JOINT TECHNICAL DOCUMENT
VOLUME 1 OF 2

REPORT OF DISPOSAL SITE INFORMATION
REPORT OF WASTE DISCHARGE

ROCK CREEK SOLID WASTE FACILITY
CALAVERAS COUNTY, CALIFORNIA

Prepared for

Calaveras County Department of Public Works
891 Mountain Ranch Road
San Andreas, California 95249

June 2005

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Project 112242

Joint Technical Document
Rock Creek Solid Waste Facility
Calaveras County, California

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1 PROJECT DESCRIPTION

1.1 Introduction

The County of Calaveras (County) owns and operates the Rock Creek Solid Waste Facility (Facility). The Facility is located approximately 2/3 mile directly east of the town of Milton, California in Sections 11 and 14, T2N, R10E, MDB&M. The Facility resides on a 200-acre parcel and is comprised of Assessor's Parcel Numbers 50-025-15 and 50-029-20.

The Facility includes a material recovery and transfer center (transfer station), household hazardous waste collection facility, Class II landfill, and Class II surface impoundment for storage and evaporation of leachate. The Facility is currently permitted to accept up to 500 tons-per-day of designated Class II and III waste. The current average daily tonnage is approximately 125 tons-per-day.

The Facility is regulated by Waste Discharge Requirements (WDR) Order No. 5-01-149, dated June 14, 2001, issued by the Central Valley Regional Water Quality Control Board (CVRWQCB). Tentative WDRs that will incorporate the proposed modifications outlined herein will be considered by the CVRWQCB on June 23, 2005. The WDRs reflect the development of the site in four phases (I-IV), which includes current disposal operations in Phases I-A, I-B and II-A and future operations in Phases II-B, III and IV. The disposal operations are also permitted under Solid Waste Facility Permit No. 05-AA-0023, issued from the County of Calaveras Department of Environmental Health, dated April 14, 2000. The site was originally permitted based on an Environmental Impact Report prepared for the Facility and adopted by the Calaveras County Planning Commission in July 1989.

Approximately 61.4 acres of the 200 acre facility are permitted for waste treatment, storage, and disposal activities. Leachate generated within the base liner construction phases is conveyed to a Class II surface impoundment for disposal using evaporation. Phase I covers a 10-acre area and is partially filled and inactive. Phase II-A is currently active and Phase II-B is schedule for construction in late 2005.

1.1.1 Joint Technical Document Requirements

Landfills within the State of California are primarily regulated by two state agencies: the State Water Resources Control Board (SWRCB) (and its nine regional water quality control boards [RWQCB]) and the California Integrated Waste Management Board (CIWMB). The CIWMB's regulatory activities are normally implemented by a local regulatory agency referred to as a Local Enforcement Agency (LEA). Historically, these agencies have administered regulations as promulgated in the California Code of Regulations (CCR) Title 23 and Title 14, respectively. Title 23 required landfill operators to submit a Report of Waste Discharge (ROWD) to the RWQCB in order for the site to receive or revise Waste Discharge Requirements (WDRs). Likewise, Title 14 required landfill operators to submit a Report of Disposal Site Information (RDSI) to the LEA/CIWMB in order for the site to receive or revise a Solid Waste Facility Permit (SWFP).

On September 8, 1993, the California State Legislature passed AB 1220 which required the CIWMB and SWRCB to eliminate regulatory overlap, develop a streamlined permitting process, and consolidate primary solid waste disposal facility regulations into one area within the CCR. AB 1220 was signed into law October 1, 1993. After a joint effort by these agencies, input from other agencies and the public, and an environmental impact review, Title 27 Division 2 became effective on July 18, 1997. Title 27 thus addressed the requirements of AB 1220 by merging the solid waste disposal facility regulations of Title 14 and 23 into one set of regulations and clarifying the roles of the RWQCB, the CIWMB, and the LEA.

The SWRCB, through Title 27 Section 21585 (27 CCR 21585), requires landfill operators to submit a ROWD in the form of a Joint Technical Document (JTD) as part of the application process for receiving WDRs from the applicable RWQCB. Likewise, the CIWMB, per 27 CCR 21590, requires landfill operators to submit a RDSI in the form of a JTD as part of the application process for receiving a Solid Waste Facilities Permit from the applicable LEA and the CIWMB. The JTD must include an index specifically for use by the LEA/CIWMB to review the JTD for compliance with RDSI requirements listed in 27 CCR 21600. Similarly, the JTD is to include an index (following the format provided by the RWQCB) to review the JTD for compliance to 27 CCR 20240 et seq. which specifies ROWD requirements. A CIWMB index for the JTD is included in this report as Table 1. A SWRCB index is included as Table 2. The JTD is updated every five years with current site information and before implementing any significant design or operational changes.

Although the RWQCB, CIWMB, and LEA are the primary regulatory agencies requiring detailed site information for the Facility, as described in Section 1.1.3, other regulatory agencies also have a role in the operations of the site. The Calaveras County Air Pollution Control District (CCAPCD) issues permits for landfill air emission sources. The Department of Toxic Substances Control (DTSC), as permitted through the local Certified Unified Program Agency (CUPA), issues a permit for the collection and storage of hazardous waste and materials. The County of Calaveras Department of Weights and Measures certifies facility weight scales. The County of Calaveras Building Department issues required facility building permits. Other agencies, such as the Occupational Safety and Health Administration (OSHA), govern facility operations through general CCR code sections. In addition, due to the current total in place refuse design volume, the site is also regulated under the EPA New Source Performance Standards/Emission Guidelines for landfill gas emission control, as administered by the Calaveras County Air Pollution Control District.

1.1.2 Purpose

This Joint Technical Document (JTD) is being submitted to revise the current WDRs for approval of the proposed Phase II-B base liner construction. The County needs Phase II-B to be placed in service no later than April 2006 to accommodate the incoming refuse stream. This required service date is a full year earlier than the County had originally projected and as indicated in WDRs No. 5-01-149. This expedited schedule is a result of higher than anticipated waste disposal rates during the past five years due to unforeseen growth within the County.

On January 27, 2005, the County met with the CVRWQCB to discuss the process that would be required to revise the WDRs to accommodate the construction of Phase II-B. This meeting resulted in a letter from the County to the CVRWQCB, dated January 31, 2005, (Appendix A). This letter contained the estimated schedule for submittals, a liner performance demonstration letter, and a proposed outline for the required amended ROWD to update the WDRs for Phase II-B.

Based on a response letter from the RWQCB, dated February 7, 2005 (Appendix A), the RWQCB staff concurred with the proposed process and requested that an amended ROWD be submitted to initiate the process to revise the WDRs for the Phase II-B construction. In addition to the amended ROWD, the CVRWQCB staff required that a JTD be submitted by May 30, 2005 to complete the WDR revision process. The amended ROWD was submitted to the CVRWQCB on February 25, 2005. This Joint

Technical Document (JTD) is being submitted to complete the document requests for the WDR revision.

It should be noted that the overall site development plans as submitted in the 1995 RDSI will be implemented generally unchanged. Likewise, the Preliminary Closure and Postclosure Maintenance Plan (PCPMP) approved in 1995 is generally unchanged.

It is the County's understanding that a WDR revision is required to allow for the construction of Phase II-B; and that this JTD is also being provided to the LEA/CIWMB and RWQCB as a general update of site information that has changed since the 1995 RDSI. The requested elements related to the construction of Phase II-B have been incorporated into the JTD, and are identified as "proposed" where deemed needed for clarity. Appendix B contains drawings that present the proposed development of Phase II-B and update site development plan information since the 1995 RDSI. Appendix C contains the 1995 site development plan drawings and are conceptually unchanged, unless noted. Section 6, *Preliminary and As-Built Plan*, describes the contents of these drawings. Volume II of this JTD contains the Appendices to the JTD. The PCPMP, 1995, by Harding Lawson Associates (HLA) has been updated and will be submitted as a separate report.

1.1.3 Background

1.1.3.1 Site Regulatory History

The Rock Creek Landfill is currently operated as a Class II solid waste landfill. All Class II solid waste facilities in California are required to have a SWFP issued by the LEA (County of Calaveras Environmental Health Division) and concurred by the CIWMB. The SWFP for the landfill was initially issued on October 24, 1989. A copy of the current SWFP, dated August 18, 1995, (Solid Waste Information System [SWIS] facility No. 05-AA-0023) is included in Appendix A.

The SWRCB requires Class II solid waste disposal facilities to obtain WDRs. The RWQCB has jurisdiction and authority to issue site-specific WDRs for the Facility. The landfill at the Facility was classified and permitted as a Class II disposal facility under initial WDRs adopted by the RWQCB in 1989. A copy of the current WDRs, 5-01-149, dated June 14, 2001, are included in Appendix A.

The landfill also is subject to the requirements of General Industrial Storm Water Discharge Permit (NPDES General Permit No. CAS 000001), adopted by the SWRCB to implement the requirements under the National Pollution Discharge Elimination System

(NPDES). As required under NPDES, a Storm Water Pollution Prevention Plan was prepared for the landfill. The site was issued a storm water discharge identification number of *5S05S001446*. As required by the General Industrial Storm Water Discharge Permit, a Storm Water Pollution Prevention Program (SWPPP) was written. SWPPP monitoring reports are submitted to the RWQCB on an annual basis. The SWPPP is amended as necessary when there is a change in construction, operation or maintenance procedure which may affect the discharge of significant quantities of pollutants to surface water, groundwater or local agency's storm drain system, or if it is in violation of any conditions of the General Industrial Activities Storm Water Discharge Permit that has been issued. The current version of the SWPPP contains additional detailed information regarding storm water monitoring and is available from the County upon request.

1.1.3.2 California Environmental Quality Act (CEQA)

Responding to a need to develop a long-term strategy for solid waste disposal, in 1989 the County completed development plans for a landfill at the Facility. Following preparation of the landfill plans, the County prepared an Initial Study and Environmental Impact Report (EIR). Public hearings were held on the EIR. The EIR was certified by the County and a Use Permit was issued on July 6, 1989.

To support construction of the transfer station the County prepared an Addendum, to the 1989 EIR (Appendix A), which was certified by the County on in April 2000.

1.1.3.3 Site Operating History

With regard to Facility development, the Class II landfill is conceptually separated into four Phases. Phase I began operations in 1989 and has yet to reach final grades. Phase II-A, the current active area, began operations in 1997 and is expected to reach capacity in April 2006. Phases I-B, II-A and future areas have been/will be constructed with a composite liner system in accordance with Title 27 CCR. The Facility continues to operate as a Class II landfill, accepting non-hazardous waste. No areas have been closed.

1.2 Facility Overview

CIWMB 27 CCR 21600(b) (1) (A)

1.2.1 Name of Site

The current name of the site is the *Rock Creek Solid Waste Facility*. Prior to development of the transfer station on the site, the site was referred to and the *Rock Creek Sanitary Landfill.*

1.2.2 Name of Site Owner and Operator

The Facility is owned and operated by the County of Calaveras, Department of Public Works. The Calaveras County Department of Public Works can be contacted at 891 Mountain Ranch Road, San Andreas, CA 95249. The current office telephone number is (209) 754-6403, the FAX number is (209) 754-6725.

1.2.3 Description of Operation Cycle

A description of the operation cycle is provided in Section 10.5.

1.3 Site Location

CIWMB 27 CCR 21600(b) (3) (D)

The Rock Creek SWF is in western Calaveras County near Milton, California. The site address is 12021 Hunt Road, Milton, California 95230. The site is located within Sections 11 and 14, Township 2 North, Range 10 East, Mount Diablo Base and Meridian (MDBM). The site latitude and longitude are 38°02'N, 120°50'W. The main site entrance is accessed via Hunt Road approximately 3/4 mile east of Milton Road. The site location, Facility boundaries, points of access, and major access roads for waste deliveries are shown on Figure 1. Milton Road and Hunt Road (between Milton Road and the site entrance) provide the only site access for commercial haulers. Restrictions in Conditional Use Permit (CUP) 87-01 (Section 2.6) limit use of Hunt and Rock Creek roads.

1.4 Site Plan

CIWMB 27 CCR 21600(b) (1) (B)

The landfill is a 200-acre parcel, of which approximately 61.4 aces is permitted for refuse disposal and is classified as a Class II waste disposal site under current Title 27 CCR regulations. A copy of the Record of Survey is shown as Figure 2.

The permitted disposal area is being developed in four Phases. Phase I consists of approximately 11[1] acres. The current active disposal area, Phase II-A, consists of

[1] RDSI, HLA, May 1995

approximately 6.9[2] acres of lined area. The proposed construction of Phase II-B will include approximately 7.3 acres of lined area.

The site is operated as a typical California canyon landfill utilizing the area fill method of disposal. Excavation of the canyon walls and bottom is performed to provide soils for on site refuse disposal operations and construction. During construction, excavated soil is stored in a stockpile. The stockpile soils support daily operations and also provide a source for final cover soil needs, depending upon engineering properties of the approval final cover system at that time. Once a base liner system is installed, the canyon is filled creating a deck area. The proposed final refuse fill elevations for the site are shown on the final grading plan (Drawing C5, Appendix C).

The Facility is currently designated for a non-irrigated open space end-use. The final cover for the site will be designed to meet current regulatory requirements for a non-irrigated open space end use upon closure.

Information on pre-landfill topography is presented in Section 4.3.1.

1.5 Hours

CIWMB 27 CCR 21600(b) (1) (C)

The Facility is open to the public from 8:00 a.m. to 4:30 p.m. daily except for Christmas Day, Easter Sunday, Thanksgiving Day, and New Year's Day. Daily hours of operation may begin as early as 7:00 a.m. and end as late as 7:00 p.m. depending on site construction activities and time requirements for cover material placement and equipment maintenance.

[2] WDR 5-01-149

2 WASTE CLASSIFICATION AND MANAGEMENT

2.1 Waste Types and Volumes

CIWMB 27 CCR 21600(b) (2) (A); SWRCB 27 CCR 21740(a) 1

2.1.1 Waste Types

The waste received at the landfill consists of non-hazardous residential, commercial and industrial solid waste classified in 27 CCR 20220(a) as Class III waste and designated Class II waste. Information on waste handling is presented in Section 10. The County also operates a transfer station building that includes a permanent household hazardous waste collection facility. Self-haul waste and construction and demolition debris that is delivered to the site is processed through this building. Waste on the tipping floor is screened for hazardous or unacceptable waste and is diverted from the landfill for proper disposal. The remaining residual waste is transferred to the landfill working face for disposal using trucks. This drop off process in the transfer station provides the County with added visual review and control over the waste stream to ensure that hazardous or unacceptable waste is removed prior to disposal in the landfill.

The County proposes to continue to discharge municipal solid waste, ash, sewage treatment plant sludge, petroleum contaminated soil, and miscellaneous contaminated materials, including but not limited to treated wood waste, in the active Class II landfill. These wastes are classified as inert, nonhazardous solid waste, or designated waste, under the criteria set forth in Title 27.

Disposal of dewatered sewage treatment sludge, water treatment sludge, and ash will require approval from the County to the generator before disposal. Fluids from the Class II surface impoundment may be returned to the Class II landfill to be reused for controlling dust or moisture-conditioning soils used for daily or intermediate cover.

Recycling and resource recovery operations conducted at the landfill include salvaging of tires, large metals and white goods, recycling of construction and demolition waste, universal hazardous wastes, and source-separated material activities. The operator is prohibited from onsite disposal of hazardous wastes as described in the WDRs.

The landfill is prohibited by the current WDRs from receiving hazardous wastes. The Facility does, however, accept household hazardous waste at the household hazardous waste collection facility located in the transfer station building. Some common materials that are designated as hazardous, but are only accepted in amounts categorized as household hazardous waste, include but are not limited to: anti-freeze, batteries, used motor oil, paints, household chemicals, propane tanks, and cathode ray tubes. These materials are received at the household hazardous waste facility. These materials are accepted, characterized, packaged, and stored, in accordance with applicable regulations and permits before being transported off site for processing.

2.1.2 Waste Quantities

With the approval of this June 2005 JTD, the permitted maximum daily disposal tonnage will remain at the current 500 TPD limit. Based on the waste received during 2004, the current average daily disposal tonnage is approximately 125 tons-per-day, Monday through Sunday (seven-day average). The peak daily tonnage received at the Facility in 2004 was 334 tons[3]. Historic waste disposal quantities are shown in Appendix D. Projected waste disposal quantities for the next five years are shown in Table 3.

2.2 Waste Treatment, Storage and Disposal Methods

SWRCB 27 CCR 21740(a) (2), 27 CCR 21760(b) (1)

2.2.1 Treatment Methods

There are no proposed treatment procedures for the wastes before landfilling.

2.2.2 Storage Methods

Storage of waste at a landfill typically refers to waste that is separated as recyclable or compostable and stored on site prior to processing. Wastes that are recycled or diverted at the on-site transfer station building are typically managed at that building and not stored on or near the landfill area. Wastes, intended to be landfilled, are not generally stored at the landfill. However, bulky wastes destined to be landfilled, such as tree sumps or empty tanks, may be stored for short periods if they cannot be appropriately placed in

[3] Received on May 10, 2004, according to Ron Jensen, Calaveras County Department of Public Works.

the working face when they are received. The bulky waste that is stored is typically inert or decomposes slowly (e.g., tree stump).

2.2.3 Disposal

A description of the disposal operations cycle is provided in Section 10.5.

2.3 Waste Decomposition Processes and Products

SWRCB 27 CCR 21740(a) (3)

Solid waste in landfills undergoes natural chemical and biological decomposition following disposal. The waste decomposition process works in the following manner: organic waste products undergo aerobic decomposition during storage and transport, after placement in the landfill and until aerobic processes deplete the available oxygen. As oxygen becomes depleted, anaerobic decomposition becomes dominant. The duration of the waste decomposition can vary from a few years to over 100 years, depending on the presence and amount of oxygen, refuse moisture content, pH, and temperature. Factors influencing the decomposition of wastes include the moisture and density of the waste, temperature, soil cover permeability, rainfall, and waste composition.

The products of biological decomposition of organic wastes are solids, liquids, and gases. Typical primary products of municipal refuse aerobic decomposition are carbon dioxide, water, and nitrates. Typical primary products of anaerobic decomposition are methane, carbon dioxide, water, organic acids, nitrogen, ammonia, iron sulfides, manganese, and hydrogen. Degradation of inorganic waste products occurs primarily through chemical oxidation and results in solid, liquid, and gaseous products.

Leachate is formed by the infiltration of surface water and any free liquids inherent to the waste migrating through the refuse prism to the bottom of the landfill. The landfill has been designed and operated to minimize the formation of leachate by minimizing the infiltration of precipitation. In addition, the landfill has been designed to capture any leachate through the use of various containment collection systems. The quantity of leachate expected to be generated within the lined portions of the landfill are estimated by modeling the water balance within the landfill. As with any mathematical modeling, the results of these calculations should be viewed only as an approximation of the actual situation. Leachate generation is expected to decrease over time after the landfill final cover is placed, which effectively prevents infiltration of precipitation into the landfill.

Gas composition in a landfill varies depending on the types of wastes and conditions that occur during decomposition. Typical gas composition for a municipal solid waste landfill is shown on Table 4.

Projected landfill gas generation estimates have not yet been made for the landfill because a control system will not be required until some point in the future (See Section 6.3.3, *Landfill Gas Management Plan*

The postclosure period under consideration is assumed to be 30 years. This is in conformance with closure and postclosure maintenance requirements contained in Title 27, CCR.

Postclosure refuse settlement will occur as the waste decomposes. Settlement and final cover maintenance are discussed in the PCPMP.

3 WASTE MANAGEMENT UNIT CLASSIFICATION AND SITING

3.1 Airport Safety

CIWMB 27 CCR 21600(b) (3) (A)

If an existing waste management unit (WMU) or a lateral expansion is located within 10,000 feet of any airport runway used by turbojet aircraft or 5,000 feet of any airport runway used only by piston-type aircraft, 27 CCR 20270 requires the owner/operator to demonstrate that the WMU is designed and operated so that there is not a bird hazard to aircraft.

