specifications, construction	6 months prior to start
(3) Submit construction quality assurance report for test pad and any modification to design plans, specification, construction schedule, and construction quality assurance plan	2 months prior to beginning construction of liner system
(4) Submit as built plans, construction quality assurance, and closure certification report	1 month prior to the discharge of waste
b. Submit report containing concentration limits for constituents listed with (TBD) in Monitoring and Reporting Program No. 5-01-149 for, ground, surface, and vadose zone water monitoring	1 September 2001
c. Submit construction report for subdrain constructed beneath the toe of the eastern	30 days after completion of construction

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ROCK CREEK FACILITY
CLASS II LANDFILL
CLASS II SURFACE IMPOUNDMENT
CALAVERAS COUNTY

-17-

sideslope of the Phase II-A liner.

I, GARY M. CARLTON, 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 14 June 2001.

original signed by

GARY M CARLTON, Executive Officer

Attachments
PAL

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 5-01-149
FOR
ROCK CREEK FACILITY
CLASS II LANDFILL
CLASS II SURFACE IMPOUNDMENT
CALAVERAS COUNTY

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

Compliance with this Monitoring and Reporting Program, and with the companion Standard Provisions and Reporting Requirements, is ordered by Waste Discharge Requirements Order No. 5-01-149. Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements, constitutes noncompliance 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 noncompliance 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 data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Historical and current monitoring data shall be graphed at least once annually. Graphs for the same constituent shall be plotted at the same scale to facilitate visual comparison of monitoring data. A short discussion of the monitoring results, including notations of any water quality violations shall precede the tabular summaries.

Field and laboratory tests shall be reported in the quarterly monitoring reports. Quarterly monitoring reports shall be submitted to the Board by the **15th day of the month** following the calendar quarter in which the samples were taken. The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Board. An annual report shall be submitted to the Board which contains both tabular and graphical summaries of the monitoring data obtained during the previous year.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those which cannot be quantified and/or specifically identified. Metals shall be analyzed according to the methods listed in Attachment "D".

B. REQUIRED MONITORING REPORTS

1. Water Quality Protection Standard Report

The Discharger submitted a "*Proposed Article 5 Compliance Report*" dated July 1992, a "*Water Quality Protection Standard Report*" dated 22 December 1993, and updated Water Quality Protection Standards on 23 September 1994. Any changes to the water quality protection standard shall be described 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.

4. Constituents-of-Concern (COC) 5 Year Report

The Discharger shall submit reports of the results of groundwater monitoring for the Constituents of Concern every 5 years, or more frequently if required. The groundwater monitoring for COC Report shall alternate between the Fall and Spring seasons. The COC Report may be combined with a Detection Monitoring Report or an Annual Summary Report having a Reporting Period that ends at the same time.

5. Constituents-of-Concern (COC) Leachate Detection Report

The Discharger shall report to the Board by no later than 31 January of a given year the analytical results of the leachate sample taken the previous Fall, including an identification of all detected COCs in Attachment D that are not on the landfill's COC list (non-COCs).

During any year in which a Spring leachate retest is performed, the Discharger shall submit a report to the Board, by no later than **31 July** of that year, identifying all constituents which must be added to the landfill's COC list as a result of having been detected in both the (previous calendar year's) Fall sample and in the Spring retest sample. The parameters shall include volatile organic compounds.

Standard Observations

Each monitoring report shall include a summary and certification of completion of all Standard Observations for the landfill, for the perimeter of the landfill, and for the receiving waters. The standard observations shall be performed on a weekly basis 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 Board finds that there is a statistically significant increase in indicator parameters or waste constituents over the water quality protection standards (established pursuant to Monitoring and Reporting Program No. 5-01-149) at or beyond the Points of Compliance, the Discharger shall notify the Board or acknowledge the 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 Board the results of the resampling 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 a verification monitoring program, per Section 20425 of Title 27, which is designed to verify that water quality protection standards have been exceeded and to determine the horizontal and vertical extent of pollution.

If the Discharger, through an evaluation monitoring program, or the Board verifies that water quality protection standards have been exceeded at or beyond the Points of Compliance, the Discharger shall notify the Board or acknowledge the Board's finding in writing within seven days. Within 180 days, the Discharger shall submit to the 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 achieve compliance with the water quality protection standards.

D. REQUIRED MONITORING PROGRAMS

1. Solid Waste Monitoring Program

Nonhazardous Solid Waste Monitoring

The Discharger shall monitor all wastes discharged to the Class III landfill modules on a monthly basis and report to the Board as follows:

<u>Parameter</u>	<u>Units</u>	<u>Reporting Frequency</u>
Quantity discharged	cubic yards or tons	Semi-annual
Type of material discharged	---	Semi-annual
Source(s) of material discharged	---	Semi-annual
Minimum elevation of discharge	feet & tenths MSL	Semi-annual
Capacity of landfill/module remaining	percent	Annually

2. Liquid and Semi-Solid Waste Monitoring Program

Liquid and Semi-Solid Waste Monitoring

The Discharger shall monitor all wastes discharged to the Class II surface impoundment on a daily basis and report to the Board as follows:

<u>Parameter</u>	<u>Report in Units of</u>	<u>Frequency of Reporting</u>
Quantity discharged	gallons	Semi-annual
Type of material discharged	---	Semi-annual
Source(s) of material discharged	---	Semi-annual
Minimum freeboard	feet & tenths	Semi-annual

In addition, grab samples of impoundment contents shall be taken and analyzed for the parameters and constituents listed below under "LEACHATE MONITORING" (with the exception of flow rate) at the frequencies indicated thereunder.