If a lateral expansion is located within 5 miles of any airport runway, the airport and the Federal Aviation Administration must be notified. The Facility is not located within 5 miles of an airport.

Title 49, Section 44718(d) of the United States Code [49 USC 44718(d)] places additional limitations on the establishment or construction of a landfill near a public airport. 49 USC 44718(d) requires that a new landfill cannot be located within 6 miles of certain public airports without an exemption from the Federal Aviation Administration. The statute applies to new landfills constructed or established after April 5, 2000. The statute does not apply to an existing landfill that received waste on or before April 5, 2000. Further, the statute would not apply to an existing landfill that is expanded or modified after April 5, 2000. As the Facility is not within 5 miles of any airport runway and is an existing landfill, as defined in 49 USC 44718(d), the additional limitations contained in 49 USC 44718(d) are not applicable.

3.2 Volumetric Capacity

CIWMB 27 CCR 21600(b) (3) (B)

The site volumetric refuse capacity was estimated using an assumption of an in-place waste-to-soil cover ratio of 4 to 1, which approximates current practice. Volumetric capacities, soil availability, and soil requirements are based on the 1995 facility development plans in Appendix C; which have been updated using the September 2, 2004

topographic map of the site as summarized in Table 5[4]. The updated calculations indicate a remaining net[5] airspace capacity of approximately 6,457,711 cubic yards and a remaining refuse capacity of approximately 5,166,000 cubic yards as of that date.

3.3 Site Life Estimate

CIWMB 27 CCR 21600(b) (3) C)

The estimated remaining service life of the landfill is to September, 2035 or approximately 30 years. These estimates are based on the remaining net airspace described in Section 3.2, and waste disposal projections and estimated site utilization factor presented in Table 6. The site utilization factor, of 2.21 cubic yards of net airspace consumed per ton of solid waste landfilled, is based on the airspace consumed comparing topographic mapping volumes between 1994 to 2004 and the disposal tonnage over that period as described in the notes to Table 6.

3.4 Land and Water Use

CIWMB 27 CCR 21600(b) (3) (E); SWRCB 27 CCR 21750(h) (4)

3.4.1 Surrounding Land Use

The lands immediately surrounding the Facility are range lands used for grazing and ranching. No irrigated pastures adjoin the landfill property. The nearest residence is approximately 1,800 feet west of the Facility's western property boundary. The community of Milton is approximately 0.6 mile from the Facility's western property boundary.

Approximately 84 percent of the Facility property boundary is adjacent to land zoned *Agricultural Preserve* and having a corresponding minimum parcel size of 50 acres. The remaining boundary, along the northern and southeastern segments, is adjacent to land zoned *Community Development Land - Future Single Family Residential* and having a corresponding minimum parcel size of 5 acres to 40 acres depending on access road level of service, environmental restrictions, and development restrictions. The minimum parcel size for residential development would be 40 acres based on the current level of

[4] Report of Disposal Site Information, Rock Creek Solid Waste Facility, May 1995, HLA
[5] Net airspace is meant as the total airspace minus liner and final cover volumes.

service for Hunt and Rock Creek roads. No development is planned for the surrounding areas.

3.4.2 Water Use Within One Mile of Site

The Fourth Edition, for the Sacramento River and the San Joaquin River Basins (hereafter Basin Plan)}, designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin which includes the Facility. The beneficial uses of ground water in the area according to the Basin Plan are domestic, municipal, agricultural, and industrial supply.

Surface drainage from the Facility is to Rock Creek a tributary to Little John's Creek which flows into the San Joaquin River. The beneficial uses of these surface waters as identified in the Basin Plan include: domestic, municipal, agricultural, and industrial supply; ground water recharge; recreation; esthetic enjoyment; fresh water replenishment; and preservation and enhancement of fish, wildlife and other aquatic resources.

There are more than 15[6] municipal, domestic, industrial or agricultural groundwater supply wells within one mile of the site. There are no residences within 1,000 feet of the Facility. There are four agricultural groundwater supply wells within 1,000 feet of the Facility. The County regularly takes water quality samples of off-site private wells every 2.5 years. Eleven offsite wells were sampled in 2003. The County has sampled one off-site spring.

3.5 Ancillary Facilities

CIWMB 27 CCR 21600(b) (3) (F)

The major permitted operating elements at the Facility are the Class II Landfill, the Class II surface impoundment, the wood and yard waste operation, and the transfer station. The location of the transfer station building is shown on Drawing 1 Appendix B. All self-haul waste and construction and demolition debris that is delivered to the site is processed through this building. In addition, there is a permanent household hazardous waste facility located in the building. This building is equipped with rolling stock equipment (trucks, loaders and other wheeled equipment), storage bins for recyclable

[6] Based on email from Kris Johnson, Golder, to Mark Urquhart, EMCON/OWT, February 22, 2005; which indicated 12 wells within 1 mile from 1989 report and three additional newer wells that were sampled.

materials, and appropriate containers and equipment for the operations of the household hazardous waste facility. The transfer station is described further in Section 3.5.1, below.

Existing ancillary facilities that serve both the landfill and transfer station include a scalehouse, scales, storage bins, above ground fuel tanks, pump house, water tank, fire protection installations, perimeter security fencing, access roads, utilities, signage, and an equipment maintenance and office building.

3.5.1 Transfer Station

The transfer station is a 20,000 square foot building that was constructed beginning in 2001 and began operations in 2002 to provide an unloading area for most site vehicles delivering waste. This multi-purpose waste handling facility provides, among other things, for the collection of source-separated recyclables; collection, screening and segregation of refuse; collection, sorting, bulking, and temporary storage of household hazardous wastes; processing of appliances; and salvaging of materials for recycling and reuse. All self-haul vehicles and construction and demolition waste vehicles are processed in the transfer station. This provides a convenient location for County residents to drop off refuse, household hazardous waste, and recyclables, while also serving to expand opportunities for material recovery. It provides a more efficient and user friendly tipping area for self-haul users compared to the landfill working face because it provides an enclosed concrete tipping and maneuvering area. It also enhances unloading safety because these users of the transfer building are segregated from larger refuse collection trucks, which typically bypass the transfer building and are routed directly to the landfill working face.

An Operations Plan for the transfer building is provided in Appendix D. Construction drawings for the Center are provided in Appendix D. The general location and layout of the Center is shown on Figure 1 of the Operations Plan. Traffic flow to, from and around the Center is shown on Figure 2 of the Operations Plan.

The transfer station includes a permanent household hazardous waste (HHW) collection facility, which was permitted by rule by the Department of Toxic Substances Control (ID Number CAH 111000933). Information on the permanent HHW collection facility is contained in Appendix E.

3.5.2 Scalehouse

The scalehouse is at the north end of the Facility near the site entrance and immediately adjacent to the scale as shown on Drawing 1. The scalehouse accommodates the scale controls, cashier facilities, and an attendant, who is present during hours of operation. The structure is permanent and is approximately 12 feet by 30 feet. The scalehouse sanitary facilities are connected to a septic tank and leach field for septage disposal. The septic tank and leach field are not located within the drainage of the Class II landfill. First aid supplies are stored at the scalehouse.

3.5.3 Scale

The scale is a Fairbanks Scale Model N14-4304 with approximate dimensions of 70 feet by 10 feet. The single-truck scale is rated to 60 tons and is mounted on a concrete slab approximately level with surrounding grade. Speed bumps located at each end of the scale access and at the sides of the scale are clearly marked with traffic cones. The scale is equipped with conventional readouts and a computerized recording system. The scale is inspected and maintained quarterly and calibrated annually.

The scale attendant records the loaded vehicle weight, logs the type of material, and directs the driver to the appropriate unloading area. After unloading materials, the driver returns the vehicle to the scale for reweighing.

3.5.4 Office and Maintenance Building

Drawing 1 shows the location of the maintenance building. The building includes an office area, sanitary facilities, storage facilities, and equipment maintenance facilities. Septage from sanitary facilities located in the maintenance building are disposed of in a septic tank and leach field. The office area is equipped with desks and chairs, bottled drinking water, electricity, phones, and radio service.

3.5.5 Fuel Tanks

Diesel and gasoline dispensers are supplied by double walled aboveground storage tanks, 2,000 and 500 gallons, respectively. Dispensers are located near the maintenance building area.

3.5.6 Water Supply

Water is supplied by an onsite well located as shown on Drawing C3. The well head is enclosed within a structure. Water is pumped to two 50,000-gallon water tanks located east of Phase I, as shown on Drawing C3.

Bottled water provides potable supplies for the scalehouse, transfer station and office.

3.5.7 Fire Protection

The fire protection system consists of two 50,000-gallon water supply tanks, which act as a reservoir to water hydrants located around Phase I, Phase II and the maintenance building. Flexible fire hoses are located onsite for use in fighting fires. A 750-gallon-per-minute pump supplies water to the hydrants from the tank. A 15-foot-wide fire break is cleared around the site each spring to reduce the chance that surrounding fires would affect the site.

3.5.8 Fencing

Security fencing consists of a full perimeter fence with lockable gates at the main access along Hunt Road and the secondary access at Rock Creek Road. The Rock Creek Road access gate is locked at all times. The existing Class II impoundment is surrounded by a perimeter fence. .

3.5.9 Access Roads

Site access is described in Section 6.2.

3.5.10 Utilities

The locations of existing site utilities including water and electrical lines are shown on Drawing C3, Appendix C. As a recent addition to the Facility, electrical power is provided by Pacific Gas and Electric. Backup power sufficient to operate all facilities is provided by an onsite generator_

Telephones are currently installed at the scalehouse, and maintenance building. Two-way radio communication is possible from sets in the scalehouse, maintenance building office, transfer station, onsite equipment and vehicles. .

3.5.11 Signage

Signs at the public entrance indicate the name of the Facility, schedule of charges, notification of random load screening, types of waste accepted, items accepted for recycling and reuse, hours of operation, days site is closed, and restriction of disposal to Calaveras and Alpine County residents. Additional signs approaching and within the transfer station provide unloading directions and direction for use of the permanent household hazardous waste collection facility located in the transfer station. The operating record for Facility is maintained at the County Solid Waste Division office in San Andreas, California. A sign is posted at the scalehouse providing this location.

4 WASTE MANAGEMENT UNIT CHARACTERISTICS

Title 27 CCR 20240 states that WMUs are to be classified based on their ability to contain wastes. Containment shall be determined by geology, hydrology, topography, climatology as well as other characteristics related to protection of water quality. 27 CCR 21750 states the specific WMU characteristics shall be described in the JTD. Thus, this section discusses specific site characteristics.

There are two WMU at the site as defined in the current WDR for the Facility. The landfill is classified as a Class II landfill. The surface impoundment, used for leachate storage and evaporation, is also a permitted Class II facility.

It should also be noted that Title 40 of the Code of Federal Regulations (CFR) Part 258 (Subtitle D) stipulates WMU siting restrictions related to geologic setting, flooding, ground rupture, rapid geologic change, and airport proximity. Currently, California is an EPA-approved Subtitle D state. In addition, 27 CCR 20260(a-e) specifies siting requirements related to geologic setting, flooding, ground rupture, and rapid geologic change that incorporate Subtitle D location restrictions.

4.1 Impairment Potential

SWRCB 27 CCR 21750(a)

As required by 27 CCR 21750(a), the discharger is to analyze how the WMU could be affected by groundwater and surface water, and how the groundwater and surface water could be adversely affected if waste escapes the WMU. This information is to be provided to the RWQCB in order for a determination to be made as to the suitability of the WMU with respect to groundwater protection and avoidance of geologic hazards and to demonstrate compliance with 27 CCR 20240 et seq.

In general, municipal solid waste landfills can potentially affect underlying groundwater through either liquid (leachate) or landfill gas (LFG) migration processes. In order for leachate to impact groundwater, the fluid must be gravity-driven through the liner system and then the unsaturated zone and into the saturated zone. Leachate impacts to groundwater may include the presence of numerous synthetic compounds (VOCs,

SVOCs, pesticides, etc.) and increased concentrations of metals and minerals. LFG may impact groundwater if gas migrates through the liner system and unsaturated zone to the saturated groundwater zone. LFG impacts to groundwater may include elevated VOCs and changes in inorganic water chemistry due to the carbon dioxide and methane in the LFG.

To date, no groundwater impacts related to landfill or surface impoundment operations have been identified at the Facility. Refer to Section 4.6.2, regarding information on groundwater quality.

The potential for impacts to groundwater is judged to be minimal because of design and operational elements to minimize leachate or LFG migration to groundwater. These design or site characteristic elements include the following:

- The landfill is located in a relatively dry area. The average annual rainfall is only approximately 19.4 inches. Additionally, because rainstorms that do occur tend to be relatively short-duration/high-intensity storms occurring in the rainy season, much of the rainfall runs off the landfill and does not infiltrate the landfill surface, reducing the potential for leachate generation.

- The landfill drainage system is designed to divert off-site run-on around the landfill so that run-on does not enter the landfill area.

- There are unsaturated zone monitoring devices, including existing pan lysimeters and LFG probes proposed for Phase II-B, that are designed to provide early detection of potential releases prior to them impacting groundwater.

- All the landfill Phases have been constructed with base liner and LCRS systems. The proposed liner system for the floor of Phase II-B includes a double composite liner system comprised of, in ascending order:

    - 12-inch thick prepared subgrade
    - 60-mil HDPE geomembrane
    - geocomposite drainage layer
    - GCL
    - 60-mil HDPE geomembrane
    - 9-inch thick gravel drainage layer
    - 8 oz/sy nonwoven geotextile
    - 15-inch thick operations layer

- The primary liner will have a leak detection survey performed after placement of the operations layer as part of the Construction Quality Assurance program. The liner and leachate collection and removal system (LCRS) are designed to minimize the potential for escape of leachate or LFG from the WMU, thus minimizing the potential for impacts to groundwater.
- The proposed leak detection survey mentioned above will reduce the potential for defects that could lead to leachate or LFG migration through the base liner system. In addition, the County is proposing to install riser pipes from the LCRS that could be connected to a future LFG control system should LFG be detected in the proposed unsaturated zone monitoring probes. If LFG is detected in unsaturated zone, the County will investigate the origin of the gas to determine the best technology to eliminate this condition.

The operational elements are as follows:

- The first lift of waste placed on the liner system will be limited to packer truck waste and other select waste from the on site sorting operations that is typically free of large bulky items that has a higher potential to damage the liner during placement.

- The waste is compacted to decrease its permeability and increase its ability to shed water.

- Waste is graded to promote run-off away from active waste disposal areas to prevent storm water from entering the waste.

- Cover (compacted soil or alternative daily cover) is placed on the waste which will help limit water from entering the waste.

- Intermediate cover is placed and graded to promote run-off from the landfill and minimize moisture entering the landfill.

4.2 Proposed Classification

SWRCB 27 CCR 21750(b)

The landfill is currently classified as a Class II landfill. It is not proposed to change the types of waste currently disposed at the landfill. Therefore, it is not proposed to change the current landfill classification.

It should be noted that AB 1353, passed on September 20, 2004[7], requires that treated wood waste must be disposed of at a Class I landfill or a Class II, composite lined landfill that has WDR which allow such disposal. The Rock Creek landfill meets these requirements and therefore intends to continue to dispose of treated wood waste of the types which are not required to be disposed of as hazardous waste under Federal requirements.

4.3 Topography

CIWMB 27 CCR 21600(b)(1)(B), SWRCB 27 CCR 21750(d)

4.3.1 Pre-Landfill Topography

A pre-landfill topographic map prepared for the landfill site is not available. Figure 1, which was taken from a United States Geological Survey map, depicts the pre-landfill topography of the site area.

The Facility is located in the lower foothills of the Sierra Nevada mountains between elevation 300 at the south end of the property and elevation 520 at the ridge of the canyon head on the north property line. The main feature at the site is the north-south canyon which includes the permitted landfill area. The drainage shed for the canyon is contained entirely on the property. There is a seasonal creek that flows to the south before exiting the site near Rock Creek Road. The side slopes of the canyon walls are roughly 3:1 (horizontal to vertical ratio) flattening near the channel flowline in the center of the canyon.

4.3.2 Existing Topography

The current topography for the site, September 2, 2004, is presented on the Site Plan, Drawing 1. Drawing 1 also shows the location of the landfill Phases developed to date. Drawing 2 shows the proposed base grades for Phase II-B.

[7] added Section 25150.8 to, and to add and repeal Section 25150.7 of, the Health and Safety Code, relating to hazardous waste

4.3.3 Final Topography

The proposed final grading plan for the landfill is shown on Drawing C5, Appendix C. The maximum elevation is approximately 524 feet msl. The top deck slopes at approximately three percent and the side-slopes are approximately 3 to 1 (horizontal-to-vertical).

4.3.4 FloodPlain

The Facility is not within a 100-year flood plain based on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, Community-Panel Number 060633 0250 B. A copy of a portion of this map, showing the area including and surrounding the Facility, is Figure 3.

4.4 Climatology

SWRCB 27 CCR 21750(e)

4.4.1 General

The climate of the western area of Calaveras County is generally more typical of the San Joaquin Valley climate rather than the Foothills climate.

For the initial site design, meteorological data was gathered from three sources around the Facility. The data collected were from the Stockton, Hogan Dam, and New Melones Reservoir stations. The County has installed a weather station at the Facility, which has been supplementing this data since 2002.

The County Preliminary Engineering Report, Calaveras County 87-3, examined three methods to relate the Facility to the surrounding climatological stations. The Hogan Dam station is the nearest in distance and elevation, however correlation method calculations and informal data collection have shown that the Hogan Dam station receives more precipitation than the Facility. However, the Hogan Dam climatological data was conservatively used for design purposes for the Facility.

4.4.2 Precipitation

The Facility receives an average of 19.42 inches of precipitation per year as measured at Hogan Dam between the years 1959 and 1986. The wet season at the Facility extends from November through March.

An isohyetal map for the site area is presented in Figure 4 [8].

4.4.3 Design Storm

Class II landfills are to be designed to handle the run-off from a 1,000-year frequency , 24-hour duration storm. The probable maximum 1,000 year precipitation for a 24 hour duration is 5.45 inches per day[9]. The hydrology calculations for projected volume and run-off patterns for Phase II-B are included in the design report (Appendix G, Drainage Report, Phase II-B).

4.4.4 Evapotranspiration

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[10]. During the wet season, the rainfall exceeds the evapotranspiration.

4.4.5 Runoff Volume/Pattern

The final grading plan (Drawing C5, Appendix C) shows the locations of all proposed final (permanent) storm-water drainage control facilities. Some of these facilities have been constructed as the landfill was developed.

Surface water drainage controls include a concrete-lined perimeter drainage channel to prevent run-on to the Class II landfill and convey runoff collected from interim and final landfill surfaces. Phase II-B construction includes underground pipes to convey the perimeter stormwater around the site. Inlets to these pipes are spaced along the pipe flowline to collect storm water that runs off the landfill downstream of the inlet from the concrete lined channel to the underground pipe. Surface water runoff from landfill

[8] Taken from Figure 2 of Report of Waste Discharge, EBA, 1989.
[9] Waste Discharge Requirements 5-01-149, *Description of the Site*, #16.
[10] WDR 5-01-149 for the Rock Creek Facility, June 14, 2001.

surfaces at elevations lower than the perimeter drainage channel is collected in drainage ditches and culverts and directed to the center of the canyon where it discharge to the existing stormwater detention/sedimentation basins. The current basin location is shown on Drawing C9 of Appendix C. The final basin location is shown on the final grading plan (Drawing C5, Appendix C).

During wet weather, temporary berms area constructed around the active fill areas to ensure that stormwater runoff that has contacted refuse will not be discharged to surface water runoff structures and will be conveyed to the surface impoundment. Further controls for the segregation of contact and non-contact water are described in Section 5.7.

4.4.5.1 Phase II-B Drainage Features

Storm water drainage at the site is controlled by a series of channels and pipes that minimize run-on to the landfill and convey water around the perimeter of the landfill. Once storm water is conveyed past the southerly limits of waste management units, it is discharged to the bottom of canyon into the natural drainage channel. Storm water is then conveyed downstream to a detention basin where sediment is removed prior to discharge off site.

The proposed Phase II-B design will extend the perimeter drainage system though the use of underground pipes instead of concrete lined ditches. A small v-ditch will be constructed over the top of the underground pipe flowline and will capture stormwater runoff from the landfill. At set increments, inlets to the underground pipe will be installed to allow drainage to enter the pipes from the above lying v-ditch. This system will limit the size of the perimeter access roads and provide better access to the site.

The underground pipe along the west side of the landfill will discharge to the existing bench above the Class II surface impoundment, down the canyon side slope and discharge to the canyon base. The underground pipe along the east side will discharge down the canyon side slope through a continuation of the underground pipe anchored above ground on the slope. Stormwater that drains off of the future south refuse face of Phase II-B will be collected in v-ditches at the southerly limit of the WMU and flow to the center of the canyon where it will discharge to the existing natural channel through culverts.

Contact water will be treated as leachate and will be discharged to the existing surface impoundment. Contact water will be kept at a minimum by controlling the open face size

during disposal operations. The primary LCRS in Phase II-B will be constructed with cleanouts that will allow for contact water to be directly discharged into the LCRS.

Design calculations for proposed surface water drainage controls for the design of Phase II-B are described in Section 5.7. The design of the final drainage features are included in the PCPMP.

4.4.6 Wind

Prevailing winds in the area of the site are from the northwest and average approximately eight miles per hour (mph). The estimated wind rose for the site is shown on Figure 5^{11}. Peak wind speeds of more than 80 MPH were recorded in 2004.

4.5 Geology

SRWCB 27 CCR 21750(f)

The following descriptions of regional and site geology are based on information contained in EBA Wastechnologies, *Report of Waste Discharge, Rock Creek Landfill, Calaveras County*, June 1989.

4.5.1 Regional Geology

The Rock Creek landfill is situated along the western edge of the Sierra Nevada Geologic Province, also known as the Western Metamorphic Belt. These basement rocks consist of mostly metamorphosed sedimentary and volcanic deposits of Pre-Tertiary age.

Younger Tertiary aged sedimentary and volcanic rocks overlay the metamorphosed basement rocks and are characterized in the literature as the Ione and Valley Springs Formations. Also present in the younger deposits are Tertiary Gold Bearing Gravels, described by Piper and Clark.

4.5.2 Site Geology

The Tertiary aged Valley Springs Formation is the predominate geologic formation on the Rock Creek site and consists of boulder sized gravels, sands, silts and clays. The

coarser sediments show weathering to a depth ranging between 2 to 4 feet whereas the finer grained sediments have been weathered from 1 to 2 feet in depth.

The Ione Formation, which underlies the Valley Springs Formation, is found at depth in the project vicinity. The Ione Formation is found at an approximate elevation of 260 feet in elevation at the southern mouth of the Rock Creek canyon.

A two to ten foot thick layer of alluvium covers the Valley Springs Formation adjacent to the stream. This alluvial layer is made up of eroded Valley Springs material which has been moved down the canyon by runoff.

Geotechnical testing on five soil types found within the site area were performed and included a determination of moisture content, maximum density, grain size distribution, shear strength and permeability. Eight samples were analyzed for permeability from soil groups A and B. The results of this analysis found a permeability ranging from 10-7 to 10-8 cm/sec.

4.5.3 Fault Identification and Proximity

Previous seismicity analysis for the site was contained in the 1989 Report of Waste Discharge, EBA[12]; and the 1993 Phase I-B Landfill Design Report, EBA, as applied in the Geotechnical Stability Analysis by HLA, 1995, contained as Appendix E to the 1995 RDSI. For purposes of preparing a slope stability analysis to support the design of Phase II-B, EMCON/OWT used the consulting services of Dr. Norman Abrahamson, who is a renowned engineering seismologist, to prepare a site-specific seismic hazard report for the Facility. The following information regarding fault identification and proximity is taken from the seismic hazard report by Dr. Norman Abrahamson. A copy of the full report is included as an Appendix to the Slope Stability Analysis (Appendix H).

Foothills Fault System

The western edge of the Foothills fault system is located about 12 km east of the Milton site. The Jennings (1994) state fault map shows these faults as being pre-Quaternary except for a few small isolated sub-segments (3-7 km long) that are active in the Pleistocene. Analysis of the Foothills fault system by William Lettis Associates (1994)

[11] Taken from Figure 3 of Report of Waste Discharge, EBA, 1989; which referenced readings from the on-site weather station taken from January to December, 1988.
[12] Appendix B, Preliminary Geotechnical/Geohydrological Study, GRD

found that parts of the Foothills faults are active but that they have very low activity rates. The small segments of the Foothills faulting along the east edge of the Sierran Block have slip-rates of about 0.001 – 0.03 mm/yr, resulting in recurrence intervals of 20,000 years for earthquakes with magnitude greater than 6 (for the individual segments).

A detailed evaluation of the Bear Mountain fault system was made for an evaluation of the nearby Pardee reservoir. This study, conducted for EBMUD, evaluated four individual segments of the Bear Mountain Fault system: Waters Peak, Ione, Devils Gate, and Youngs Creek. The slip rates and mean characteristic magnitudes considered in this study are listed in Table 1 of the Seismicity Report included in Appendix H for the four fault segments. The mean characteristic earthquake magnitude for these segments is between 6.3 and 6.4.

The USGS/CGS/WG03 (USGS 2002, Cao et al. 2003, Working Group on Earthquake Probabilities 2003) characterization of the Foothills fault system includes these individual segments of the Bear Mountain fault system as an areal source zone with a maximum magnitude of 6.5.

Based on the USGS/CGS fault characterization for the Foothills fault system, the mean characteristic magnitude is 6.5. The faults of the Foothills fault system are predominately normal faulting sources. The recommended MCE is a magnitude 6.5 earthquake at a closest rupture distance of 12 km.

Coast Range Sierran Boundary Zone Faults

The Coast Range Sierran Boundary Zone Fault (CRSNBZ) is the eastern boundary of the coast range faults and is a subject of ongoing controversy for seismic hazard. The CRSNBZ is characterized by thrust faulting due to crustal shortening in the direction normal to the trend of the San Andreas fault. This shortening accommodates some of the convergence between the Pacific and North American Plates in this region. The thrust faults in this region generally do not reach the surface and are considered "blind thrust" faults. The CRSNBZ extends about 600 km along the western edge of the Central Valley in central and northern California (Wong et al, 1988), but the faulting is discontinuous. Most of the segments lengths are 30 to 45 km with a maximum segment length of about 55 km. The closest segment to the Milton site is the Great Valley 7 (GV7) fault segment which has a length of 45 km and a slip rate of 1.5 mm/yr.

Based on the USGS/CGS fault characterization, the mean characteristic magnitude is 6.7 for segment GV7 of the CRSNBZ. The recommended MCE is a magnitude 6.7 earthquake at a closest rupture distance of 66 km.

Greenville-Marsh Creek-Arroyo Fault

The Greenville fault is part of the Greenville-Marsh Creek-Arroyo fault system has primarily strike-slip motions and extends for a total length of 51 km. The Greenville-Marsh Creek segment is located 83 km west of the site. The slip rate of the Greenville-Marsh Creek-Arroyo fault is 2.0 mm/yr.

Based on the USGS/CGS fault characterization, the mean characteristic magnitude is 6.9. The recommended MCE is a magnitude 6.9 earthquake at a closest rupture distance of 83 km.

Concord – Green Valley Fault

The Concord – Green Valley fault is located about 103 km west of the site. The Concord – Green Valley fault is 56 km long with predominantly strike-slip motion. The slip rate of the Concord-Green Valley fault is 5.0 mm/yr.

Based on the USGS/CGS fault characterization, the mean characteristic magnitude is 6.7. The recommended MCE is a magnitude 6.7 earthquake at a closest rupture distance of 103 km.

Calaveras Fault

The Calaveras Fault is located 104 km west of the site. The total fault length of the fault is approximately 123 km based on a segmentation into a northern, central, and southern fault segments. The fault motion of the Calaveras fault is predominately strike-slip and the slip rate is 15.0 mm/yr.

Based on the USGS/CGS fault characterization, the mean characteristic magnitude is 6.9. The recommended MCE is a magnitude 6.9 earthquake at a closest rupture distance of 104 km.

Hayward – Rodgers Creek Fault

The Hayward Fault is located 113 km west of the site. The motion of the Hayward fault is predominately strike-slip and this fault has been segmented into a southern, northern,

and Rodgers Creek segment. These segments give a total fault length of 151 km. The slip rate of the Hayward fault is 9.0 mm/yr.

Based on the USGS/CGS fault characterization, the mean characteristic magnitude is 7.3. The recommended MCE is a magnitude 6.9 earthquake at a closest rupture distance of 113 km.

San Andreas Fault

The San Andreas Fault is located approximately 141 km west of the site. This section of the San Andreas Fault is called the Peninsula Segment. The San Andreas Fault is a predominately right-lateral strike-slip fault extending from Cape Mendocino to Mexico. The northern and southern sections of the fault are separated by the central creeping section south of Hollister to Parkfield. The northern section of the San Andreas Fault is further segmented into the North Coast, Offshore, Peninsula, and Santa Cruz Mountains segments. Combined these four fault segments have a total fault length of 473 km. The slip rate for the San Andreas fault is 24.0 mm/yr.

The largest historical earthquake on this north part of the San Andreas fault was the 1906, San Francisco Earthquake with a moment magnitude of 7.8 (Well and Coppersmith, 1994). This earthquake was due to simultaneous rupture of the North Coast, Offshore, Peninsula, and Santa Cruz Mountain segments.

Based on the USGS/CGS fault characterization, the mean characteristic magnitude is 7.9 for a rupture of the four fault segments. The recommended MCE is a magnitude 7.9 earthquake at a closest rupture distance of 141 km.

4.5.4 Seismicity

Based on the site-specific seismic hazard evaluation report by Dr. Norman Abrahamson (2005) for the Rock Creek Solid Waste Facility, the controlling fault for this site is the Foothills fault system with a maximum credible earthquake (MCE) magnitude of 6.5 at a closest rupture distance of 12 kilometer (7.5 miles). The peak ground acceleration (PGA) corresponding to the MCE is 0.25g. A copy of the full report is an Appendix to the slope stability analysis report (Appendix H).

4.5.5 Slope Stability Analysis

A previously performed slope stability analysis performed for Phase II, is included in Appendix I. The previous slope stability analysis was performed in part to evaluate the use of an alternative liner design, incorporating a geosynthetic clay liner (GCL). The design report that included the slope stability analysis was approved by the CVRWQCB as part of approval for construction of Phase II-A.

Additional slope stability analysis was performed by Shaw-EMCON/OWT to evaluate the design of Phase II-B, with a maximum elevation of 524 feet MSL. Both static and seismic slope stability of Phase II-B were analyzed. Also, slope stability of the critical interim and permanent waste slopes were analyzed. As part of this slope stability analysis, Dr. Norman Abrahamson, who is a renowned engineering seismologist, prepared site-specific seismic hazard report for the Facility.

The additional slope stability analysis concluded that the proposed liner system within Phase II-B must meet a minimum large-strain shear strength defined by a friction angle of 12.2 degrees within a normal stress range of 0 to 10,000 psf. All internal and interface shear planes within the liner system must meet this requirement. It is important that this shear strength requirement be verified during the selection of the textured HDPE geomembrane, the geocomposite drain, and the GCL products to be used in the Phase II-B liner system. Conformance testing should also be performed on the actual materials to be used in the liner construction, prior to installation.

The slope stability report indicates that the design of the liner system for Phase II-B will meet the performance requirements contained in Title 27 CCR if constructed in accordance with the design criteria noted in the report. This slope stability analysis for Phase II-B is presented in Appendix H.

4.6 Hydrogeology

SWRCB 27 CCR 21750(g)

The following descriptions of hydrogeology is based on information provided by Golder Associates, portions taken from a monitoring report for the third and fourth quarters of 2004, including references by Golder to other documents called out in the footnotes.

4.6.1 Site Groundwater Hydrology/Aquifer Characteristics

The first significant encountered groundwater ranges from about 30 to 80 feet below the native ground surface. Groundwater elevations range from 300 feet MSL to 400[13] feet MSL. The depth to groundwater fluctuates seasonally as much as 1.5 feet.

The upper groundwater zone occurs in the interbedded sedimentary unit in unconfined to semi-confined conditions. Static water level is typically encountered between 10 and 20 feet above the contact of the sedimentary unit and the underlying greenstone conglomerate.[14] Hydraulic testing was conducted in wells screened across the saturated portion of the sedimentary sequence and conductivity values were found to range between 1.2×10^{-4} and 6.7×10^{-6} centimeters per second (cm/s).[15,16] Based on a series of in-situ permeability tests conducted in the greenstone conglomerate unit, permeability values range from 1.5×10^{-5} to 9.8×10^{-6} cm/s.[17] The wells in the monitoring program are screened across the saturated portion of the sedimentary unit, with the exception of well HP-3, which is screened in the greenstone conglomerate. Groundwater also occurs at depth in fractures in the granitic bedrock. No monitoring wells are constructed in the granitic bedrock, but a water supply well located on the Facility property is screened within this unit at a depth of several hundred feet. Groundwater flows to the southwest**,** generally following the direction of surface drainage in the north-south trending valley.

The gradient in the area of the waste units is calculated to be 0.04 and the flow direction is to the south-southwest. Using the gradient, the hydraulic conductivity, and the estimated effective porosity of the upper water-bearing unit (sedimentary unit), the approximate groundwater seepage velocity can be calculated using Darcy's Law. Based on the average of published values for geologic materials similar to those of the upper water-bearing unit, an effective porosity value of 0.2 is assumed. Hydraulic testing conducted at the site indicates the most conservative hydraulic conductivity (fastest rate) in the upper water-bearing unit beneath the site is 1.2×10^{-4} centimeters per second (cm/s). Therefore, groundwater seepage velocity underlying the existing waste management units is calculated to be approximately 2.4×10^{-5} cm/s (25 feet per year [ft/yr]).

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[13] Fourth Quarter 2004 Monitoring Report, Golder and Associates

[14] Condor Earth Technologies, Inc. *Revised Report of Waste Discharge for the Rock Creek Landfill, Calaveras County, California.* June 1992.

[15] Condor Earth Technologies, Inc., June 1992.

[16] Herzog Associates. *Report Hydrogeological Evaluation, Rock Creek Landfill Site, Calaveras County, California*. May 24, 1989.

[17] Herzog Associates, May 1989.

4.6.2 Ground Water Quality

Monitoring data indicates background groundwater quality has an electrical conductivity (EC) ranging between 200 and 1,000 micromhos/cm, with total dissolved solids (TDS) ranging between 100 and 550 mg/l. For the discussion on water quality below, refer to section 6.3 for a description of the monitoring programs which describes the location of monitoring points.

4.6.2.1 Organic Compounds

No VOCs were detected in the groundwater well samples collected during fourth quarter 2004.

4.6.2.2 Inorganic Compounds

To further evaluate groundwater quality at the detection monitoring wells, the results for the inorganic monitoring parameters are compared to concentration limits. As specified in the Facility's WDR, the downgradient wells function as their own background for the detection monitoring program and the intrawell tolerance statistical method is used to determine concentration limits. The intrawell concentration limits have been calculated using tolerance limits at 95% confidence and 95% coverage. Because natural, regional changes in groundwater are expected to occur, concentration limits are updated annually, most recently with data collected through second quarter 2004.

Using the intrawell statistical method, three fourth-quarter results from well D-1 (specific conductance, sulfate, and TDS) were above their respective concentration limits. Sulfate was detected at a concentration of 76 mg/L, slightly exceeding the intrawell concentration limit of 72 mg/L. Specific conductance was measured to be 423 micromhos per centimeter at 25 degrees Celsius (µmhos/cm), above the intrawell concentration limit of 341 µmhos/cm. Total dissolved solids (TDS) was measured to be 282 mg/L, above the concentration limit of 248 µmhos/cm. Chloride was detected at a concentration of 9.7 mg/L in well D-1, below the concentration limit of 14 mg/L. Nitrate also was detected below the concentration limit.

Similar results have been obtained from well D-1 in 2002 and 2003. However, evidence of significant spatial variability of inorganic groundwater constituents upgradient of, and cross gradient to, the Facility and well D-1 exists. In March 2002, an evaluation of the

current monitoring program was conducted to determine if a revised monitoring program would allow for more reliable release detection.[18]

The report concluded that pH, chloride, and VOCs were the most appropriate detection monitoring parameters for the Facility because they exhibited low spatial variability and varied significantly in groundwater versus leachate. Based on these conclusions, the report recommended that, to better evaluate groundwater quality statistically, analytical data should be compared to interwell concentration limits calculated for pH and chloride using pooled data from background wells U-1 and U-2. At that time, using pooled data from upgradient wells U-1 and U-2 through fourth quarter 2001, the interwell concentration limits were calculated be 6.3 to 7.9 standard units for pH, and 19 mg/L for chloride.

Additional work performed for the RWQCB[19], leads to a similar conclusion that, the current concentration exceedances do not indicate a release from the Facility. Rather, in the absence of VOC detections, the observed conditions appear to be a function of naturally-occurring spatial variability in groundwater quality upgradient and beneath the Facility. The recommendation to use pooled data from upgradient wells U-1 and U-2 to determine interwell concentration limits for chloride and pH was reiterated.

[18] Connor Pacific. *Evaluation of Monitoring Parameters, Rock Creek Solid Waste Facility, Calaveras County, California.* March 6, 2002.

[19] Evaluation of Detection Monitoring Well D-1, Golder Associates, March 15, 2005.

5 DESIGN AND CONSTRUCTION STANDARDS

Descriptions of how the site design accommodates specific features, such as facility service areas, climatological factors, physical setting, soils, drainage, and general public use, are presented in this section of the JTD.

5.1 General Design Parameters

CWIMB 27 CCR 21600(b)(4)(A)

The landfill design features and construction standards are based on state and federal regulatory requirements, including 27 CCR and the current WDRs. Phases constructed after October 9, 1993, have included a composite liner and LCRS. Any future construction phases will also be constructed with a composite liner and LCRS.

5.2 Design Responsibility

CIWMB 27 CCR 21600(b)(4)(B)

The design for the landfill and its construction and operation are, and have been conducted under the direction of a registered civil engineer and other professionals, as required.

5.3 Site Construction Sequencing Plan

CIWMB 27 CCR 21600(b)(4)(C)

The incremental construction sequencing plans for the landfill consist of four phases; Phases I, II, III and VI. Phases I-A, Phase I-B and Phase II-A have been constructed. Phase II-A is currently active. Phase II-B is proposed to be constructed to accept waste in the spring of 2006. The four phases are shown conceptually on the based liner plan, Drawing C6, Appendix C. Drawing C11, Appendix C, shows the fill sequencing, including Phase II-A and II-B. As can be seen in Drawing C-11, filling will be sequenced in a fashion that uses a filling progression over a number of phases as the landfill is brought to interim and then final grades in order to provide a slope stability buttress for the preceding Phase. Drawing 1, Appendix B, shows the liner boundaries of Phases I and II-A based on previous design reports for those phases, as well as the proposed boundary of Phase II-B and future Phases.

Sequencing of the final cover and the final grading plan are shown on Drawing C5, Appendix C. Section 6.2.2, Subsection "Final Grading Plan" described the proposed phasing of final cover placement. As indicated in the PCPMP, the phases will brought to final grade in partial final closure projects.