3. Detection Monitoring Program

For each monitored medium, all Monitoring Points assigned to detection monitoring, and all Background Monitoring points shall be monitored once each calendar quarter for the Monitoring Parameters listed in this Program.

For any given monitored medium, 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.

Groundwater sampling shall also include an accurate determination of the groundwater surface elevation and field parameters (pH, temperature, electrical conductivity, turbidity) for that

Monitoring Point or Background Monitoring Point. Groundwater elevations taken prior to purging the well and sampling for Monitoring Parameters shall be used to fulfill the groundwater gradient/direction analyses required. For each monitored groundwater body, the Discharger shall measure the water level in each well and determine groundwater gradient and direction at least quarterly, including the times of expected highest and lowest elevations of the water level for the respective groundwater body. Groundwater elevations for all background and downgradient 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. This information shall be included in the quarterly monitoring reports.

Statistical or non-statistical analysis should be performed as soon as the monitoring data are available.

4. Leachate Monitoring Program

All landfill modules, leachate collection and removal systems (LCRS) sumps, and subdrains shall be inspected daily for leachate or liquid generation. Upon detection of leachate or liquid in a previously dry LCRS or subdrain the Discharger shall immediately sample the leachate or liquid and shall continue to sample the leachate or liquid and report the results at the frequencies listed in Table I thereafter. Leachate monitoring will be incorporated into all future expansions at the landfill.

All LCRS shall be tested annually to demonstrate operation in conformance with waste discharge requirements. The results of these tests shall be reported to the Board and shall include comparison with earlier tests made under comparable conditions. All visible portions of synthetic liners shall be inspected on a quarterly basis and their condition reported quarterly to the Board.

Leachate samples shall be collected from the following four locations:

- (a) the landfill leachate collection sump outfall just above the leachate impoundment;
- (b) the Class II leachate impoundment; and
- (c) the Class II leachate impoundment sump.
- (d) the subdrain beneath the liner of the Phase II-A landfill.
- (e) the subdrain sump beneath the liner at the toe of the Phase II-A landfill eastern sideslope.

TABLE I - LEACHATE MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Total Flow	gallons	Monthly
Flow Rate	gallons/day	Monthly
Specific Conductance	mhos/cm	Monthly
pH	pH units	Monthly
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Semi-annually
Chlorides	mg/L	Semi-annually
Sulfates	mg/L	Semi-annually
Nitrate - Nitrogen	mg/L	Semi-annually
Constituents of Concern		
Total Organic Carbon	mg/L	Annually
Carbonate	mg/L	Annually
Bicarbonate Alkalinity	mg/L	Annually
Volatile Organic Compounds (EPA Method 8260, see Attachment D)	$\mu\text{g/L}$	Annually
Semi-Volatile Organic Compounds (EPA Method 8270, see Attachment D)	$\mu\text{g/L}$	Annually
Organochlorine Pesticide, PCBs (EPA Method 8080)	$\mu\text{g/L}$	Annually
Chlorophenoxy Herbicides (EPA Method 8150)	$\mu\text{g/L}$	Annually
Organophosphorus Compounds (EPA Method 8140)	$\mu\text{g/L}$	Annually
Inorganics (dissolved) (see Attachment D for Method)	mg/L	Annually

5. Groundwater Monitoring

Field and laboratory tests shall be reported in the quarterly monitoring reports. All Monitoring Parameters shall be graphed so as to show historical trends at each well.

The groundwater surface elevation (in feet and hundredths, M.S.L.) in all wells shall be measured on a quarterly basis and used to determine the velocity and direction of groundwater flow. This information shall be displayed on a water table contour map and/or groundwater flow net for the site and submitted with the quarterly monitoring reports.

The monitoring network for Phase I and Phase II shall consist of "background" monitoring wells, U-1 and U-2 and downgradient monitoring wells D-1, D-3, D-4, D-8, D-9, and HP-3. Wells D-1, D-3, D-4, D-8, D-9, and HP-3 shall constitute the "points of compliance" with respect to groundwater. The locations of these wells are shown on Attachment "B". Any additional monitoring wells constructed at the site shall be added to the monitoring network. Samples shall be collected from all installed wells at the frequency and for the parameters specified in Table II.

The Discharger shall determine at each sampling whether there is a statistically significant increase over water quality protection standards for each parameter and constituent analyzed.