5.4 Grading Plan

CIWMB 27 CCR 21600(b)(4)(D)

The final grading plan (Drawing C5, Appendix C) shows the footprint and grading contours designed within the landfill limits. The design of the landfill final grading plan was developed by Harding Lawson Associates (HLA) for the PCPMP. The surrounding topography as of the date of development of the final grading plan is also shown on the original final grading plan. The final grading plan was controlled by topography, slope stability requirements, minimum surface gradients required to adequately drain the completed fill, requirements of storm-water drainage control facilities to convey runoff from upgradient areas around the fill, aesthetics, and site end-use considerations. Landfilling of wastes to the final grades will create an area suitable for nonirrigated open space.

The purpose of the final grading plan in a PCPMP is to provide the design features of the landfill such that closure and postclosure maintenance costs can be estimated in conformance with Title 27, CCR. The PCPMP must be updated if there are significant changes in the closure plans, including those that would require revision to the closure and postclosure cost estimates. Prior to implementing closure, either partial or complete, the preliminary closure plan must be updated and refined in detail and based on more current information in a final closure plan addressing the area to be closed.

It is noted that the landfill footprint limit for Phases II-A, as constructed, and as proposed for Phase II-B is slightly smaller than those proposed in the PCPMP develop in 1995. The changes result in a footprint that is slightly smaller than originally proposed. The main reason that the actual footprint is slightly smaller is that the construction of the transfer station building required placement of the building and earthwork that results in the eastern landfill footprint being adjusted inward to accommodate the building when compared to the PCPMP. Beyond this deviation in landfill limits, the general shape, slopes and final contouring of the landfill remain consistent with the final grading plan in the PCPMP. No design changes are proposed to the PCPMP design. *Due to the fact that the actual final footprint may be slightly smaller once the site is completed, the County believes that the 1995 closure and postclosure maintenance cost estimates developed to*

date remain an adequate basis to fund closure, and therefore no revisions to the landfill design or closure provisions in the 1995 PCPMP are proposed, other than updating the site tonnage and site life projections and site monitoring based on more recent site information.

Pre-excavation topography for the site is shown on Figure 1. The existing topography for the site, as of September 2, 2004, is shown on Drawing 1.

5.5 Liner System

SWRCB 27 CCR 20330

5.5.1 Existing Liner Phases

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 has a maximum permeability of 1 x 10^{-6} cm/sec. The compacted clay liner was overlain with an 18 mil thick polyethylene vapor barrier and 12-inch-thick gravel blanket LCRS. Leachate from the Phase I-A LCRS gravity drains to the Class II leachate impoundment through the Phase I-B and Phase II-A LCRS pipes. Subsequent phases, all constructed after Subtitle D requirements, were constructed in compliance with Title 27, CCR, and Subtitle D requirements.

Phase I-B was constructed with a composite liner system consisting of a minimum thickness of 24 inches of compacted clay that displayed a maximum permeability of 1 x 10^{-7} cm/sec. The clay liner was overlain with a 60-mil-thick high density polyethylene (HDPE) geomembrane and a 12-inch-thick gravel drainage blanket was placed over the geomembrane.

The Phase II-A liner system consists of a single composite liner system with a double composite liner provided in the central portion of the WMU beneath the leachate collection trench. The Phase II-A base liner consists of the following components from top to bottom:

- Geosynthetic Clay Liner (GCL) (central portion of landfill)
- 60 mil HDPE geomembrane (central portion of landfill)
- Geocomposite (geotextile-geonet-geotextile) (central portion of landfill)
- GCL

- 60 mil HDPE geomembrane
- 12-inch-thick gravel drainage layer on base geocomposite drain on side slopes
- 12-inch thick operations layer on base 24-inch-thick operation layer on side slopes

The gravel drainage layer is drained by a series of perforated HDPE pipes that gravity drain to the Class II impoundment through a solid wall HDPE pipe that is set below grade.

In order to construct Phase II-A, the County petitioned the RWQCB to allow the use of a GCL in the composite liner system as an engineered alternative to the prescriptive standard (2-foot compacted clay with a maximum permeability of $1x10^{-7}$ cm/s). The County's petition demonstrated that the proposed design with the GCL would provide equivalent protection and that application of the prescriptive standard was unnecessarily burdensome. This petition was approved by the RWQCB.

5.5.2 Proposed Phase II-B Liner System

A primary purpose of this JTD is to present the design for the proposed base liner construction within Phase II-B. Drawing 3 shows a plan view of the proposed Phase II-B construction limits and grading. This proposed design is a continuation of the grades established for the construction of Phase II-A. The base grades slope at a net 2.2% to the center of the cell where the perforated collection pipes are located. These pipes slope at 2% towards the southern perimeter of the cell where leachate will discharge to wet wells, one for the east half of the cell and one for the west half of the cell. Pumps will be installed to convey the leachate to the existing surface impoundment. Pumps have been proposed to allow for the measurement of leachate being generated. The primary collection pipes within Phase II-B will accommodate the flow from the entire landfill, Phases I-A through II-B. The original design of the site prepared by HLA provided for the this condition.

The leak detection system installed beneath the primary composite liner will also drain at 2.2% towards the center of the cell where leachate will be collected in a perforated pipe. There is no separation of the secondary collection system flow as there is in the primary collection system. The liquid that collects in the Phase II-B secondary system will also discharge to a wet well where it will be measured and conveyed to the surface impoundment. The liquid that accumulates within the Phase II-A leak detection system

will be carried to a wet well though a separate solid wall collection pipe and measured separately from the Phase II-B secondary LCRS. If the liquid from the Phase II-A leak detection system was allowed to be conveyed through the Phase II-B leak detection collection pipe there would be no way to tell if the primary Phase II-B liner were leaking. This additional Phase II-A secondary pipe allows for future determination of Phase II-B primary liner performance.

The side slopes for the cell will be excavated at 2:1 (horizontal to vertical).

The proposed liner for Phase II-B is comprised of differing barrier systems for the base and the side slopes. The base liner system is comprised of the following elements from top to bottom:

- 15 inch thick operations layer
- 8 ounce per square yard (oz/sy) non-woven geotextile filter
- 9 inch thick gravel drainage layer
- 60 mil HDPE geomembrane
- Geosynthetic Clay Liner (GCL)
- Geocomposite drainage layer (non-woven geotextiles heat bonded to each side of a geonet core)
- 60 mil HDPE geomembrane
- One foot thick prepared subgrade (Constructed of select fine-grained soil materials which shall be compacted in lifts of six inches or less to 90% of maximum dry density and at 0% to 4% wet of optimum moisture content, in accordance with the approved construction quality assurance plan; and compacted to attain a hydraulic conductivity of 1×10^{-5} cm/sec or less or a gradation of maximum 3/8 inch particle size and at least 30% passing the #200 sieve)

The base liner secondary geomembrane will be sealed to the primary geomembrane at the toe of slope to prohibit liquids from entering the system other than through a defect in the primary composite liner.

The side slope liner is proposed to consist of the following elements from top to bottom:

- 2 foot thick operations layer (to be placed during operations)
- 60 mil HDPE geomembrane
- GCL
- Prepared surface

GCLs when used on side slopes in geographical areas where there are large fluctuations between day and temperatures have been shown to creep beneath the geomembrane. This creep phenomenon can pull the GCL panels apart leaving gaps at the seams. The potential for GCL creep at the landfill is believed to exist based on the climatological setting and the time frame that slopes will remain uncovered due to the relatively slow rate of refuse disposal at the site. To account for this potential problem, GCL manufacturers have recommended that the seam overlap on side slope be increased from the standard six inches to 12 inches. This recommendation will be followed for the side slope GCL placement for the Phase II-B design.

There will be a minimum 2 foot soil separation between the liner systems and waste over the base and side slopes of Phase II-B. On the base, a nine inch layer of gravel and a 15 inch layer of operations layer soil creates this separation. On the side slope a two foot thick operations layer will form the separation. Additionally, the County proposes to place select waste during the first refuse lift to ensure that the liner system is not impacted during operations.

All existing and proposed liners will be connected to form a continuous barrier beneath the landfill. Illustrations of the proposed liner system for the landfill can be found in Drawings 2 though 9. The connection of the leachate collection systems is discussed below in Section 5.6.2.

5.5.3 Alternative Liner Basis (Performance Demonstration)

5.5.3.1 Regulatory Requirements

On 17 June 1993, the State Water Resources Control Board adopted Resolution No. 93-62 implementing a State Policy for the construction, monitoring, and operation of municipal solid waste landfills that is consistent with the federal municipal solid waste regulations promulgated under Title 40, Code of Federal Regulations, Part 258 (Subtitle D). Resolution No. 93-62 requires the construction of a specified composite liner system at new municipal solid waste landfills, or expansion areas of existing municipal solid waste landfills, that receive wastes after 9 October 1993. Resolution No.

93-62 also allows the Regional Board to consider the approval of engineered alternatives to the prescriptive standard. Section III.A.b. of Resolution No. 93-62 requires that the engineered alternative liner systems be of a composite design similar to the prescriptive standard.

Title 27, CCR, Section 20080(b) allows the Regional Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with Title 27, CCR, Section 20080(c)(1) and (2), the Discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in Section 20080(b), or would be impractical and would not promote attainment of applicable performance standards. The Discharger must also demonstrate that the proposed engineered alternative liner system is consistent with the performance goal addressed by the particular prescriptive standard, and provides protection against water quality impairment equivalent to the prescriptive standard in accordance with Title 27, CCR, Section 20080(b)(2).

Section 13360(a)(1) of the California Water Code allows the Regional Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.

5.5.3.2 Use of GCL in Place of Prescriptive Barrier Soil Layer

As indicated in WDR 5-01-149, the Phase II-A liner system consists of a single composite liner system with an overlying LCRS. A secondary composite liner and LCRS were constructed beneath the central portions of the Phase II A LCRS. These composite liners consist of geosynthetic clay liners (GCL) overlain by 60-mil HDPE flexible membrane liner material. Prior to construction of Phase II-A the County petitioned the CVRWQCB to allow the use of a GCL in the liner system as an engineered alternative to the prescriptive standard (2-foot compacted clay with a maximum permeability of 1×10^{-7} cm/s). This petition was contained in a letter from the County to the CVRWQCB, dated, October 9, 1996 (Appendix A). The letter demonstrated that the proposed design would provide equivalent protection and that application of the prescriptive standard was unnecessarily burdensome.

The County proposes that the previous engineered alternative design approval, petitioned for all of Phase II, for the use of GCL for bottom and sideslope liner systems, is applied to the construction of Phase II-B. This would be consistent with the current WDR 5-01-149.

5.5.3.3 Sideslope Liner Drainage

The current WDR 5-01-149 requires that the sideslope liner system includes a geocomposite drainage layer on the 2:1 sideslopes and a gravel layer over the base liner on the floor. The County proposes that the geocomposite drainage layer be eliminated from the sideslope liner system for Phase II-B and future Phases based on the following rationale:

- The operations layer to be placed on a geocomposite will be less permeable than the waste by an order of magnitude[20]. It is expected that moisture above the sideslope liner will migrate along the interface of the waste and operations layer until it enters the LCRS gravel layer on the base. With 2:1 sideslopes proposed, liquid head is not likely to build up on the sideslope operations layer or liner.

- A geocomposite placed on the side slopes not only provides a drainage path for liquid that may migrate through the waste but also provides a pathway for landfill gas (LFG) to migrate up the slope to the perimeter of the landfill unit where it can potentially enter adjacent soils at an anchor trench or the atmosphere. This geocomposite side slope LFG migration problem has recently been documented as the expected cause of groundwater contamination at a site in the Central Valley region. Considering the relative inefficiency of the geocomposite to convey liquid to the base LCRS and the potential for LFG migration to the perimeter of the landfill, it is believed that this geocomposite drainage layer may be more detrimental to the containment of waste than beneficial.

- We are aware that the CVRWQCB has approved similar sideslope liner systems without a drainage layer between the HDPE geomembrane and operations at other landfill sites[21].

Small seasonal springs have been mapped on the side slopes of the site in the past. To control these naturally occurring springs, a subdrain system is proposes to drain the water away from the base liner system. A subdrain system currently existing along the toe of slope of the east side of the Phase II-A area. This subdrain gravity drains to the surface

[20] The saturated hydraulic conductivity default "k" value in the HELP model for municipal solid waste is 1X10-3 cm./second; compared to site specific testing of on-site soils typically yielding permeabilities on the order of 1X10-5 or less.

[21] Other example sites in the CVRWQCB jurisdiction that are not required to have a drainage layer on the sideslopes include the Bakersfield Metropolitan (BENA) Landfill (WDR R-2002-178) and Tehama County and City of Red Bluff Landfill (WDR R-2003-0144)

water collection system. As part of the Phase II-B design, the eastern Phase II-A subdrain will be extended to the southern limit of Phase II-B. In addition to this eastern toe of slope subdrain, a subdrain along the western toe of slope in the Phase II-B area is proposed for construction. Both of these subdrain will be extended up the slopes to intercept any liquids that are observed during construction. Both of these subdrain systems will gravity drain to the storm water collection system.

5.5.4 Liner Performance Demonstration

On 15 September 2000, the Regional Board adopted Resolution No. 5-00-213 *Request For the State Water Resources Control Board To Review The Adequacy Of The Prescriptive Design Requirements For Landfill Waste Containment Systems To Meet The Performance Standards Of Title 27.* The State Board responded, in part, that

> *"a single composite liner system continues to be an adequate minimum standard, however, the Regional Board should require a more stringent design in a case where it determines that the minimum design will not provide adequate protection to a given body of groundwater."*

In a letter dated 17 April 2001, the Executive Officer notified Owners and Operators of Solid Waste Landfills that the Regional Board will require a demonstration for any proposed landfill liner system constructed after 1 January 2002 to comply with Title 27 performance standards.

On January 31, 2005, the County submitted a letter to the CVRWQCB affirming the process for WDR revisions for approval to construct Phase II-B, which included a letter of performance standards demonstration for proposed waste containment systems described, above. The CVRWQCB responded in a letter dated February 7, 2005 that included the statement in quotations below, which supported the submitted performance demonstration letter. Copies of these letters are in Appendix A.

"1. The proposed waste containment system design for the Class II Phase II-B consists of a double lined liner system. At a minimum, a single composite liner system is required and the proposed engineering alternative goes beyond this minimum requirement. Staff concurs with this approach and support the submitted performance standard demonstration letter, however, as stated in the proposal, this approach has been used with other facilities, please provide supporting documentation."

5.6 Leachate Collection and Removal System

SWRCB 27 CCR 20340

5.6.1 Leachate Generation

Leachate is formed by the infiltration of surface water and any free liquids inherent to the waste migrating through the refuse to the bottom of the landfill. The landfill has been designed and operated to minimize the formation of leachate by limiting the infiltration of precipitation. In addition, all liner systems have been designed to capture leachate formed within the landfill through the use of LCRS. The design reports for various Phases of landfill construction have included calculations relating to the ability of the LCRS to handle the quantity of leachate expected to be generated within the lined portions of the landfill.

Calculations for the Phase I LCRS were included in Appendix E of the *Report of Waste Discharge for Rock Creek Landfill, Calaveras County, California* (EBA Wastechnologies, 1989) and in Appendix B of the *Design Report for Phase I-B, Rock Creek Landfill, Calaveras County* (EBA Wastechnologies, 1993).

In the 1995 RDSI prepared by HLA, a leachate generation analysis was performed for the entire Phase II development area of the landfill. The analysis used the Hydrologic Evaluation of Landfill Performance (HELP) computer model, Version 2. The analysis was performed to evaluate the Phase II base liner and LCRS design, requirements for the existing Class II surface impoundment, and performance of the final cover. The analysis was performed for sequential stages of landfill development on a unit acre basis. Stages of development through Phase II were modeled to estimate the period of maximum estimated leachate generation. The maximum annual leachate generation for Phase I and Phase II, based on average annual rainfall, was estimated to be 88,000 cubic feet during the tenth operational year of Phase II. An additional analysis was then performed for this

peak period of generation using annual rainfall having a probable return frequency of 100 years and resulted in an estimated annual leachate generation of 103,000 cubic feet.

Peak daily leachate generation and hydraulic head buildup over the design base liner slopes resulting from the 100-year analysis were then evaluated for the Phase II LCRS. The analysis indicated the LCRS will limit the leachate hydraulic head on the liner to significantly less than 12 inches. Results of the leachate generation analysis were incorporated into calculations for the then proposed Class II surface impoundment, which has served Phase II-A and is proposed to also serve leachate flows from Phase II-B.

The leachate generation analysis also indicated that the regulatory standard final cover system will virtually eliminate infiltration through the final cover. Detailed leachate generation estimates, Class II impoundment capacity calculations, and LCRS pipe calculations, as taken from the 1995 RDSI, are included in Appendix J

Calculations for the proposed LCRS for Phase II-B were also developed by Shaw-EMCON/OWT for Phase II-B to substantiate the proposed LCRS drainage layer design (Appendix K). The leachate generation was estimated using the Hydrologic Evaluation of Landfill Performance computer model, developed for the U.S. Environmental Protection Agency by the U.S. Army Corps of Engineers. Results of the HELP modeling are presented in Appendix K. In conformance with Title 27, the calculations for the Phase II-B LCRS indicate that the head on the liner system will not exceed 12 inches.

5.6.2 Existing Leachate Collection Systems for Phases I and II-A

The basic design of the LCRS drainage layers was described in Section 5.5.2, integrated with the discussion on the liner systems. The LCRS for Phases I and II-B were constructed to convey leachate from the LCRS to a surface impoundment.

The Phase I LCRS is a 1-foot-thick gravel drainage blanket with perforated collection pipes installed in central swales. The collection pipe at the Phase I-B terminus connects to a pipe that conveys the leachate to the Phase II-A LCRS pipe (previously was to a Class II impoundment immediately south of Phase I, which was relocated). Phase I-B was divided into east and west leachate collection basins having independent leachate collection pipes. Initial waste placement within Phase I-B was in the western portion. This bifurcated design allowed for separate collection of stormwater in the eastern portion while the western portion was active. Once the eastern portion began to accept waste the liquid collected in the LCRS was treated as leachate. The design and operation of Phase II-A was similar to the Phase I-B design and operation.

The Phase II LCRS was designed in the 1995 RDSI, by HLA, to prevent leachate buildup over the liner in excess of 12 inches via gravity flow, to be of sufficient strength to withstand applied forces of operating equipment and overlying wastes and cover soil, and to facilitate system cleaning and inspection. The design LCRS consists of a gravel drainage blanket over the entire base geomembrane liner.

The construction of Phase II-A included a 1-foot-thick gravel drainage layer having a minimum hydraulic conductivity of $1x10^{-1}$ cm/sec over the entire base of the landfill. Side slopes in Phase II-A were constructed with a geosynthetic drainage net (geocomposite) in place of the gravel layer. The collection layer was encased in non-woven geotextile to minimize migration of operations layer soil into the drainage layer and to provide shear strength. The gravel drainage blanket is sloped to perforated HDPE collection pipes, surrounded by gravel extending through the operations layer. The extension of gravel through the drainage layer provides an avenues for any liquid that may flow across the operations layer to enter the LCRS prior to flowing beyond the limits of the liner. The collection pipes are routed to solid wall HDPE conveyance piping that current directs leachate to the existing Class II impoundment. Riser pipes were extended up the landfill side slopes for LCRS cleaning and inspection access.

In addition to the primary collection system a limited secondary leak detection system was installed over the central portion of the Phase II-A base liner. Liquid that collects within this system also is conveyed to a central collection pipe and discharged by gravity to the surface impoundment. The secondary base liner (60 mil HDPE geomembrane over a GCL) is not sealed to the primary liner above using geomembrane welding technology. Therefore, seeps from side slopes have the ability to enter this layer and provide flows that are not through the above lying primary liner system. This avenue of infiltration into the Phase II-A secondary system has therefore been proposed to remain separate from the leak detection system proposed for the Phase II-B secondary collection system.

5.6.3 Proposed Phase II-B Leachate Collection and Removal System

The base liner and LCRS on the floor of Phase II-B is proposed of a primary and secondary collection system. The proposed primary LCRS for the Phase II-B base liner system consists of a continuous 9-inch-thick layer of gravel across the base of the landfill with a central collection trenches. This nine inch gravel drainage layer has been designed to convey flow to meet the regulatory mandated maximum of 12 inches of head on top of the liner (Appendix K). Within the two central collection trenches, one for the east side and one for the west, 8 inch diameter HDPE perforated pipes will be installed to efficiently convey collected leachate to the southern limit of the Phase II-B cell. At that

point, leachate will drain to wet wells from which it will be automatically pumped and measured to the existing surface impoundment. The primary Phase II-B LCRS will be connected directly to the existing Phase II-A primary LCRS. Therefore, the primary LCRS pipes to be installed within Phase II-B will carry leachate generated within Phases I through Phase II-B.

LCRS collection laterals are proposed to be installed to run from the central LCRS trenches to the east and west toes of slope and up the 2:1 side slopes to the perimeter of the liner. These pipes will be perforated within the base liner LCRS gravel and solid along the 2:1 side slopes. The pipes will assist in conveying leachate to the central collection trench, provide additional access to the primary LCRS for inspection, and provide potential points of connection to a future landfill gas collection system.

The secondary LCRS is comprised of a geocomposite drainage layer placed over the entire base of Phase II-B. This drainage layer will convey leachate that may flow through a defect in the above lying primary liner to a central collection drain. The Phase II-B secondary central collection drain will be equipped with a 6 inch diameter perforated HDPE pipe that will discharge to a separate wet well at the southern perimeter of the cell. Leachate that collects in the wet well will be measured and automatically pumped to the existing surface impoundment. The Phase II-B secondary collection system is not proposed to be connected to the Phase II-A secondary collection system. The two systems are proposed to remain separate due to the fact that the Phase II-A secondary collection system is not sealed to the environment and there is potential for groundwater seeps to enter this system. By separating the two secondary collection system a leak within the Phase II-B primary system can be detected. A solid wall pipe will extend from the Phase II-A secondary LCRS to the southern limit of Phase II-B where is will discharge to a wet well, measured and automatically pumped to the surface impoundment. This wet well will be separate from the Phase II-B secondary discharge wet well. The proposed wet wells and pumping systems will be equipped with level controls to prevent head build-up and flow meters to quantify flow from these collection layers. Future connections to the secondary collection systems will be determined based on performance of the current base liner systems.

The elements for Phase II-B are illustrated on Drawings 3 through 20 in Appendix B. Appendix K contains a design analysis of the proposed LCRS for Phase II-B. The calculations indicate that this proposed drainage layer will convey 72 gallons-per-minute, which is twice the anticipated peak daily leachate flow of 36 gallons-per minute.

The drainage of leachate for the sideslope liner system of Phase II-B is discussed in Section 5.5.3.3.

5.6.4 Class II Surface Impoundment

The facility relies on Class II surface impoundments for the storage and disposal of leachate generated and collected from the Class II landfill. To date, surface impoundments have been constructed with each phase of landfill development. The original (Phase I) Class II impoundment served discharges from the Phase I landfill LCRS. This impoundment was replaced in 1997 by the current Class II impoundment that serves the both Phases I and II. The Phase I surface impoundment was decommissioned in accordance with the clean closure requirements prescribed by Discharge Specification 26 of WDR 5-01-149 and Subdivision 1, Chapter 3, Subchapter 4 of Title 27. Free liquids were transferred to the existing 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.

Both impoundments used or use a leak detection system. The LCRS for the original impoundment consisted of a composite synthetic drainage layer, gravel collection swale, 6-inch-diameter perforated Schedule 40 PVC collection pipe, and a 4-inch-diameter PVC riser pipe. The composite synthetic drainage layer consists of a geonet and nonwoven geotextile. The LCRS design for the existing Class II impoundment is similar to the original Class II impoundment design, except that HDPE pipe was specified. Detailed leachate generation estimates and calculations for the existing Class II impoundment are presented in Appendix J.

5.6.4.1 Treatment

Fluids detained by the Class II surface impoundment may be returned to the lined, Class II landfill on a limited basis for use associated with controlling dust or moisture-conditioning soil for daily and intermediate cover. In addition, leachate may be recirculated within the Class II impoundment by various means to enhance evaporation. These practices effectively increase the amount of leachate that can be managed onsite, while also allowing periodic inspection and maintenance of the Class II impoundment.

5.6.4.2 Disposal

Leachate is disposed by evaporation from the Class II impoundment. The Class II impoundment is designed and operated to maintain a minimum freeboard of 2 feet while accommodating leachate and direct rainfall resulting from annual rainfall having a 100-year probable return frequency. In addition, according to previous WDR 90-232, the

impoundment was also designed to accommodate the 1,000-year, 24 hour storm without overtopping and to contain all contact water from the tipping area.

5.7 Precipitation and Drainage Controls

SWRCB 27 CCR 20365

5.7.1 General Description

The major functions of the surface water drainage control system are to minimize erosion and inhibit the potential infiltration of surface water run-on into the refuse. Storm water drainage control for the landfill site utilizes a combination of conveyance facilities to collect and direct storm water run-on and run-off flows in a controlled manner. The drainage facilities are intended to control and convey 24-hour, 1,000-year storm event. Sizing of diversion berms, channels, and overside drains are based on 24-hour, 1,000-year storm flows.

5.7.2 Final Drainage Control System

The final drainage control system configuration and design, including hydrology study and calculations as required by 27 CCR 20365) is contained in the PCPMP. The proposed final drainage improvements, combined with the final surface grading, will facilitate the removal of surface water run-off from the waste area in accordance with 27 CCR regulations. The final surface or deck area of the landfill will be sloped to prevent ponding and promote lateral runoff of storm water which falls directly on the landfill. Drawing C5 (Appendix C), Final Grading Plan, presents surface water drainage controls including swales along the landfill benches, drop inlets, downdrains, culverts and discharge controls. Surface water control details are presented on Drawings C16 and C17. Final design of these structures may vary based on updated information at time of development of the final closure plan or final construction.

5.7.3 Design of Surface Water Drainage Control System for Phase II-B

Storm water drainage for the Facility was described in Section 4.4.5. Design calculations for the storm water management system for Phase II-B are in Appendix G.

5.7.4 Interim Surface Water Drainage Control Procedures

When necessary, temporary berms and V-ditches are placed near the refuse fill areas to direct surface water around active waste placement areas and to prevent surface water from ponding. The temporary berms direct surface water flows to the nearest earthen drainage channel. Downdrains can be employed and extended up the refuse slopes, if needed, as the height of the module increases. If downdrains are used, inlet structures to the downdrains will be placed on the deck and slope benches. Silt barriers in the form of a series of straw waddles, silt fences, sand bags, or other best management practices are placed in shallow trenches used to intercept runoff and remove sediment as needed. Vegetative and green waste cover is also used on interim cover to provide erosion control.

5.7.5 Desilting Facilities

Upstream of the single point where storm water runoff is discharged offsite, runoff is collected and retained in a series of sedimentation basins. The sedimentation basins have a cumulative design capacity that exceeds the estimated quantity of runoff associated with the 100-year, 24-hour storm, i.e. 20 acre-feet or 6.5 million gallons. Due to the storage capacity of these basins and the resulting retention time, storm water is not typically discharged from the Facility until after several significant rain events and, once initiated, discharges typically persist through the rain season. As a consequence, storm water discharges are not responsive to rain events and tend to be sustained and well-mixed. Under the NPDES program for the Facility, samples are collected from the discharge point once runoff is released from the basin and thereafter when conditions allow.

5.8 Final Cover

SWRCB 27 CCR 21090(a)

The completed landfill will be provided with a final cover designed to minimize water infiltration into the landfill and meet or exceed appropriate regulatory standards. The landfill final cover consists of two major areas: the top deck(s) and the sideslopes. Consistent with 27 CCR requirements, the final cover will be designed by a registered civil engineer or certified engineering geologist, and it will be placed consistent with an approved construction quality assurance program.

The proposed final cover will consist of the following layers, from bottom to top:

- A minimum 2-foot-thick foundation layer, 1 foot of which will be placed as intermediate cover during landfill operations
- A 2 foot thick low-permeability layer
- 60 mil HDPE geomembrane
- Nonwoven geotextile
- A minimum 1.5-foot thick vegetative soil cover suitable to support vegetation

At the time a final or final partial closure plan is prepared, an engineered alternative final cover may be proposed consistent with 27 CCR 20080.

The final cover is discussed in greater detail in the PCPMP.

6 DESIGN REPORT

6.1 Introduction

6.1.1 Regulatory requirements

The Facility was designed, permitted, and is operated in compliance with Class II landfill standards set forth in 27 CCR. All municipal solid waste landfills are subject to Federal regulations which became effective on October 9, 1993 under the Resource Conservation and Recovery Act, also known as Subtitle D. The Subtitle D regulations were promulgated under Title 40 of the Code of Federal Regulations Parts 257 and 258. Subtitle D (40 CFR 258.40) requires operators of municipal solid waste landfills to construct a composite or approved engineered alternative liner system in new waste management units, lateral expansions, or areas within a previously permitted waste management unit which had not had refuse placed within them as of October 9, 1993. Additionally, a leachate collection system must be installed above the composite liner system with the design capability to maintain less than a 30-cm (12 inches) depth of leachate over the liner.

Subtitle D also allows an operator to develop and submit for approval, an alternative liner design in accordance with 40 CFR 258.40(a) (1). The County received approval from the RWQCB for an alternative liner design consisting of a geosynthetic clay liner (GCL) in lieu of the 24-inch thick low-permeability soil layer liner component for Phase II-A. This alternative is also proposed for the construction of Phase II-B. In accordance with 27 CCR 20310, all of the waste management units have been designed and the construction will be certified by a registered civil engineer and/or a certified engineering geologist.

Section 5.5.1 presented the existing liner for Phases of the landfill that have been constructed. Section 5.5.2 presented the proposed liner for Phase II-B. Section 5.5.3 presented the basis of design, including liner performance demonstration presented as required by the Central Valley RWQCB, of the proposed liner and LCRS system for Phase II-B. As proposed, the liner design presented for Phase II-B is a component of the overall waste containment system, which meets the prescriptive standard design criteria specified in 27 CCR.

The engineering plans reflecting the actual and proposed engineering designs are subject to change based on the changing field conditions and development of construction level plans. As required in 27 CCR 21760, detailed as-built plans and quality assurance reports were prepared and submitted to the RWQCB, upon completion of existing containment system construction for each area of development. Detailed as-built plans and quality assurance reports will be prepared for Phase II-B and Phases III and IV, prior to construction.

6.1.2 Site Design Information Updates and Proposed Elements

This design report section describes the design of Rock Creek SWF, both completed phases and proposed construction of Phase II-B for 2006. The proposed detailed design for construction of Phase II-B is supported by the Plans in Appendix B and design calculations as referenced throughout this JTD. Additional site information regarding the design and construction of existing site features is presented in the following previous documents:

- *Report of Disposal Site Information, Calaveras County, Rock Creek Landfill* (EBA Wastechnologies, 1989)
- *As-built Construction Plans for Rock Creek Landfill Phase I* (EBA Wastechnologies, 1989)
- *Design Report, Phase I-B, Rock Creek Landfill* (EBA Wastechnologies, 1993)
- *Proposal, Bond, and Contract Special Provisions, Rock Creek Landfill Phase I-B* (EBA Wastechnologies, 1994)
- *Construction Report of Compliance, Phase I-B Construction, Rock Creek Solid Waste Facility, Calaveras County, California* (Harding Lawson Associates, 1994).
- *Report of Disposal Site Information, Calaveras County, Rock Creek Landfill* (HLA, 1995)
- *Design Report, Phase II-A, Rock Creek Landfill* (BAS, March 1997)
- Waste Recovery and Transfer Center, 2002
- CQA Report, Phase II-A, Geosyntec, 1997

The Class II landfill will be developed sequentially from Phase I through Phase IV. Phases have been and may be developed in subphases. Phase I was comprised of Phase I-A and Phase I-B and is completed to interim grades. Phase II will consist of Phases II-A and II-B. Phase II-A is operational. Construction of Phase II-A required removal of the original Class II impoundment and construction of the existing (replacement) Class II impoundment to serve previous phases as well as both Phases I-A and II-B. Detailed designs for the proposed Phase II development and existing Class II impoundment were presented in the RDSI Rock Creek Landfill, HLA, 1995.

The design for construction of Phase II-B, proposed throughout this JTD as shown in Drawings in Appendix B, reflects some refinements and more detail from the design for the Phase II-B design as presented in the 1995 RDSI. This JTD also presents updated information on Facility development that has taken place since the 1995 RDSI.

Facility development that has occurred since the 1995 RDSI includes:

- Construction of additional internal site access roads
- Installation of electrical power
- Installation of landfill gas monitoring probes.
- Decommissioning and installation of various groundwater monitoring wells
- Decommissioning and installation of additional vadose zone monitoring devices for Phase II-A.
- Construction of the new Class II leachate surface impoundment and leachate transfer pipe
- Removal of the existing Class II impoundment
- Removal of Sedimentation Basin No. 1
- Construction of the maintenance and office building
- Construction of the transfer station
- Expansion of wood/yard waste operations
- Relocation of fuel tanks and generators

- Construction of a new 50,000-gallon water tank

The changes from current site conditions for continued Facility development, planned within the coming 5-year permit period, are presented in this section. These include the following features:

- Phase II-B liner and LCRS will be installed
- Additional storm drainage features will be installed for the construction of Phase II-B
- Gas monitoring probes are proposed to be installed as unsaturated zone monitoring points beneath the Phase II-B liner
- An existing groundwater monitoring well will be abandoned and relocated to serve Phase II-B. Two additional new wells be installed when Phase II-B is constructed
- The Class II surface impoundment discharge pipe will be modified to include flows from Phase II-B
- Construction of a concrete pad was constructed in the wood waste area
- Closure of Phase I
- Construction of equipment shed
- Installation of additional landscaping
- Construction of windbreaks

No significant changes to the landfill footprint or final grades presented in the 1995 Facility development plan and PCPMP are proposed. Conceptual designs for future Phase III and IV development, which will not be constructed within the next five years, are not materially altered compared to those in the 1995 RDSI and PCPMP by HLA. The proposed improvements are consistent with the project description of the landfill already evaluated in the Tier II EIR for Rock Creek SWF.

6.2 Preliminary and As-Built Plan

SWRCB 27 CCR 21760(a)(1)

Preliminary and as-built plans (as available), specifications, and descriptions of the landfill containment structures are to be presented in the JTD. The plans to be included are final cover, LCRS components, leak detection components, erosion and drainage control facilities, interim covers, and ancillary facilities.

The Facility Development Plan set was presented previously in the 1995 RDSI for the Facility by HLA. The site information and content for many of these general site drawings have not changed. However, this JTD also contains drawings with updates of site information showing construction plans for Phase II-B, updated information on site monitoring devices and other updates listed in Section 6.1.2..

Following is a discussion of Phase II-B design drawings presented in Appendix B and the 1995 RDSI Facility Development Drawings presented in Appendix C. Drawings from the 1995 RDSI that are outdated and have been superceded are noted in terms of which Drawings in Appendix B contain the updated or revised information.

6.2.1 Phase II-B Base Liner Construction Plans (Appendix B)

Site Plan

The site plan showing the general site features and monitoring network is presented on Drawing 1. As shown on this drawing, the Facility comprises approximately 200 acres within the site property boundaries presented on the Site Plan. The Class II landfill will ultimately occupy approximately 58.4 acres of the Facility. The landfill is situated a minimum distance of approximately 50 feet and a maximum distance of approximately 2,000 feet from the Facility property boundary. The Facility is surrounded by range land currently used for grazing.

Drawing 1 in Appendix B also presents the locations of existing groundwater monitoring wells and piezometers, proposed groundwater monitoring well locations, existing and proposed vadose zone monitoring installations, landfill gas monitoring probe locations, subdrain, and the existing Class II impoundment;.

Excavated soil for construction of Phase II-B as indicated on Drawing 4 will be stockpiled at the location identified. Monitoring installations are described in Section 6.3. Ancillary facilities, utilities, and structures are described in Section 3.5.

There are three proposed groundwater wells to be installed as part of the Phase II-B Base Liner construction, Drawing 1, Appendix B. One of the three wells is replacing existing well D-3 that will be decommissioned during Phase II-B construction because it resides within the base liner footprint. The other two proposed wells are being added to the monitoring network to enhance the early detection system at the site. All of the current monitoring systems for the site are presented on Drawing 1 within Appendix B.

Existing Conditions and Selective Demolition

Drawing 2 shows existing conditions and selected demolition plans to allow construction of the liner for Phase II-B.

Top of Primary Liner Geomembrane

Primary liner grades and limits of excavation for Phase II-B are superimposed over recent topography on Drawing 3 in Appendix B. Excavated soil will be used for daily and intermediate cover, layers in the landfill liner system, berm construction, and in layers of the final cover system. The Phase II-B construction is proposed to be built in conformance with the Phase II-A construction grades, 2:1 side slope, approximately a 2 percent grade on the LCRS pipe and trenches, and a 1% cross slope.

A double composite base liner and a single composite side slope liner are proposed for the Phase II-B base liner construction. The design of this system is presented in Section 5.5.

Stockpile Plan

The soil to be excavated as part of the Phase II-B base liner construction will be stockpiled for future use along the east side of the canyon adjacent to the existing storm water detention basin. This location was selected based on its proximity to the fill area, its topography, i.e. it will allow for all of the excavated soil to be stored in this area and the ability to remove sediment from stockpile stormwater runoff before it discharges from the site. Drawing 4 within Appendix B presents the configuration along with the proposed drainage controls.

Typical Sections

Sections are presented on Drawing 5 within Appendix B. These sections present the general elevations and grade that Phase II-B will be constructed at.

Survey Control Plan

Drawing 6 within Appendix B presents a plan view of Phase II-B with control coordinates and elevations for major items of work. These construction controls will aid the contractor in construction of the cell.

Underground Pipeline Profiles

The profiles on Drawing 7 within Appendix B present the elevations and grades at which the proposed underground conveyance pipelines will be constructed. Additionally, details to aid in the construction in the construction of the underground pipes are called out. These details include the inlet details, trench excavation details, and other associated pipe and ditch connections to the system.

Sections and Details

Drawings 8 through 20 within Appendix B present an array of details showing how the base liner system is to be constructed. The details include base liner connection and termination details (Drawings 8, 9, and 10), wet well construction details (Drawings 11, 12, 13 and 14), drainage details (Drawings 14, 15 and 16), gas probe, subdrain, and pipe termination details (Drawing 17), stockpile drainage details (drawing 18), and electrical details for the wet well pump controls (Drawings 19 and 20).

6.2.2 Facility Development Plans (from 1995 RDSI -Appendix C)

A title sheet with a site vicinity map, site location map, and list of drawings is the first sheet of the Facility Development Plans.

Notes, Legend and Abbreviations

Drawing C2, Notes, Legend and Abbreviations, provides general notes, a legend, and a list of abbreviations relevant to the entire Facility Development Plans.

Site Plan

Drawing C3, is superceded by Drawing 1, Site Plan, Phase II-B Base Liner Construction Plans presented in Appendix B.

Monitoring Plan

Drawing C4, Monitoring Plan, is superceded by Drawing 1, Site Plan, Phase II-B Base Liner Construction Plans presented in Appendix B.