Existing groundwater monitoring well D-2 will be decommissioned in accordance with California Division of Water Resources Bulletin 74-81 *Water Well Standards*.

TABLE II- GROUNDWATER MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters*		
Temperature	°C	Semi-annually
Groundwater Elevation	Ft. & hundredth. MSL	Semi-annually
Specific Conductance	µmhos/cm	Semi-annually
pH	pH units	Semi-annually
Turbidity	Turbidity Units	Semi-annually
Monitoring Parameters*		
Total Dissolved Solids (TDS)	mg/L	Semi-annually
Chlorides	mg/L	Semi-annually
Sulfates	mg/L	Semi-annually
Nitrate - Nitrogen	mg/L	Semi-annually
Volatile Organic Compounds (EPA Method 8260, see Attachment C)	mg/L	Semi-annually
Constituents of Concern		
Total Organic Carbon	mg/L	5 years
Carbonate	mg/L	5 years
Bicarbonate Alkalinity	mg/L	5 years
Total Alkalinity	mg/L	5 years
Volatile Organic Compounds (EPA Method 8260, see Attachment D)	µg/L	5 years
Semi-Volatile Organic Compounds (EPA Method 8270)	µg/L	5 years
Organochlorine Pesticide, PCBs (EPA Method 8080)	µg/L	5 years
Chlorophenoxy Herbicides (EPA Method 8150)	µg/L	5 years
Organophosphorus Compounds (EPA Method 8140)	µg/L	5 years
Inorganics (dissolved) (see Attachment D for Method)	mg/L	5 years
Chemical Oxygen Demand	mg/L	5 years

* If a new well is added to the monitoring network, it shall be monitored **quarterly until at least eight quarters** of data have been collected to determine new concentration limits.

6. Surface Water Monitoring

Surface water flows from on and around the WMU shall be sampled at the points where they leave the facility boundary, as shown on Attachment B, during the first storm of the rainy season which produces significant flows and quarterly thereafter when water is present. Downstream surface water samples shall be sampled during the first storm of the rainy season which produces significant flows and quarterly when water is present. Samples shall be collected from all stations and analyzed at the frequency and for the monitoring parameters specified in Table III.

Surface water monitoring reports shall be submitted with the corresponding quarterly groundwater monitoring and shall include evaluation of potential impacts of the facility on surface water quality and compliance with the Water Quality Protection Standard.

TABLE III - SURFACE WATER MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters*		
Temperature	°C	Semi-annually
Specific Conductance	µmhos/cm	Semi-annually
pH	pH units	Semi-annually
Turbidity	Turbidity units	Semi-annually
Monitoring Parameters*		
Total Suspended Solids (TSS)	mg/L	Semi-annually
Total Dissolved Solids (TDS)	mg/L	Semi-annually
Chlorides	mg/L	Semi-annually
Sulfates	mg/L	Semi-annually
Nitrate - Nitrogen	mg/L	Semi-annually
Constituents of Concern		
Total Organic Carbon	mg/L	5 years
Carbonate*	mg/L	5 years
Bicarbonate Alkalinity	mg/L	5 years
Total Alkalinity*	mg/L	5 years
Chemical Oxygen Demand	mg/L	5 years
Dissolved Oxygen	mg/L	5 years
Oil and Grease	mg/L	5 years
Inorganics (total recoverable metals) (see Attachment D for Method)	mg/L	5 years

* If a new well is added to the monitoring network, it shall be monitored **quarterly until at least eight quarters** of data have been collected to determine new concentration limits.

7. Unsaturated Zone Monitoring

The unsaturated zone monitoring network shall consist of a background pressure/vacuum lysimeter, two downgradient lysimeters, pan lysimeter, and the subdrain outlet, which shall constitute the points of compliance with respect to soil-pore liquid. Existing lysimeters L-3 and L-4 will be decommissioned in accordance with California Division of Water Resources Bulletin 74-81 *Water Well Standards*. Soil-pore liquid samples shall be analyzed at the frequency and for the monitoring parameters specified in Table IV.

Unsaturated Zone monitoring reports shall be submitted with the corresponding quarterly groundwater monitoring and shall include evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

The Discharger shall determine at each sampling whether there is a statistically significant increase over water quality protection standards for each parameter and constituent analyzed.

TABLE IV - UNSATURATED ZONE MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters*	μ mhos/cm	Semi-annually
Specific Conductance	pH units	Semi-annually
pH		
Monitoring Parameters*	mg/L	Semi-annually
Total Dissolved Solids (TDS)	mg/L	Semi-annually
Chloride	mg/L	Semi-annually
Sulfate	mg/L	Semi-annually
Nitrate - Nitrogen		
Constituents of Concern	mg/L	5 years
Total Organic Carbon	mg/L	5 years
Carbonate	mg/L	5 years
Bicarbonate Alkalinity	mg/L	5 years
Total Alkalinity	μ g/L	5 years
Volatile Organic Compounds (EPA Method 8260)	μ g/L	5 years
Semi-Volatile Organic Compounds (EPA Method 8270)	μ g/L	5 years
Organochlorine Pesticide, PCBs (EPA Method 8080)	μ g/L	5 years
Chlorophenoxy Herbicides (EPA Method 8150)	μ g/L	5 years
Organophosphorus Compounds (EPA Method 8140)	μ g/L	5 years
Inorganics (dissolved) (see Attachment D for Method)		

* If a new well is added to the monitoring network, it shall be monitored **quarterly until at least eight quarters** of data have been collected to determine new concentration limits.