Final Grading Plan

Drawing C5, Final Grading Plan includes the ultimate grades the site will be filled to along with the phased base liner limits of construction. Phase I, and II-A base liner system have been completed and Phase II-A is currently receiving waste. The detailed plan for excavation of Phase II-B is shown on Drawing 3 within Appendix B. The construction sequencing plans shown on Drawing C5 and C11 will generally be followed for the remaining Phases to be constructed at the site including Phase II-B.

The final grading plan for the Class II landfill is presented on Drawing C5. This plan indicates the final landfill elevations, proposed surface water runoff control structures, and access to the site at the time of final closure. The landfill top deck access road will be accessed from the site entrance road. Final landfill slopes are designed to have a minimum 3 percent slope and a maximum 33 percent slope.

The final grading plan references various cross sections and design details which are presented on Drawings C13, C14, C16, and C17.

Landfill final cover construction will occur in phases over the operational life of landfill. The five phases of final cover construction are shown on Drawing C5. The area to receive final cover and estimated year of construction associated with each phase of final cover is as follows:

Closure Phase	Final Cover Area (Acres, slope corrected)	Estimated Year of Closure Construction
I	7.0	2008
II	7.8	2015
III-A	13.7	2025
III-B	10.9	2031
IV-A	21.2	2035

Final cover construction is described in the PCPMP.

Base Preparation/Liner Placement Plans

Drawings C6 and C7, respectively, show the Base preparation plans for the entire landfill, and for Phase II, as proposed in 1995. The base grading shown for Phase II-B shown on these plans has been superseded by Drawing 3, *Phase II-B Base Liner Construction* plan, within Appendix B. The design grades for Phase II-B have been altered on the east side to make room for the transfer station. Additionally the west side has been slightly altered to straighten out the perimeter alignment to create a design that is more readily constructed and to eliminate unneeded curves in the alignment. These changes do not affect the site to the degree that a new facility development plan needs to be prepared. It is believed that these small deviations will be within the error associated with calculating the airspace of the site. Refer to Drawing 1, Phase II-B Base Liner Construction Plans for a visual presentation of the magnitude of the east and west Phase II-A and II-B boundary changes.

Class II Leachate Evaporation Impoundment

Drawing C8 shows the design plans for the existing leachate evaporation impoundment. This impoundment will continue to serve Phase II-B.

Leachate Transfer Pipe Plan and Profile

Drawing C9 shows the conceptual plan and profile for the leachate transfer pipe for future development beyond that shown for Phase II-A in 1995 on Drawing C7. The

leachate system design for Phase II-B, shown on construction drawings in Appendix B, supercedes Drawing C9 and provides greater detail required for construction.

Public Unloading Area

Drawing C10 is superceded by figures and information on the transfer station building contained in Appendix D (See Section 3.5.1). The transfer station building became operational in 2002.

Fill Sequencing Plan – Phase II

Drawing C11 indicates the conceptual phasing for landfill development and final cover construction. Landfill development will occur sequentially from Phase I through Phase IV, down the canyon. Multiple phases may be operational during periods of the Facility's life due to operational and stability requirements.

Phases I and II were divided into construction subphases A and B, for each. Phases II-B will be constructed and operated before the previously construction phases reach final capacity. The partially filled Phase II-B will provide a buttress to fill Phase II-A to is design grade. Phase III will be constructed when previous Phases are partially filled. Phases III and IV may be divided into subphases as needed based on disposal rate projections.

Class II Impoundment Sections and Details

The design of the existing Class II surface impoundment is shown on Drawing C12.

Sections and Details

Drawings C13 through C17 show sections and details for the applicable site development plans.

6.2.3 Leachate Collection System

The Phase I LCRS was previously described in Section 5.6.2. The design and operation of Phase II-A is similar to the Phase I-B design and operation. Phase I-B and Phase II-A utilize a dual primary leachate collection system. This dual system consists of a single collection trench and pipe for the east side of the landfill and one for the west side of the landfill. This system was developed to allow the operations to discharge stormwater that

falls within the cell the drainage system when refuse has to been placed in that side of the cell. Given the relatively long durations in which half of a cell can remain inactive, this system reduced the amount of leachate production from stormwater infiltration. The Phase II-B design proposes to remove this dual system based on current operations at the site. The Phase II-B LCRS will be constructed with one central LCRS pipe and trench. Stormwater the falls on the inactive side of the cell will sheet flow across the base operations layer and then run south along a berm to be constructed over the LCRS pipe and trench. Given the low permeability of the on site soils most of the stormwater will drain off the top of the base operations layer and enter the natural drainage course at the south termination of Phase II-B. This change in design simplifies the operations and liquid management at the site and reduces any potential for unwanted leachate discharges due to a complicated piping system.

When Phase II-A was developed, the surface impoundment for Phase I was replaced by the current surface impoundment located south of the proposed Phase II-B.

Design LCRS slopes and piping for subsequent phases of landfill development were presented conceptually on Drawings C6 and C7. The design of the LCRS for Phase II-B was previous described in Section 5.6.3 and is shown on Drawing 8, Appendix B.

6.2.4 Surface Water Drainage

The drainage plan for the final configuration will direct stormwater runoff of the top deck area into pipe downdrains and direct stormwater runoff from the sideslopes to ditches on benches that will discharge to pipe downdrains. The stormwater collected in the down drains will discharge to the perimeter landfill drainage ditches and underground conveyance pipes that run along the east and west sides of the landfill. These structures convey the stormwater to the south and discharge it to a proposed sedimentation basin.

The underground conveyance pipes are proposed for the Phase II-B construction and replace the perimeter ditches that were originally proposed as part of the Facility Development Plans. Drawings 3, 7 and 9, within Appendix B, present the underground conveyance pipeline locations and details.

During wet weather, temporary berms constructed around the active fill areas ensure that stormwater runoff that has contacted refuse is not collected in surface water runoff structures. Further controls for the segregation of contact and non-contact water are described in Section 5.7.

Drawing C5 (Appendix C), Final Grading Plan, presents surface water drainage controls including swales along the landfill benches, drop inlets, downdrains, culverts and discharge controls. Surface water control details are presented on Drawings C16 and C17.

Design calculations for proposed and future final surface water drainage controls are described in the PCPMP.

6.2.5 Site Access Plan

The locations of controlled site access have changed since the preparation of the 1995 Facility Development Plans. Drawing 1 within Appendix B shows the current site access roads. Drawing 3 within Appendix B presents the proposed access to Phase II-B.

The primary site access is through a gated entrance adjacent to Hunt Road. The gated access at Rock Creek Road is locked at all times. The 24-foot-wide main access road is striped and signed. The access road surface from the entrance at Hunt Road to approximately 200 feet beyond the scalehouse is asphaltic concrete pavement. The paved road surface near the site entrance minimizes airborne dust generation and tracking of soil or rocks from the Facility onto Hunt Road. The access road beyond the paved section provides access to Phase I as shown on Drawing 1, Appendix B. The access road to Phase I is surfaced with aggregate base rock for all-weather access. The main access road continues through the site to the Rock Creek Road access gate. Additional existing unsurfaced roads shown on the topographic base of Drawing 1, Appendix B provide access to the water supply well, stockpiles, detention basins, monitoring installations, and ancillary operations.

Access roads are periodically relocated to accommodate landfilling activities. Access for continued landfill development will be from roads to be constructed on the east side of the landfill canyon.

6.2.6 Gas Management Plan

The *Landfill Gas Monitoring Plan, Rock Creek Solid Waste Facility, Phases I and II* (EMCON Associates, 1994) described the regulatory requirements, monitoring installations, monitoring procedures, and reporting requirements for Phase I and Phase II landfill gas monitoring. Excerpts of this plan are in Appendix L.

Seven gas monitoring probes were installed at the site. These probes are monitored quarterly along with the onsite structures, in conformance with Title 27, CCR. Additional monitoring installations will be constructed prior to development of Phase III and Phase IV.

The County submitted an initial design capacity report and Tier 1 Emission Rate Report in June 1996. The report indicated that the Total NMOC emission rate for 1996 was 29.98 Mg/year, which was below the threshold of 50 Mg/year which requires installation of a landfill gas control system. This indicated that a control system should not be required for a number of years (Appendix L). Tier II field testing of the Facility landfill was performed in 1999, which provided a site specific NMOC concentration (C_{NMOC}) of 479, which can be used in the Tier 2 equation (Appendix L)

Appendix L also contains a memorandum, dated June 7, 2005, which summarizes and includes results of Tier 1 and 2 analyses for the Facility using the projected waste quantities in Table 5. The analysis was run out until the year 2036 and indicates a Tier 2 NMOC emission rate of 26.6 Mg/yr in the year 2036. This indicates that the Facility will likely not have to install a landfill gas collection and control system to comply with the current NSPS/EG regulation.

6.2.7 Preliminary Closure Plan

A PCPMP has been previously developed for the remainder of the landfill (HLA, 1995). This PCPMP has not changed significantly since 1995 and was updated by EMCON/OWT only for site tonnage and site life information based on more recent information; and for facility development that has occurred since 1995 as discussed in Section 6.1.2. The preliminary closure plan includes final grading plan and drainage facilities as proposed in 1995, which are unchanged. The preliminary closure plan is adequate to provide general design and construction guidance for landfill operations during the service life of the site up to prior to implementation of closure. It is adequate to provide and contains estimates of closure and postclosure maintenance cost that are used for financial assurances as required by 27 CCR. A final closure and Postclosure maintenance plan will be prepared prior to incremental and/or total final closure of the site in conformance with Title 27 CCR.

6.3 Environmental Monitoring Programs

6.3.1 Groundwater and Vadose Zone Monitoring Plan SWRCB 27 CCR 21760(a)(3)

Groundwater Monitoring

The groundwater monitoring program being conducted at the landfill is designed to comply with the current WDRs issued by the RWQCB and to establish site-specific water quality protection standards. Specifically, the water quality protection standards include: establishment of monitoring systems for the groundwater, surface water, and unsaturated zone, including background and compliance monitoring points for each medium; establishment of constituents of concern; establishment of monitoring parameters; and establishment of a compliance period. Groundwater monitoring at the landfill consists of a detection monitoring program (DMP).

The existing groundwater monitoring network for the Facility, monitoring Phase I and Phase II of the landfill, consists 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. Each monitoring well is constructed to monitor the upper-most water-bearing zone and is equipped with a dedicated, variable-speed, stainless-steel submersible pump for collecting groundwater samples. Water levels are measured in these wells and seventeen other piezometers quarterly.

Monitoring well D-3 lies within the footprint of the proposed Phase II-B construction area. This well is planned to be decommissioned and three new wells will be installed, as described, below. Existing groundwater monitoring well D-3 will be decommissioned in accordance with California Division of Water Resources Bulletin 74-81, *Water Well Standards*. A well destruction permit will be obtained from Calaveras County Environmental Health. A licensed well driller will drill out the well casing, well seal, and sand pack to the entire depth of the well and the resulting borehole will be backfilled with cement grout to the ground surface utilizing a tremie pipe. Or, if permitted by the County, the well will be pressure grouted with cement grout. Drill cuttings will be placed on the ground surface for later removal by Facility personnel. A geologist, under the direct supervision of a California State Professional Geologist, will be on site to monitor and record the well destruction.

Three new wells will be installed at the completion of construction of the Phase II-B liner to address the RWQCB requests. One well (proposed D-10) will be installed as close as practical to the southern boundary of Phase II-B and east of the Phase II Impoundment, the second well (proposed D-11) will be installed along the northeast boundary of Phase II-A, and the third well (proposed D-12) will be installed east of well D-9, close to the active landfill. The proposed approximate locations are shown on Drawing 1 within Appendix B.

Well D-11 is anticipated to be approximately 140 feet to 150 feet deep. Wells D-10 and D-12 are anticipated to be approximately 70 feet to 90 feet deep.

Well D11 is anticipated to be an upgradient well. As such, following installation, the well will be sampled at least once according to the Facility monitoring program. Based on the groundwater flow direction resolved using the new wells in addition to existing wells, recommendations will be made as to whether well D-11 should be included in the detection monitoring program or remain as a piezometer for water-level measurements only.

The wells will be constructed within the 8-inch diameter borehole with approximately 20 feet of 4-inch diameter Schedule 40 flush-threaded PVC machine-slotted well screen, and blank well casing. The slotted casing will be capped with a threaded end plug. Bottom plugs for over-drilled borings and lengths of well sumps will be determined in the field. Blank casing will be extended from the top of the screened interval to approximately 18-inches above the ground surface. A well screen size and sand pack compatible with the water-bearing zone will be placed from the bottom of the boring to approximately 2 feet above the top of the screened interval. A bentonite seal of at least 2 feet will be placed above the sand pack. A sanitary seal of neat cement will be placed to the ground surface. A locking well box will be installed at the surface and the wellhead will be capped with watertight locking expansion caps.

With the abandonment of well D-3 and the installation of the three proposed new wells D-1, D-4, D-8, D-9, D-10, D-11, D-12 and HP-3 will constitute the "points of compliance" with respect to groundwater. The locations of these wells are shown on Drawing 1. A typical well detail for the proposed wells is shown on Figure 6.

Unsaturated Zone

The existing unsaturated zone monitoring network consists of a background pressure/vacuum lysimeter (L-5), two downgradient lysimeters (L-1R and L-2R), a pan lysimeter (GPL-1), and the subdrain outlet. The locations of these elements are shown on Drawing 1. These points are sampled semi-annually.

Section 13360(a)(1) of the California Water Code allows the Regional Board to specify requirements to protect underground or surface waters from leakage from a solid waste site, which includes a method to provide the best assurance of determining the earliest possible detection of a release. To accomplish this, an unsaturated zone monitoring system must be installed beneath the composite liner system in accordance with Title 27 CCR Section 20415(d).

Gas composition in soil pore space has been proven to be an early and reliable indicator of releases. Therefore, new landfill gas monitoring probes are proposed to monitor the vadose zone within the Phase II-B area of the landfill. The probes would be placed beneath the secondary liner near the central LCRS collection trench. A total of three probes are proposed for installation; one near the Phase II-A / Phase II-B interface, one in the center of the Phase II-B cell and one near the southern termination of Phase II-B. These probes, designated GP-IIB-1, GP-IIB-2, and GP-IIB-3, will be installed beneath the secondary liner of Phase II-B, at the locations shown on Drawing 3. Details of the typical gas probe installation are shown on Drawing 17. The probes will consist of a section of perforated HDPE pipe placed within a gravel backfill and geotextile wrap.

With the installation of the three proposed vadose zone monitoring probes; Lysimeters L-5, L-1R and L-2R; pan lysimeters GPL-1; the subdrain outlet point; and proposed landfill gas probes GP-IIB-1, GP-IIB-2 and GP-IIB-3 would constitute the points of compliance with respect to soil-pore liquid. The probes will be monitored semi-annually as part of the monitoring and reporting program for the site. Refer to Drawing 2 for the proposed location of the probes.

6.3.2 Surface Water Monitoring

Surface water adjacent to the developed landfill is diverted in a perimeter concrete drainage channel, which discharges to a series of sedimentation basins. The sedimentation basins have a cumulative capacity that exceeds the runoff associated with the estimated 100-year, 24-hour storm event. As a consequence, surface water flow in

the Facility's drainage generally occurs after periods of sustained rainfall. Because the landfill occupies the head of a drainage, no upstream surface water sampling locations are present. Surface water samples are collected downstream of the Facility during the first storm of the rainy season that produces significant runoff and semi-annually thereafter, if water is present. This location is also sampled as required by the General Permit for stormwater discharges associated with industrial activity (97-03-DWQ General Permit No. CAS000001).

6.3.3 Landfill Gas Management Plan

CIWMB 27 CCR 21600(b)(4)(E)

Landfills which receive organic wastes in significant quantities produce landfill gas. This gas generally consisting of equal amounts of methane and carbon dioxide along with traces of other gaseous constituents. The production of landfill gas within the refuse cell is of interest due to the flammability of methane in concentrations between five and fifteen percent by volume in air. State and federal regulations require the control of landfill gas to prevent it from migrating away from the landfill's boundaries and accumulating in on and off-site site structures. Federal air quality regulations require the control of emissions into the atmosphere. Additionally, VOCs in landfill gas can impact water quality.

6.3.3.1 Gas Control/Recovery System

No gas control or recovery system is currently installed or planned at Rock Creek SWF. As indicated in Section 6.2.6, based on Tier 2 calculations it appears unlikely that a gas control/recovery system would be required under NSPS/EG requirements.

6.3.3.2 Perimeter Gas Migration Monitoring System

The landfill complies with regulatory requirements for methane migration monitoring as required under 27 CCR. Seven perimeter gas probe stations were installed at the site. Locations of the gas probes are shown on an Drawing 1, Appendix B. These probes are used to comply with the landfill gas migration monitoring requirements for active operations and will be utilized after closure. These monitoring probes are sampled for

methane on a quarterly basis. To date, there have been no gas levels above the lower explosive limit detected in perimeter monitoring probes[22].

6.3.3.3 On-Site Structure Monitoring

The scalehouse and maintenance building and office are also tested quarterly for the accumulation of methane in these structures. The maintenance building has not been outfitted with methane alarm detectors.

6.4 Construction and Inspection Procedures

SWRCB 27 CCR 21760(a)(4), 27 CCR 20323, 27 CCR 20324

6.4.1 Introduction and Purpose

The construction quality assurance (CQA) program provides definition of the materials and procedures to be used in the construction and provides the owner and agencies with the knowledge that the landfill construction materials will be tested, installed and monitored as specified in the design plans and specifications, accepted civil engineering practices and applicable CQA requirements of the RWQCB, CIWMB, and the LEA. The CQA Plan for proposed Phase II-B construction, and construction of future Phases, will be prepared by a certified engineering geologist and will present the requirements and procedures that will be implemented during construction. The final construction documents will include detailed plans and specifications and specify the minimum experience requirements for contractors, work crews, and inspectors. The specifications will include detailed requirements for all major contract elements. A registered engineer or engineering geologist or civil engineer designated as the CQA officer will be in charge of observing the installation of the work, reviewing the materials for conformance with the plans and specifications and all testing completed for the project during and after construction.

A proposed draft CQA plan for Phase II-B construction is included as Appendix M. The final CQA plan will be prepared as part of the final design.

[22] Email from Rob Houghton, Calaveras County Department of public works to Mark Urquhart, EMCON/OWT, May 2005.

6.4.2 Responsibility and Authority

The CQA officer will be responsible for monitoring implementation of the construction plans. The CQA officer will:

- Review design plans and specifications for accuracy and completeness.
- Prepare a schedule of CQA inspection activities and coordinate necessary CQA personnel to conduct inspections.
- Review and interpret data and reports prepared by CQA inspection personnel.
- Monitor the contractor's quality control program.

The CQA inspection personnel will perform various tests and observations during construction activities such as:

- Verifying that test equipment is properly calibrated on a regular basis and documenting the calibration.
- Accurately recording test data and organizing it in a manner that allows easy reference.
- Evaluating the contractor's construction quality control plans to ensure that they meet or exceed the Facility CQA Plan requirements.
- Reporting observations and test results as the work progresses.

The supporting CQA inspection personnel will work under the supervision and guidance of the CQA officer who will be responsible for verifying that all testing is conducted in accordance with American Society for Testing and Materials (ASTM) standards or other specified test methods, and that the proper test equipment is used. The results of all inspections, including work that is unacceptable, will be reported to the CQA officer.

6.4.3 Personnel Qualifications

The CQA team will consist of a CQA officer and inspectors whose qualifications will be as follows.

6.4.3.1 CQA Officer

The CQA officer will have formal academic training in engineering or geology and be a registered professional engineer or certified engineering geologist in the State of

California. This officer should have practical, technical, and managerial experience that will allow the CQA Plan to be properly implemented. The CQA officer must be able to communicate effectively with the landfill personnel, design engineers, and contractors to facilitate a clear understanding of construction activities and the CQA Plan.

6.4.3.2 CQA Inspection Personnel

CQA inspection personnel must have formal training and practical experience in inspecting and testing construction work relative to solid waste disposal sites, including conducting and recording inspection activities, preparing daily reports, and performing field testing.