E. WATER QUALITY PROTECTION STANDARD

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

Constituents of Concern;
Concentration Limits;
Monitoring Points;
Points of Compliance; and
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 Table I, II, III, and IV (above), the Waste Discharge Requirements Order NO. 95-047 and all constituents listed in Attachment “D”. The Constituents of Concern shall be for water-bearing media (i.e., groundwater and surface water). The Discharger shall monitor all COCs every five years under the detection monitoring program, or more frequently as required under evaluation monitoring. For each monitoring period, the Discharger shall determine whether there is statistically significant evidence of a release from the landfill and whether the landfill is in compliance with the Water Quality Protection Standard using procedures specified in Section 20415 of Title 27.

2. Concentration Limits

The Concentration Limit for any given Constituent of Concern or Monitoring Parameter in a given monitored medium (i.e., the uppermost aquifer) at a landfill shall be as follows, and shall be used as the basis of comparison with data from the Monitoring Points in that monitored medium:

- a. The background value established in the Monitoring and Reporting Program for that constituent and medium; or
- b. The constituent’s background value, established anew during each Reporting Period using only data from all samples collected during that Reporting Period from the Background Monitoring Points for that monitored medium. Either:
 - (1) The mean (or median, as appropriate) and standard deviation (or other measure of central tendency, as appropriate) of the constituent’s background data; or

- (2) The constituent's MDL, in cases where less than 10% of the background samples exceed the constituent's MDL; or
- c. A concentration limit greater than background, as approved by the Board for use during or after corrective action.

If subsequent upstream surface water sampling indicated significant water quality changes due to either season fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of these water quality protection standards.

The Discharger has demonstrated that natural spatial variations in water quality between the background wells and among all groundwater monitoring wells exists. Where spatial variations exist, it is inappropriate to designate a single well (or group of wells) as background. Where spatial variation exist, intrawell comparisons should be made instead of using a single well as background. Each downgradient well (D-1, D-4, D-3, D-8, and D-9) shall function as its own background for the detection monitoring program. Well HP-3 is the only well which monitors groundwater in the greenstone conglomerate unit and shall also function as its own background.

Concentration limits for inorganic constituents were calculated using the tolerance interval method and the pooled historical analytical data for each well. Concentration limits for surface water and the unsaturated zone will be determined when sufficient data is available.

GROUNDWATER CONCENTRATION LIMITS

CONSTITUENT	UNITS	D-1	D-3	D-4	D-8	D-9	HP-3
Monitoring Parameters							
Specific Conductance	µmhos/cm	290	350	580	TBD	TBD	1200
pH	pH units	6.2-7.9	6.3-8.2	5.7-7.2	TBD	TBD	6.3-7.5
Turbidity	NTU	20	23	250	TBD	TBD	11
Solids, total dissolved	mg/L	210	240	390	TBD	TBD	780
Chloride	mg/L	8.9	17	11	TBD	TBD	15
Sulfate	mg/L	20	20	180	TBD	TBD	110
Nitrate (as NO ₃)	mg/L	18	8.4	2.0	TBD	TBD	NE
Constituents of Concern							
Total organic carbon	mg/L	NE	NE	NE	TBD	TBD	NE
Alkalinity, carbonate	mg/L	MDL	MDL	NE	TBD	TBD	MDL
Alkalinity, bicarbonate	mg/L	89	110	NE	TBD	TBD	570
Alkalinity, total	mg/L	89	110	NE	TBD	TBD	570
Volatile organics	µg/L	MDL	MDL	MDL	TBD	TBD	MDL
Semivolatile organics	µg/L	MDL	MDL	MDL	TBD	TBD	MDL
Organochlorine pesticides	µg/L	MDL	MDL	MDL	TBD	TBD	MDL
Chlorophenoxy herbicides	µg/L	MDL	MDL	MDL	TBD	TBD	MDL
Organophosphorous	µg/L	MDL	MDL	MDL	TBD	TBD	MDL
Aluminum, dissolved	mg/L	2.3	1.8	NE	TBD	TBD	0.51
Arsenic dissolved	mg/L	MDL	MDL	NE	TBD	TBD	NE
Barium, dissolved	mg/L	NE	MDL	NE	TBD	TBD	NE
Total Chromium (III+VI)	mg/L	NE	NE	NE	TBD	TBD	NE
Chromium (VI)	mg/L	MDL	NE	NE	TBD	TBD	MDL
Iron, dissolved	mg/L	NE	NE	NE	TBD	TBD	1.5
Lead, dissolved	mg/L	NE	MDL	NE	TBD	TBD	NE
Manganese, dissolved	mg/L	NE	1.1	NE	TBD	TBD	0.41
Nickel, dissolved	mg/L	MDL	MDL	NE	TBD	TBD	MDL
Vanadium, dissolved	mg/L	MDL	MDL	MDL	TBD	TBD	NE

NE: Concentration limit not established due too low level of confidence reported by statistical method.

MDL: Method detection limit

TBD: Concentration limits will be determined when sufficient data are available.

SURFACE WATER CONCENTRATION LIMITS

CONSTITUENT	UNITS	RO-1
Monitoring Parameters		
Specific Conductance	μmhos/cm	490
pH	pH units	5.6-8.9
Turbidity	NTU	280
Solids, total dissolved	mg/L	730
Solids, total suspended	mg/L	780
Chloride	mg/L	28
Sulfate	mg/L	110
Nitrate (as NO ₃)	mg/L	46
Constituents of Concern		
Total organic carbon	mg/L	24
Chemical oxygen demand	mg/L	NE
Alkalinity, carbonate	mg/L	MDL
Alkalinity, bicarbonate	mg/L	110
Alkalinity, total	mg/L	110
Oxygen, dissolved	mg/L	NE
Oil and grease	mg/L	NE
Aluminum	mg/L	39
Arsenic	mg/L	NE
Barium	mg/L	3.2
Total Chromium (III + VI)	mg/L	1.1
Chromium (VI)	mg/L	MDL
Iron	mg/L	91
Lead	mg/L	0.13
Manganese	mg/L	3.3
Mercury	mg/L	MDL
Nickel	mg/L	1.0
Selenium	mg/L	MDL
Thallium	mg/L	MDL
Vanadium	mg/L	NE
Zinc	mg/L	1.6

VADOSE ZONE CONCENTRATION LIMITS

CONSTITUENT	UNITS	L-1R	L-2R	GPL-1
Monitoring Parameters				
Specific Conductance	µmhos/cm	TBD	TBD	TBD
pH	pH units	TBD	TBD	TBD
Solids, total dissolved	mg/L	TBD	TBD	TBD
Chloride	mg/L	TBD	TBD	TBD
Sulfate	mg/L	TBD	TBD	TBD
Nitrate (as NO ₃)	mg/L	TBD	TBD	TBD
Constituents of Concern				
Total organic carbon	mg/L	TBD	TBD	TBD
Alkalinity, carbonate	mg/L	TBD	TBD	TBD
Alkalinity, bicarbonate	mg/L	TBD	TBD	TBD
Alkalinity, total	mg/L	TBD	TBD	TBD
Volatile organics	µg/L	MDL	MDL	MDL
Semivolatile organics	µg/L	MDL	MDL	MDL
Organochlorine pesticides, PCB	µg/L	MDL	MDL	MDL
Chlorophenoxy herbicides	µg/L	MDL	MDL	MDL
Organophosphorous	µg/L	MDL	MDL	MDL
Aluminum	mg/L	TBD	TBD	TBD
Arsenic	mg/L	TBD	TBD	TBD
Barium	mg/L	TBD	TBD	TBD
Total Chromium (III + VI)	mg/L	TBD	TBD	TBD
Chromium (VI)	mg/L	TBD	TBD	TBD
Iron	mg/L	TBD	TBD	TBD
Lead	mg/L	TBD	TBD	TBD
Manganese	mg/L	TBD	TBD	TBD
Nickel	mg/L	TBD	TBD	TBD
Vanadium	mg/L	TBD	TBD	TBD

MDL: Method detection limit

TBD: Concentration limits will be determined when sufficient data are available.

3. Monitoring Points

Monitoring Points (including background) for groundwater detection monitoring shall be those listed in this Monitoring and Reporting Program and shown on Attachment B.

Groundwater: U-1, U-2, D-1, D-3, D-4, D-8, D-9, and HP-3
Surface Water: RO-1
Vadose Zone: L-1R, L-2R, GP-1, and L-5

4. Points of Compliance

The Points of Compliance shall be those listed in this Monitoring and Reporting Program and shown on Attachment B.

Groundwater: D-1, D-3, D-4, D-8, D-9, and HP-3
Surface Water: RO-1
Vadose Zone: L-1R, L-2R, and GP-1

5. Compliance Period

The Compliance period is the number of years equal to the active life of the landfill plus the closure period. Each time the Water Quality Protection Standard is exceeded (i.e., a release is discovered), the landfill begins a Compliance Period on the date the 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 landfill has been in continuous compliance for at least three consecutive years.