6.4.4 Inspection Activities

Inspection activities will be performed by the CQA team throughout the construction of the landfill. These activities are divided into pre-construction, construction, and post-construction activities.

6.4.4.1 Pre-Construction

Pre-construction inspection activities of the CQA team will generally include:

- Review of design criteria, drawings, and specifications associated with construction of the landfill.
- Inspection of materials proposed for construction.

6.4.4.2 Construction

The construction inspection activities of the CQA team will generally include:

- Review of contractor's submittals, samples, and supporting test reports.
- Review of the contractor's work schedules.
- Verification that materials are as specified in the plans and specifications or as approved by the engineer as called out in plans and specifications.
- Observation of construction and documentation of the contractor's compliance or noncompliance with the approved plans and specifications, and/or the directions of the engineer. Field tests and visual observations will be used to evaluate construction practices.

- Communicate observed construction deficiencies to the engineer.
- Accommodate seasonal conditions, if warranted.

Testing Program

A field testing program is to be implemented during construction to evaluate whether components are constructed according to the design specifications. All field tests will be conducted by CQA personnel or qualified laboratories under the supervision of the CQA personnel.

Daily Record Keeping and Reporting

A summary report will be prepared daily throughout the construction period by the technician with supporting inspection data sheets and records of any problems that occur or corrective measures that are implemented. A daily chronological summary will then be prepared by the CQA officer that includes the following:

- Date, name of project, and location.
- Weather and site conditions.
- Summary of any meetings conducted and the results of the meetings other than formal periodic meetings.
- Location of daily construction activities and progress.
- Record of equipment and personnel working areas.
- Location of work being tested and areas passing final inspection.
- Description and condition of materials received at the site.
- Record of equipment calibrations or recalibrations and any actions taken as a result of recalibration.
- Site visits by others.
- Identification of construction problems and their solution or disposition.
- Signature of the CQA officer.

Inspection Data Sheets

All field observations and field testing will be recorded on an inspection data sheet which in combination with the technician's daily reports will be used to formulate the daily summary report. All field testing will follow American Society of Testing and Materials (ASTM) standard test procedures. Observations in the field may take the form of the ASTM notes, charts, drawings or sketches, photographs, or any combination of the above. The inspection data sheets will contain the following minimum information:

- Description and title of the inspection activity.
- Time the activity was performed.
- Location of the inspection activity.
- Weather conditions.
- Site conditions.
- Standard test method used or type of inspection activity.
- Test equipment used.
- Record of observation and/or test data, with calculations completed.
- Comparison of test results and observations with specification requirements.
- Names and titles of all persons involved in the inspection activity.
- Record of any material or workmanship that does not meet specified designs and all corrective action measures and results.
- Signature of appropriate inspection personnel and the CQA officer.

Monthly Construction Summaries

Monthly construction summaries will be prepared by the CQA officer and include the following items:

- Inspection dates.
- Time spent on the site.
- Activities performed.

- Tests performed.
- Specific locations inspected.
- Methods used in analyzing sample results for the purpose of construction quality assurance.
- Signature of the CQA officer.
- Summary of the completed daily inspection forms.

Acceptance of Completed Components

Daily inspection reports, inspection data sheets, and inspection photographs will be reviewed by the CQA officer. All inspection reports will be evaluated for internal consistency, accuracy, and completeness.

The above daily reports will be summarized into periodic acceptance reports which will indicate that work has been completed according to the specified design. These reports will be included in the project files and will be available to regulatory agencies upon request.

Document Control and Storage

During construction, the CQA officer will be responsible for all CQA documents and on-site organization of the documents for easy access. The CQA officer will also be responsible for keeping duplicate records of all documentation at another location.

The CQA officer will be responsible for incorporating any revisions to the CQA Plan and distributing revised copies to the construction contractors and all other relevant parties.

Upon completion of construction, the Facility will store all original documents so that they are protected from damage, yet can be readily accessed. All documentation will be maintained through the post-closure monitoring period of the Facility.

6.4.4.3 Post-Construction Final Documentation

At the completion of each phase of liner or final cover construction, a final report will be prepared to include:

- Daily inspection summary reports.

- Inspection data sheets.
- Photographic reporting data sheets.
- As-built reports.
- Deviations from design and material specifications (with justifying documentation).

A statement that the liner or final cover has been built in general conformance with the design specifications, the approved plans, and the approved modifications of the plans and specifications will be provided and included in the final documentation sent to the appropriate regulatory agencies.

7 OPERATING CRITERIA

7.1 Records

CIWMB 27 CCR 21600(b)(5)(A), 27 CCR 20510, 27 CCR 20515, 27 CCR20517

7.1.1 Weight and Volume (Tonnage) Records

Upon entering the site, vehicles are directed to the site scale. The scale attendant records the incoming load weight, logs the type of material, and directs the driver to the appropriate unloading area. Records are transmitted from the site on a weekly basis to the County Solid Waste Division office in San Andreas for filing.

7.1.2 Subsurface Records

As-built excavation information is documented as follows:

- *As-built Construction Plans for Rock Creek Landfill Phase I* (EBA Wastechnologies, 1989)
- *Construction Report of Compliance, Phase I-B Construction, Rock Creek Solid Waste Facility, Calaveras County, California* (Harding Lawson Associates, 1994)
- *Final Design Report, Phase II-A Liner System and Impoundment Project, Rock Creek Solid Waste Facility, March 1997, Bryan A. Stirrat and Associates, Inc.*
- *CQA Report, Phase II-B, GeoSyntec, 1997*

Data and records concerning subsurface conditions are found in the boring logs, geologic and hydrogeologic maps, and various studies. Groundwater information is gathered, as required, under the most current monitoring program and is reported to the RWQCB.

In addition to design and as-built excavation documentation, aerial topographic surveys are performed on an annual basis. All excavation and depth-to-groundwater documentation is maintained at the County Solid Waste Division office in San Andreas.

Subsurface records are available upon request.

7.1.3 Operating Record

A comprehensive operating record will be maintained in accordance with federal regulations under 40 CFR 258.29 (Subtitle D) and state regulations under 27 CCR 20515. Those landfilling activities related to the requirements discussed below are or will be documented and included in the operating record.

Requirements Under 27 CCR and 40 CFR:

- Any location restriction demonstrations required by 27 CCR 20270;
- Inspection records, training records, and notification procedures required by 27 CCR 20870;
- Gas monitoring results and any remediation plans required by 27 CCR 20919;
- Closure and post-closure care plans and any monitoring, testing, or analytical data required by 40 CFR 258, Sections 258.60-258.61;
- Demonstration, certification, finding monitoring, testing, or analytical data required by Subpart E of 40 CFR Part 258;
- Closure and post-closure maintenance plan as required by 27 CCR 21780, notice of intent to close the unit as required by 27 CCR 21135, notice of certification of closure as required by 27 CCR 21880, deed notation as required by 27 CCR 21170, and any monitoring, testing, or analytical data as required by 40 CFR 258.61; and
- Any cost estimates and financial assurance documentation required by 27 CCR 22221, 22226, 21820, and 21840.

Approvals, determinations and other requirements authorized by the LEA under Chapter 3, Subchapter 4 shall be documented in writing to the operator and placed in the operating record in accordance with 27 CCR 20517.

The operating records will be maintained by the County at the administrative office in San Andreas. These operating records will be open for inspection during normal business hours by authorized representatives of those regulatory agencies who have jurisdiction over the landfill. Certain records (e.g., the current tonnage records, log of special

occurrences, other pertinent permits and data) are also maintained on site or until they are transferred to the County administrative office.

Inspection of Records

Site records are maintained at the County Solid Waste Division office in San Andreas. The records are available for inspection by authorized representatives of regulatory and enforcement agencies having jurisdiction. Records are available for inspection Monday through Friday, excluding County holidays, from 8 a.m. to 12 p.m. and 1 p.m. to 5 p.m.

Operating records are open for inspection during normal business hours by authorized representatives of those regulatory agencies having jurisdiction over the landfill.

7.1.4 Special Occurrences

The site superintendent maintains a log of special occurrences, including the following information: fires, earth slides, unusual and sudden settlement, injury and property damage accidents, explosions, discharge of hazardous or other unacceptable wastes, and flooding. Incident reporting forms are completed and filed at the County Department of Public Works, Solid Waste Division office in San Andreas. Reporting procedures vary depending on the nature of the incident; however, significant incidents are reported to the LEA within one day by telephone and followed by a written description typically within 7 days.

7.2 Security

CIWMB 27 CCR 21600(b)(5)(B)

Entry onto the Facility during business hours is controlled by site personnel at the entrance facility, which is the single point of public access to the site. Unauthorized access to the site is controlled by perimeter fencing and lockable entrance gates at the point of public access (Hunt Road). Fencing also surrounds specific on-site facilities Visitors to the site must check-in at the scalehouse office

7.3 Sanitary Facilities

CIWMB 27 CCR 21600(b)(5)(C)

Sanitary facilities are available at the scalehouse/entrance facility, office/maintenance building, and transfer station building. The facilities in the office/maintenance and transfer buildings are both served by one leach field; and the scalehouse is served by a separate leach field.

7.4 Water

Potable water is supplied by means of a water line from an on-site well to restrooms at the scalehouse facility and maintenance/office building. Drinking water is in the provided at the maintenance/office and scalehouse by a bottled water service, using a 5-gallon dispenser, for site personnel.

7.5 Communication Systems

CIWMB 27 CCR 21600(b)(5)(D)

The Facility is equipped with telephone and radio service for reporting emergencies. All site personnel are trained and authorized to use the communications equipment as required to respond to emergencies. Telephone communications are possible from the scalehouse, maintenance building office and transfer station building. Two-way radio communication is possible from the scalehouse, office, equipment and onsite vehicles. No telephones for public use are maintained on site.

7.6 Lighting

CIWMB 27 CCR 21600(b)(5)(E)

Landfilling activities are restricted to daylight hours; lighting for landfill operations during darkness is not provided. Lighting is provided inside the scalehouse, maintenance building, transfer station and office. Outside lighting is present at the scalehouse, office and maintenance building, and transfer station.

7.7 Safety Equipment

CIWMB 27 CCR 21600(b)(5)(F)

All heavy equipment is equipped with a fire extinguisher and seat belts. Seat belts are required to be worn at all times equipment is operating.

For landfill and transfer station operating personnel use a variety of personal protective equipment including ear protection, respiratory protection, eye protection, hand and foot protection, and hard hats. Disposable plugs are available for ear protection. Disposable particle masks are available for dusty conditions encountered by site personnel during operations. Respirators are available for bulking water-based paints. Eye goggles are provided for use while operating equipment. Hard hats are provided for operations personnel.

A site safety plan is maintained at the Facility office. Fire extinguishers are maintained in site buildings and eye wash stations and/or emergency showers are located in the transfer station building, office/maintenance building, and scalehouse.

7.8 Personnel Requirements

CIWMB 27 CCR 21600(b)(5)(G)

This section describes personnel requirements, training, and supervision for operation and management of the Rock Creek SWF. Emergency contact information is also presented.

7.8.1 Minimum Numbers and Qualifications

The persons currently responsible for management and operation of Rock Creek SWF are as follows:

- Director of Public Works/Deputy Director Solid Waste — Rob Houghton, P.E.
- SWF Operations Superintendent — Kent Broglio
- SWF Operations Foreman — Dan Marzi
- Equipment Operators — Three
- Maintenance Workers — Six
- Household Hazardous Waste Technician — One
- Truck Driver — One

- Mechanic One
- Gatekeeper/Scale Attendant Two

In addition, the County Department of Public Works has additional workers available that can be used on an as-needed basis.

The superintendent is responsible for day-to-day site supervision, site operations and maintenance, and health and safety. The site foreman directs the daily operations and is trained for and provides backup for the superintendent. The superintendent and foreman may also perform any of the tasks of the other site personnel.

The scale attendant verifies residency; collects disposal fees; operates the scales; records the type, source, quantity, and other pertinent information about waste entering the Facility; directs incoming loads; and performs waste screening to ensure that hazardous and other prohibited wastes are not accepted into the facility.

The equipment operators for the landfill operate a loader, dozer, refuse compactor, scraper and water truck. Equipment operators place and compact refuse and cover soil, excavate soil borrow, provide dust and litter control, construct and maintain site drainage features, erosion control and access roads, and perform other duties as required to operate and maintain the site. They also perform load checks on the active face as loads are dumped.

The minimum staff required to be present at the landfill for operations are the gatekeeper, one equipment operators, and either the foreman or superintendent. The minimum staff required for operation of the transfer station are two maintenance workers and one truck driver.

The County Solid Waste Division coordinates environmental monitoring and maintains records for the Facility. As rates of disposal and site operating parameters change, personnel and equipment needed to complete operations and meet health and safety requirements will be evaluated.

7.8.2 Personnel Training CIWMB 27 CCR 21600(b)(5)(H)

The Rock Creek SWF staff have received the following training:

The superintendent and foreman are Solid Waste Association of North America (SWANA) certified managers of landfill operations and have received Hazardous Waste Remediation Disposal Operator (HAZWOPER) training for supervisory personnel pursuant to Title 29, Code of Federal Regulations, Section 1910.120. All staff are HAZWOPER certified.

An Illness and Injury Prevention Program (IIPP) is also maintained on site for employee reference. Facility site personnel are trained regarding the content of this program.

Monthly safety meetings covering a range of topics from equipment operation to emergency response to PPE. Training records maintained at County offices in San Andreas.

7.8.3 Supervision

Responsibility for the operation of Rock Creek SWF is through the County Solid Waste Division staff listed in Section 7.8.1. The director/deputy director (Deputy Director is currently vacant) maintain overall site supervisory responsibility for operations, design, construction, monitoring, and regulatory compliance. Day-to-day site operations are supervised by the site superintendent and/or foreman. Training for these individuals is described in Section 7.8.2.

7.8.4 Emergency Contact List

Emergency contact information for the Rock Creek SWF is as follows:

Operations Superintendent
Kent Broglio
Calaveras County Department of Public Works
Rock Creek Solid Waste Facility
12021 Hunt Road
Milton, California 95230
(209) 785-1689
(209) 736-4629

Operations Foreman
Dan Marzi
Calaveras County Department of Public Works
Rock Creek Solid Waste Facility
12021 Hunt Road
Milton, California 95230
(209) 785-1689
(209) 728-2597

Site Engineer
Mark Davis, P.E.
Calaveras County Department of Public Works
891 Mountain Ranch Road
San Andreas, California 95249
(209) 754-6403
(209) 768-1215

Director of Public Works
Rob Houghton, P.E.
Calaveras County Department of Public Works
891 Mountain Ranch Road
San Andreas, California 95249
(209) 754-6403 work
(209) 728-8310 residence

Local Enforcement Agency
Brian Moss, R.E.H.S.
Calaveras County Environmental Health
891 Mountain Ranch Road
San Andreas, California 95249
(209) 754-6399

Office of Emergency Services
Calaveras County Government Center
891 Mountain Ranch Road
San Andreas, California 95249
(209) 754-6303

Hospital/Medical Emergency
Mark Twain St. Joseph's Hospital
768 Mountain Ranch Road
San Andreas, California 95249
Emergency - 911
(209) 754-3521

Fire
California Forestry and Fire Protection Department
Emergency - 911
(209) 772-1330 (Valley Springs)

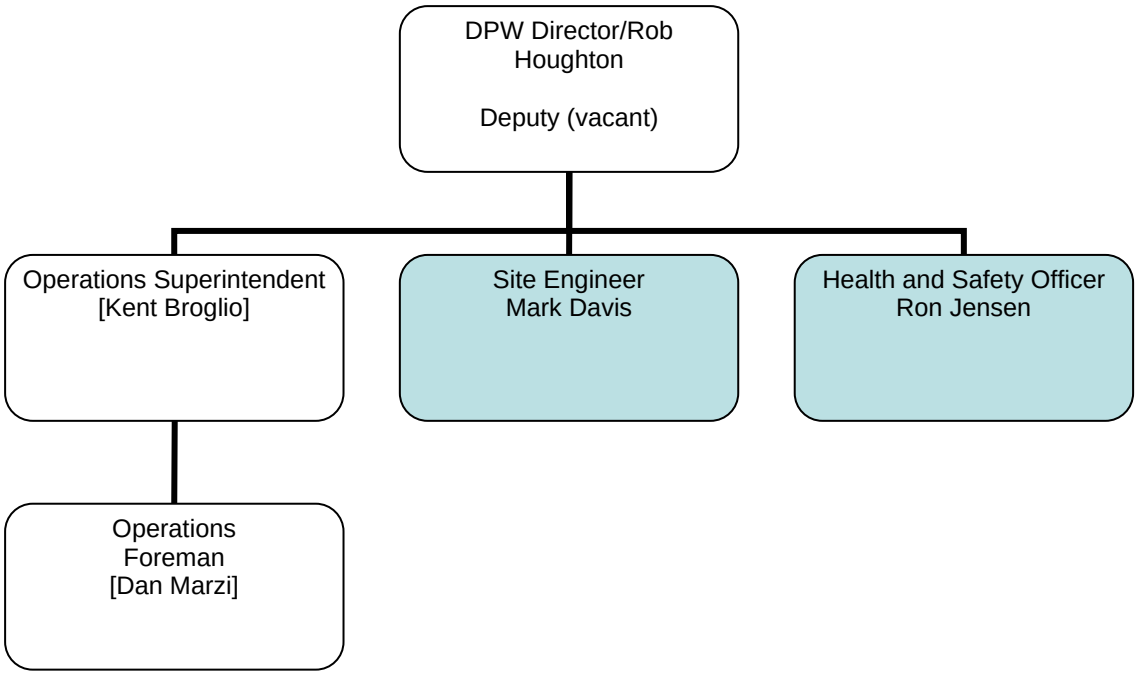
Sheriff
Calaveras County Sheriff
891 Mountain Ranch Road
San Andreas, California 95249
Emergency - 911
(209) 754-6500

The above listed agencies must be apprised of any changes to the emergency contact list. The emergency contact list is posted at the scalehouse and office.

7.9 Supervisory Structure

CIWMB 27 CCR 21600(b)(5)(I)

The County Department of Public Works is responsible for the operation of the Facility. The current supervisory structure is shown below. Contact information is presented in Section 7.8.4.



7.10 Spreading and Compacting

CIWMB 27 CCR 21600(b)(5)(J)

Area fill methods are used at the facility. The slope of the working face is kept as flat as possible and typically does not exceed 4:1 (horizontal to vertical) to optimize compaction efficiency. Spreading and compaction of refuse is accomplished using a compactor equipped with a dozing blade. Refuse is spread into an approximate 2-foot-thick loose layer and typically compacted with a minimum of six passes of the compactor before placement of the next layer. The number of passes varies with waste type; however, due to the slow rate of waste arrival at the site, extra compaction passes are often applied to the waste. Bulky materials are worked with the dozer or compactor to break them up where possible and are placed strategically to prevent bridging and air pockets. Spongy materials are spread out and mixed with other refuse to facilitate compaction. The working face is typically 75 feet wide by 100 feet long. The total daily lift thickness including daily cover ranges from approximately 7 to 15 feet.

When the refuse compactor is not operating due to unanticipated repair, refuse is compacted using a dozer.

8 OPERATIONS PLAN

8.1 Emergency Response Plan

The Emergency Response Plan (Plan), included in Appendix N has been developed for the Facility to identify specific occurrences that may exceed the site's control capacities and endanger public health or the environment. The Plan also identifies the steps that will be taken by the County to minimize these hazards. In the event of an emergency at the Facility, the Plan requires that Facility personnel undertake specific emergency procedures. The responsibility for assuring that the Plan is implemented lies with the designated site superintendent. Amendments, distribution, and document control procedures for the Plan will be the responsibility of the site superintendent. One copy of the Plan will be provided to each of the organizations, companies, or agencies that have agreed to provide assistance in an emergency situation. One copy of the Plan will be maintained in the scalehouse on site.