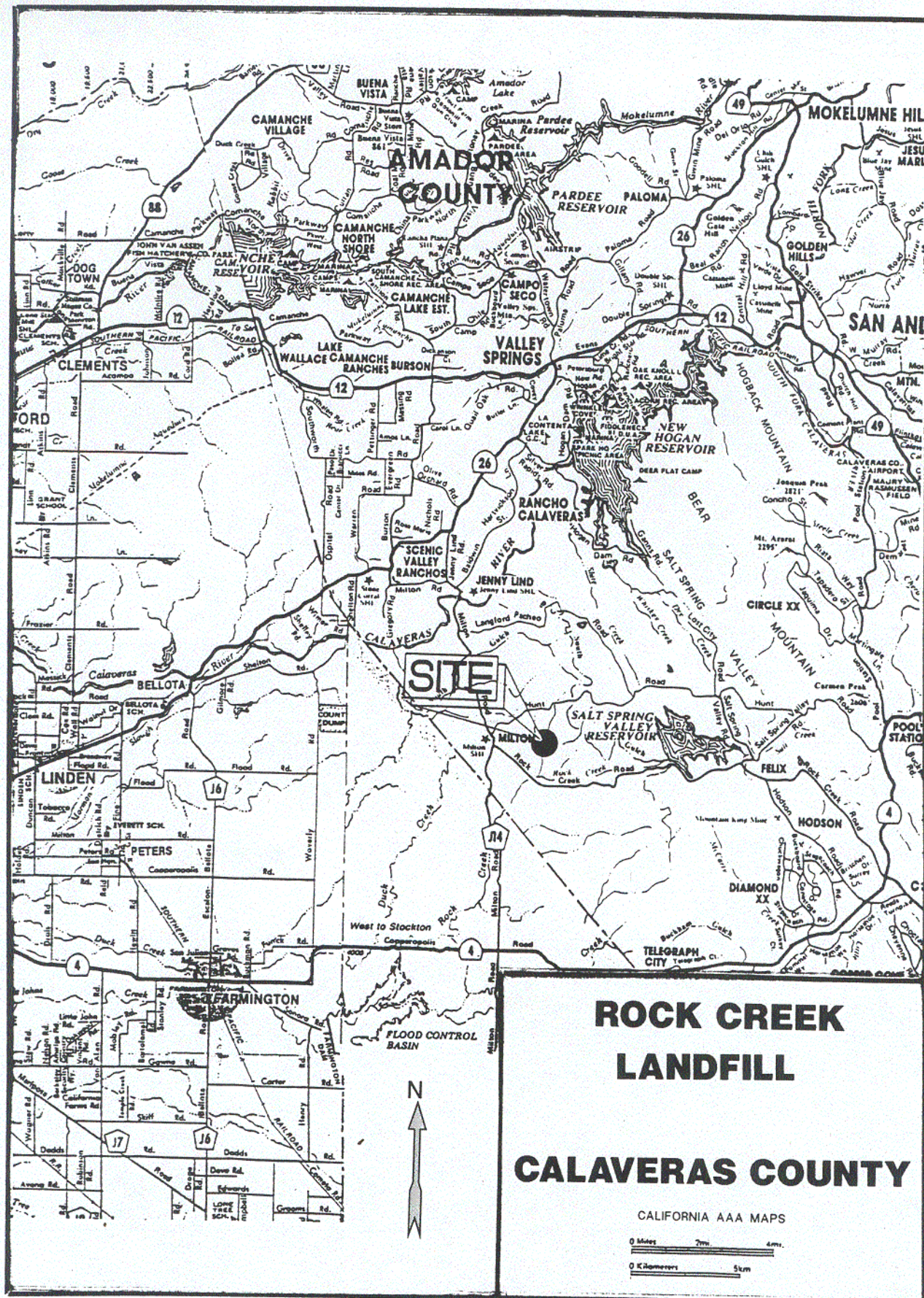
Statistical Procedures for Determining Significant Increases

The significance of increases in indicator parameters and waste constituents over water quality protection standards shall be established using the statistical procedures described in Section 20420 of Title 27 or a method agreeable to the Discharger and the Board.

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

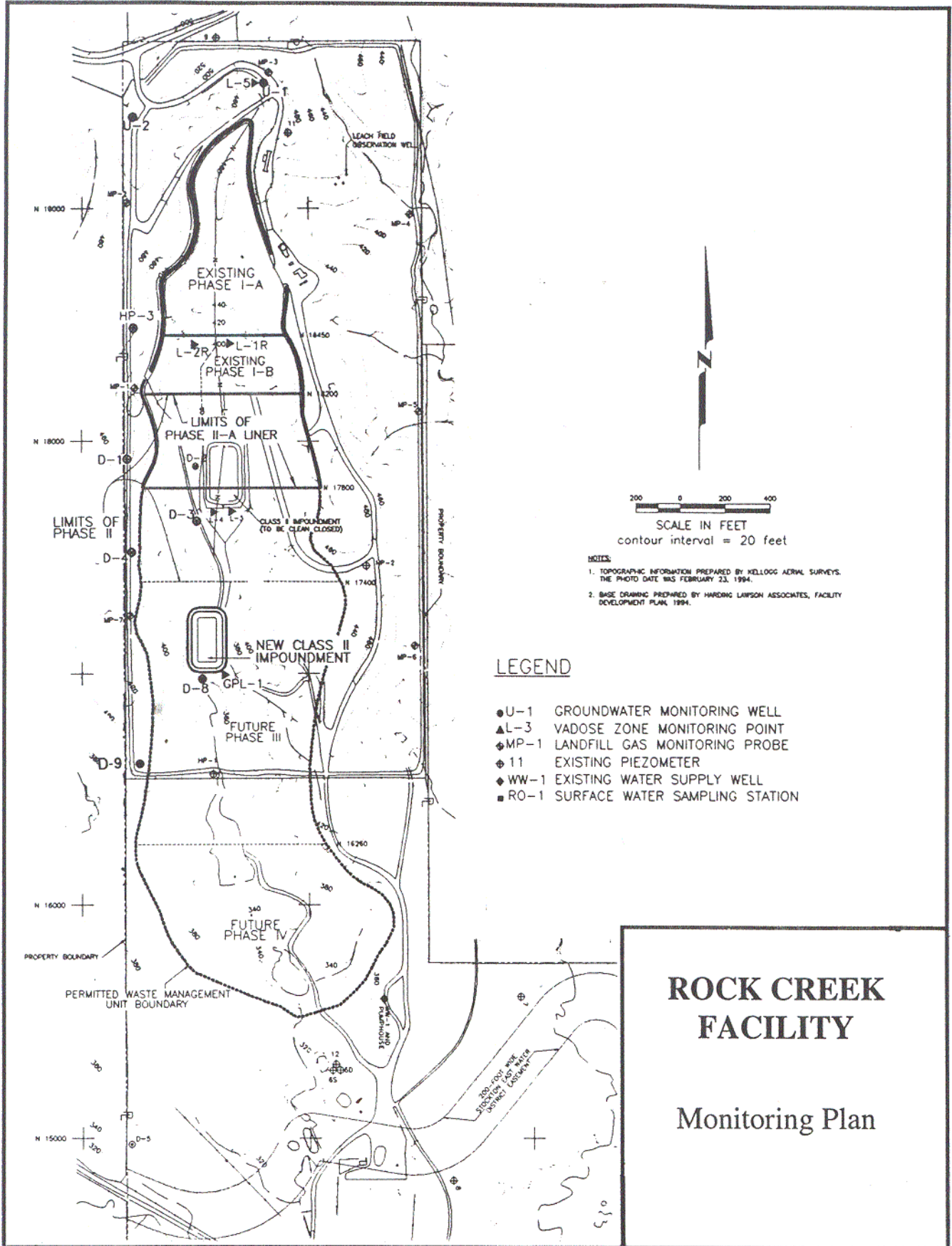
Ordered By: original signed by
GARY M. CARLTON, Executive Officer
14 June 2001
(Date)

PAL



**ROCK CREEK
LANDFILL
CALAVERAS COUNTY**

CALIFORNIA AAA MAPS
0 Miles 2mi 4mi.
0 Kilometers 5km



SCALE IN FEET
contour interval = 20 feet

- NOTES:**
1. TOPOGRAPHIC INFORMATION PREPARED BY HELLOGG AERIAL SURVEYS. THE PHOTO DATE WAS FEBRUARY 23, 1994.
 2. BASE DRAWING PREPARED BY HARDING LAWSON ASSOCIATES, FACILITY DEVELOPMENT PLAN, 1994.

LEGEND

- U-1 GROUNDWATER MONITORING WELL
- ▲ L-3 VADOSE ZONE MONITORING POINT
- ◆ MP-1 LANDFILL GAS MONITORING PROBE
- ◆ 11 EXISTING PIEZOMETER
- ◆ WW-1 EXISTING WATER SUPPLY WELL
- RO-1 SURFACE WATER SAMPLING STATION

**ROCK CREEK
FACILITY**

Monitoring Plan

Attachment C

MONITORING PARAMETERS FOR DETECTION MONITORING

Surrogates for Metallic Constituents:

pH
Total Dissolved Solids
Specific Conductivity
Chloride
Sulfate
Nitrate nitrogen

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

Acetone
Acrylonitrile
Benzene
Bromochloromethane
Bromodichloromethane
Bromoform (Tribromomethane)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
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)

Attachment C (continued)

Methyl iodide (Iodomethane)
4-Methyl-2-pentanone (Methyl isobutylketone)
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)
Trichlorofluoromethane (CFC-11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride
Xylene

Attachment D

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Inorganics (by USEPA Method):

Aluminum	6010
Antimony	6010
Barium	6010
Beryllium	6010
Cadmium	6010
Chromium	6010
Chromium VI ⁺	7197
Cobalt	6010
Copper	6010
Iron	6010
Manganese	6010
Silver	6010
Tin	6010
Vanadium	6010
Zinc	6010
Arsenic	7061
Lead	7421
Mercury	7470
Nickel	7520
Selenium	7741
Thallium	7841
Cyanide	9010
Sulfide	9030

Report all peaks identified by the EPA test methods. Ground water and leachate samples shall be analyzed and reported as dissolved. Surface water samples shall be analyzed and reported as total recoverable metals as specified in EPA-600/4-79-020 dated March 1993. Unsaturated zone water samples shall be analyzed and reported as totals.

Volatile Organics (USEPA Method 8260):

Acetone
Acetonitrile (Methyl cyanide) Acrolein
Acrylonitrile
Allyl chloride (3-Chloropropene)
Benzene
Bromochloromethane (Chlorobromomethane)

Attachment D (continued)

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)
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)

Attachment D (continued)

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 8270 - base, neutral, & acid extractables):

Acenaphthene
Acenaphthylene
Acetophenone
2-Acetylaminofluorene (2-AAF)
Aldrin
4-Aminobiphenyl
Anthracene
Benzo[a]anthracene (Benzanthracene)
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[g,h,i]perylene
Benzo[a]pyrene
Benzyl alcohol
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)
Bis(2-ethylhexyl) phthalate
4-Bromophenyl phenyl ether

Attachment D (continued)

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
Diallate
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
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

Attachment D (continued)

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
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

Attachment D (continued)

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 8141):

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

Chlorinated Herbicides (USEPA Method 8150):

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)

INFORMATION SHEET

ROCK CREEK FACILITY
CLASS II LANDFILL
CLASS II SURFACE IMPOUNDMENT
CALAVERAS COUNTY

The 200-acre facility is 2/3 of a mile east of Milton in Calaveras County. The facility consists of a Class II landfill, which is being constructed in four phases. Each phase will include a surface impoundment for leachate storage and evaporative disposal. Phase 1-A, consisting of a 6.1-acre Class II landfill and a 2.4 million gallon surface impoundment, was constructed in 1990 and began receiving wastes in October 1990. Phase 1-B was constructed in 1994 and began accepting wastes in October 1994. Waste Discharge Requirements (WDRs) Order No. 97-199 reflects the expansion of the Class II landfill as Phase II-B, the clean closure of the Class II surface impoundment, and the design and construction of a new Class II surface impoundment.

The facility accepts municipal solid waste, ash, sewage treatment sludge, petroleum contaminated soil, and miscellaneous materials. These wastes are classified as "nonhazardous solid waste" or "designated waste", using the criteria set forth in Title 27.

The Stockton East Water District's (SEWD) proposed Farmington Canal Project crosses the Rock Creek Facility at the downstream, southerly end of the project site. The canal would pass approximately 400 feet from the southernmost extremity of the ultimate placement of waste and would cross over the existing site creek in a flume or other structure which would physically separate the two streams of water. The beneficial uses of the water conveyed by the proposed canal include agricultural and domestic use.

The Calaveras County Board of Supervisors passed Resolution No. 88-484 on 14 November 1988 approving a settlement agreement between the Discharger and SEWD. The settlement agreement specifies the Discharger and the District perform specific actions to prevent impacts on the proposed Farmington Canal Project.

The facility receives a yearly average rainfall of 19.42 inches as measured at the New Hogan Dam. The mean evaporation for this facility is 7.5 inches as measured at the New Hogan Dam.

The Tertiary Aged Valley Springs Formation is the predominate geologic formation at the site and consists of boulder sized gravels, sands, silts, and clays. The soils immediately underlying the WMUs are a light brown and gray silty sand and a red brown sandy silty clay.

Phase 1-A was lined with a minimum thickness of 24 inches of compacted clay with a permeability of 1×10^{-6} cm/sec. The compacted clay was overlain with a vapor barrier and blanket LCRS. Leachate from the Phase 1-A LCRS gravity drains to the Class II surface impoundment. Phase 1-B was lined with a composite liner system consisting of compacted clay of minimum thickness 24 inches with a maximum permeability of 1×10^{-7} cm/sec. The clay liner was overlain by a 60-mil HDPE liner. The composite liner was overlain by a one foot thick blanket LCRS.

The Discharger has petitioned the Board to allow the use of the geosynthetic clay liner (GCL) material in the composite liner system as an engineered alternative to the prescriptive standard (2-foot

INFORMATION SHEET
ROCK CREEK FACILITY
CLASS II LANDFILL
CLASS II SURFACE IMPOUNDMENT
CALAVERAS COUNTY

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compacted clay with a maximum permeability of 1×10^{-7} cm/s) for the Phase II-B landfill expansion and construction of the new surface impoundment. The Discharger's petition demonstrated that the proposed design would provide equivalent protection and that application of the prescriptive standard was unnecessarily burdensome.

The Discharger submitted a *Final Design Report for the Phase II-A Liner System and Impoundment* in March 1997, which included construction plans and specifications, construction quality assurance, and slope analysis for the project. The Discharger submitted a *Revised Construction Detail for Phase II-A Sideslope Liner Section* dated 9 February 2001 to address water which was found beneath the liner section along the eastern sideslope of the Phase II-A landfill. These WDRs revise WDRs Order No. 97-199 to include the revised construction details for the Phase II-A sideslope liner.

Site drainage is to Rock Creek which flows into Littlejohns Creek, a tributary of the San Joaquin River.

PAL