8.2 Erosion Protection

Drainage and erosion control systems have been installed throughout the site. The operating measures to control drainage and erosion include erosion netting, silt fencing, straw waddles, mulch, revegetation and straw bales are used and maintained to reduce erosion at the borrow areas. A winter operations report is submitted annually by the County to the RWQCB. This report describes measures to control flooding, erosion, and water that contacts refuse.

Drainage from active landfill disposal areas is prevented from leaving the active area by berms constructed annually prior to and during the rainfall season. This drainage is channeled to the LCRS.

Revegetation of landfill surfaces is performed as required. Additional areas receiving seed, fertilizer, and mulch as needed include land outside the active landfill, borrow area cut slopes, and canyon excavation surfaces. Additional ongoing erosion control measures include installation and maintenance of silt fences.

8.3 Surface Water Plan

Failure of the surface water control system would be evidenced by the excessive erosion of the landfill cap, ponding of water on the landfill site, or surface water overflow in the bench drains or drainage ditches. If excessive erosion or ponding occurs, adjustments to the landfill cap topography and/or additional seeding will be required. Failure of the drainage ditches will be remedied by construction of additional surface water containment berms and by repairing or lining the ditches to reduce erosion.

8.4 Spill Plan

Petroleum products (fuel and lubricants) are the only materials used on-site in significant quantities. A Spill Prevention Control and Countermeasures Plan, dated February 2005, was developed and certified in conformance with CFR 112. The Plan outlines spill prevention measures and record keeping for the Facility.

8.5 Operating Site Maintenance Procedures

In addition to an equipment maintenance program, 27 CCR 20750 requires an operator to implement a preventative maintenance program to monitor and promptly repair all defective or deteriorating conditions and/or facilities at the landfill. All environmental monitoring and control facilities, ancillary features (i.e., access roads, signs, gates, fencing, landscaping) and all other on-site structures are inspected and maintained as necessary. The landfill cover will also be inspected on a regular basis for surface cracks and will be repaired, as necessary. It should be noted that ongoing site maintenance will also be conducted after closure in accordance with an approved final postclosure maintenance plan.

9 LANDFILL COVER

9.1 Periodic Cover Materials and Frequency

CIWMB 27 CCR 21600(b)(6)(A) and (B)

Daily and intermediate cover will be placed as required by 27 CCR 20680 and 20700. Cover standards are described in 27 CCR 20705. 27 CCR 20680 requires a minimum 6 inches of compacted daily cover. 27 CCR 20700 requires a minimum 1-foot of compacted intermediate cover be placed on waste surfaces where no additional waste will be placed within 180 days. 27 CCR 20690 allows the use of ADC. 27 CCR 20690 includes specific types of ADC that may be used without a demonstration project to show the effectiveness of the ADC.

Daily cover soil is placed and compacted at the end of the operating day. ADC may be utilized consistent with 27 CCR 20690. Alternative daily covers allowed by 27 CCR 20690 include geosynthetic blankets, foam products, processed green material, sludge and sludge-derived materials, ash and cement kiln dust materials, treated auto shredder residue, contaminated sediment, dredge spoils, foundry sands, processed exploration and production wastes, compost materials, construction and demolition wastes, and shredded tires. The Facility operation currently uses processed green material, sludge materials, and processed construction and demolition material for ADC. Geosythetic fabrics and panel products have been used in the past and may be used in the future in compatible operating conditions. Each of the cover materials may be used alone, or in combination, to achieve required performance standards. The type or types of daily cover to be used is at the discretion of the operations staff in consideration of weather conditions, material availability, and other factors.

The active disposal face is covered on a daily basis using either (1) compacted earthen materials; (2) processed green material and/or construction demolition waste; (3) geosynthetic fabrics and panel products (blankets); or (4) sludge and sludge-derived materials. Landfill equipment operators are responsible for properly covering waste materials at the end of each working day. The foreman and superintendent perform routine inspections to ensure adequate placement of daily cover to control vectors, fires,

odors, blowing litter, and scavenging without presenting a threat to human health and the environment.

9.1.1 Earthen Cover Materials

Earthen cover materials consist of on-site soil materials that are cohesive and readily compacted with proper moisture conditioning. A minimum of six inches of compacted soil cover is placed over waste at the active disposal face at the end of each operating day in accordance with §20680 of Title 27 of the California Code of Regulations (CCR). Earthen materials for cover may include contaminated soil as described in Section 10.5.3.3. Soil with contaminants other than petroleum hydrocarbons may be used for daily cover upon approval by the Regional Water Quality Control Board and other agencies pursuant to 27 CCR 20680(d).

9.1.2 Processed Green Materials, Wood Waste and C&D Materials

The Facility operations staff periodically stockpile and grind green materials, construction and demolition waste (wood and gypsum board) and segregated wood waste in the wood and greenwaste processing area. Stumps are segregated and periodically ground on-site by a contractor with larger grinding equipment.

The ground wood and yard waste is either transported off-site to biomass combustion facilities or used onsite for ADC or erosion control on intermediate cover or other areas. No composting of processed green material occurs on site.

Processed green materials used as daily cover may consist of chipped, ground, shredded or similarly processed organic plant material including yard trimmings, varying amounts of untreated wood wastes, stumps, branches and other forest debris, pine needles, leaves, grass clippings and other types of natural fiber products. Green materials used for daily cover are processed so as to produce a material which, when applied and compacted over the disposal face, meet the performance requirements for alternative daily covers per 27 CCR §20680.

A scraper, bulldozer, or compactor will be used to spread and compact the processed green material. Soil and/or construction and demolition waste will be added, if necessary, to fill any surface voids to ensure the daily cell is constructed pursuant to general daily cover design and performance standards. The processed green material will

be inspected after placement to determine its overall integrity. The minimum compacted thickness of the green waste and construction demolition material used for ADC is six inches and the maximum compacted thickness is eighteen inches. Processed green materials which are placed as daily cover will be exposed for not more than 21 days.

9.1.3 Geosynthetic Fabrics or Panel Products (Blankets)

Tarps may be used for ADC. Tarps are selected and placed in order to meet the performance requirements of alternative daily cover as specified in 27 CCR 20690. Unless products are intended to be non-reusable or unless the Enforcement Agency approves otherwise, blanket-type covers are removed from the waste within 24 hours after placement and the underlying waste is covered with new waste or approved cover materials.

9.1.4 Sludge and Sludge-Derived Materials

Sludge materials used for daily cover consist of residuals from the treatment of municipal wastewater that has been digested anaerobically and dried. Prior to accepting wastewater treatment sludge for use as a daily cover, testing will be completed to verify that the materials would classified as a non-hazardous material. This prohibition shall apply to staging, processing, tipping, and cover placement areas. Sludge or sludge-derived materials shall form a compacted material which can be placed without forming open voids or causing material to be tracked off the working face area. To the greatest extent practicable, sludge is accepted for use as an alternative daily cover only on non-rainy days and scheduled to allow for use within 36 hours of receipt.

Sludge is acceptable for disposal only if the material contains at least 20% solids (by weight) for primary sludge and 15% solids if secondary. The combined solids-to-liquid ratio of sludge and co-disposed waste is at least five-to-one (by weight) in order to ensure that the initial moisture-holding capacity of the nonhazardous solid waste is not exceeded.

Sludge materials used for ADC or for disposal are analyzed by the generator, prior to acceptance, to demonstrate that landfilled sludge is not a hazardous material as defined in *Article 11--Criteria for the Identification of Hazardous and Extremely Hazardous Materials* under Division 3 of Title 22 of the California Code of Regulations.

9.2 Intermediate Cover

CIWMB 27 CCR 21600(b)(6)(C)

Consistent with 27 CCR 21600(b)(6)(C), and 20700, a minimum 1 foot of compacted intermediate soil cover will be placed on refuse disposal areas not receiving wastes for more than 180 days. Intermediate cover has been placed to an approximate thickness of one foot over inactive portions of Phase I-A and I-B.

Areas to receive intermediate cover are surveyed to delineate boundaries and grade stakes are placed to ensure that a minimum of 12 inches of intermediate cover is installed. Areas receiving interim cover are seeded to minimize erosion.

10 WASTE HANDLING PROCEDURES

10.1 Public Health Design Parameters

CIWMB 27 CCR 21600(b)(7)(A)

The following ongoing practices minimize potential health hazards to site operating personnel:

- Training and directing all site personnel to identify potentially harmful wastes that may be delivered to the site
- Minimizing personnel exposure to wastes that may present a health hazard
- Maintaining on-site first-aid supplies
- Training site personnel in safe operating procedures (including hazardous materials screening classes as appropriate) and compliance with operating provisions
- As discussed in Section 11, controls are implemented at the site minimize nuisances, such as vectors, litter, noise, and odor
- Traffic is controlled at the landfill so that traffic flow, on and out of the site, minimizes interference and safety problems for customers and for traffic on adjacent public roads

10.2 Salvaging Activities

CIWMB 27 CCR 21600(b)(7)(B)

The County currently performs diversion of waste in the transfer station building, which includes recovery of materials and transportation off-site for recycling. This includes large bulky items, metal items, white goods, tires, wood waste, greenwaste, and a range of materials that can be recycled. After recovery operations are performed at the transfer station building the residual waste is transported by truck to the landfill working face for disposal in the active cell. The transfer station building also contains a HHW facility that processes materials for proper off-site disposal. If large or bulky items that are recyclable were missed during recovery operations at the transfer station and are encountered at the

working face, they are stockpiled near the working face and then transported to the transfer station building. Waste handling for salvage materials is discussed in Section 10.5.

10.3 Volume Reduction Activities

CIWMB 27 CCR 21600(b)(7)(C)

The more traditional waste volume reduction activities such as incineration, baling, shredding or pyrolysis are not conducted at the landfill. Recyclable materials, and green materials and C&D; suitable for use as ADC, beneficial reuse, or recovery, are diverted from the waste stream, which reduces the volume of waste being disposed.

10.4 Equipment

CIWMB 27 CCR 21600(b)(7)(D)

10.4.1 Minimum Equipment Requirements

The equipment available at the Facility for site operations and to ensure compliance with regulatory standards is listed below. The minimum equipment required for operations includes the dozer or the compactor and scraper. However, sustained operations with the minimum equipment are not possible for periods greater than 5 days due to requirements of materials handling, soil excavation and placement, and dust control. This equipment is adequate to handle the projected tonnage during the next five years.

Run Date: 05/19/2005 10:21:14am
Fiscal Year: 2005
Selection Criteria: See Cover Page
Period Ending Date: 05/13/2005

Calaveras County
Department of Public Works
Cost Accounting Management System
Vehicle and Equipment Listing

Property No	Vehicle	Year	Make	Model	Description	Vehicle Category
35-00339	53-001	83	FORD-2000/GAL		WATER TANKER	052
12-00215	53-003		TRLR MNTD PUMPS	PUMP	PUMP	053
12-00216	53-004	87	TRLR MNTD PUMPS	PEABODY	TRAILER MOUNTED PUMP	053
35-00452	53-005	90	JOHN DEERE	862B	SCRAPER	062
35-00453	53-007	90	JOHN DEERE		CRAWLER DOZER	062
	53-008	2000	FORD	F250	4 x 4 DIESEL PICKUP	055
15-00335	53-009		INGERSOL-RAND		AIR COMPRESSOR	054
	53-010		GENERATOR	RENTAL	GENERATOR	016
	53-012		GENERATOR-BLUE	150 KW	DIESEL GENERATOR	016
12-00304	53-015		STEAM CLEANER	3305T -STM CLNR	STEAM CLEANER	061
	53-016	87	CHEVROLET	K20-	4 x 4 PICKUP	055
	53-017	97	HYDROSEEDER	BOWIE/VICTOR800	HYDROSEEDER	050
	53-018		AL-JON	81K COMPACTOR	TRASH COMPACTOR	048
	53-019	98	FORD	RANGER	4 x 4 PICKUP EXTENDED CAB	055
	53-020	99	CATERPILLAR	3304T	GENERATOR	016
	53-021	1999	CATERPILLAR	D6K	CATERPILLAR	062
	53-022	1994	INTERNATIONAL	9400	TRUCK FOR LANDFILL	052
	53-023	2001	NAVISTAR (INT)	9400	ROLL OFF TRUCK	052
	53-024	2002	CATERPILLAR	928G	CATERPILLAR WHEEL LOADER	060
	53-025	84	CHEV 4 x 4 PU	CHEV	ARMY SURPLUS VEH+	055
	53-026	2002	ESP	TT6052	ROLL OFF TRAILER	022
	53-027	1994	INTERNATIONAL	8200	4WD DUMP TRUCK	059
	53-028	1993	GREAT DANE	REFER 45'	45' REFRIGERATOR TRAILER	022
	53-029	2003	BARROW	CUSTOM MADE	FLAT BED TRAILER 14' LONG GVW 12000	022
	53-030	05	TRINITY	EAGLE BRIDGE	45' "LIVE FLOOR" TRAILER	022
	53-139	05	CATERPILLAR	623G	EARTHMOVING SCRAPER	062
	53-140	99	KENWORTH	900L	99' FIFTH WHEEL TRACTOR	069
	53-146	1979	CHEVY	3/4 TON PU	4 x 4 PICKUP	012
	53-165	1994	FORD	F350 4 x 4	TRANSFER FROM ROAD DEPTt	055
	53-240	03	PETERSON PACIFI	HC 2400B	2400B HORIZONTAL GRINDER	068
	53-241	81	CASE	W24C	FRONT END LOADER	060
35-00102	53-242	74	JOHN DEERE		LOADER BACKHOE	060
	53-412	1997	FORD	F450	FLATBED SERVICE TRUCK	052
	53-413	1991	FORD	F800	SERVICE TRUCK	052
	53-415	2004	FORD	EXPLORER	FIVE SPEED AUTO/4D LTR SOHC V-6	055
	53-416		CATERPILLAR	LOADER	966 LOADER	060
	53-417	01	CATERPILLAR	906	906 WHEEL LOADER W/ 4-N-1 BUCKET	060
35-00373	53-633	91	MERC-AUTOMATIC	SEDAN	SEDAN	057

10.4.2 Standby Equipment

In the event of equipment mechanical failure, standby equipment is available from the County maintenance yards as follows:

District A

Jenny Lind Yard
11558 Milton Road
Jenny Lind, California
(209) 786-2241
Distance from site: 6 miles

District D

San Andreas Yard
891 Mountain Ranch Road
San Andreas, California
(209) 754-6508
Distance from site: 25 miles

Equipment is also available from Holt Brothers, 1521 West Charter Way, Stockton, California, 28 miles from Rock Creek SWF. Equipment can typically be delivered to the site within 2 hours of notice.

10.4.3 Equipment Maintenance Procedures

Preoperational equipment inspections are performed by equipment operators. Equipment preventive maintenance is managed by the superintendent. Fueling and scheduled preventive maintenance on heavy equipment is performed by County personnel at Rock Creek SWF. Major repairs to heavy equipment are either performed onsite at the maintenance building or by off-site equipment dealers (for example, Holt Brothers of Stockton). All scheduled maintenance for trucks is performed by County personnel. Miscellaneous site equipment is maintained by County personnel. Maintenance records for each piece of equipment are maintained at the Facility office.

10.5 Waste Handling

CIWMB 27 CCR 21600(b)(7)(E)

This section describes the following materials handling procedures for Rock Creek SWF: waste unloading, spreading and compaction, special handling procedures, periodic cover placement, intermediate cover placement, and final cover placement. Cover material availability is also discussed.

This JTD also described the waste handling procedures in the transfer station building, previously discussed in Section 3.5.1.

10.5.1 Waste Acceptance and Unloading

Materials intended for disposal or diversion are delivered to the Facility by various transfer trucks, and the general public in a variety of small-volume vehicles. Vehicles enter the main gate and proceed to the scale south of the gate. The scale attendant verifies residency, asks about any prohibited waste and views the load, enters the incoming load weight only for weighed vehicles, logs the load type of material, and directs the driver to the appropriate unloading area. Typically, roll-off trucks and the general public are not weighed and are directed to the transfer building for processing. Processing in the transfer building includes dumping of loads, recovery of waste by

operating staff, and loading of residual waste into roll-off bins which are then delivered to the landfill working face.

Commercial refuse collection trucks or other mixed or wet non-recoverable refuse loads are weighed and routed directly from the scale to the landfill working face. User traffic in the working face area is confined to the unloading area by traffic cones. Wet-weather waste unloading is limited to controlled areas prepared by the landfill equipment operators to provide access for various vehicles. After materials unloading at the working face is complete, non-tared vehicles return to the scale for reweighing and exit through the main gate.

10.5.2 Spreading and Compacting

Area fill methods are used at the Facility. The slope of the working face is kept as flat as possible and generally does not exceed 4:1 (horizontal to vertical) to optimize compaction efficiency. Spreading and compaction of refuse is accomplished using a compactor equipped with a dozing blade. Refuse is typically spread into an approximate 2-foot-thick loose layer and typically compacted with a number of passes of the compactor before placement of the next layer. The number of passes varies with waste type; however, due to the slow rate of waste arrival at the site, extra compaction passes are often applied to the waste. Bulky materials are worked with the dozer or compactor to break them up where possible and are placed strategically to prevent bridging and air pockets. Spongy materials are spread out by equipment and mixed with other refuse to facilitate compaction. The working face is typically 75 feet wide by 100 feet long. The total daily lift thickness including daily cover ranges from approximately 7 to 15 feet.

When the refuse compactor is not operating due to scheduled maintenance or repair, refuse is compacted using the dozer.

10.5.3 Special Handling Procedures

Special wastes to be accepted at the site include animal carcasses, sewage sludge, petroleum-contaminated soil, and tires.

10.5.3.1 Animal Carcasses

Animal carcasses received at the Facility are immediately disposed and covered with waste or soil.

10.5.3.2 Sewage Sludge

Sewage sludge is disposed on a case-by-case basis in accordance with County acceptance criteria and operational procedures. Disposal of sewage sludge is scheduled during the dry season and to coincide with the placement of daily cover. Sewage sludge disposal practices maintain appropriate solid waste to sewage sludge codisposal ratios.

To determine its acceptability, sewage sludge samples are collected prior to transport and analyzed as necessary to demonstrate that is contains a minimum of 50 percent solids content and is not a hazardous material as defined by Title 22, CCR (Division 3, Article 11, Criteria for the Identification of Hazardous and Extremely Hazardous Materials).

- In addition to the selective screening of incoming sewage sludge, operational procedures for the handling and disposal of sewage sludge to minimize any potential impacts associated with the following issues include:

- Odor - sewage sludge is covered as soon as practicable

- Public health exposure - sewage sludge is disposed in areas distant from the public and covered as soon as practicable

- Moisture holding capacity - a minimum solids-to-liquids ratio of 5 to 1 on a weight basis is maintained to ensure that the codisposal does not exceed the moisture-holding capacity of the solid waste[23].

10.5.3.3 Petroleum-contaminated Soil

To determine the acceptability of petroleum-contaminated soil, samples are collected prior to transport and analyzed as necessary to demonstrate that they are comprised of a ·minimum 50 percent solids content and are not a hazardous material as defined by 22 CCR (Division 3, Article 11, Criteria for the Identification of Hazardous and Extremely Hazardous Materials).

Petroleum-contaminated soil with total petroleum hydrocarbons (TPH) concentrations less than 100 parts per million (ppm) is used for daily cover. Petroleum-contaminated

[23] Dewatered sludges received are dry, typically less than 5% moisture, based on information for Rob Houghton, Director County Department of Public Works..

soil having a TPH concentration greater than 100 ppm is landfilled as waste. Petroleum-contaminated soil having a TPH concentration greater than 1,000 ppm is not accepted without further testing to demonstrate that it would not be characterized as a hazardous waste 22CCR.

10.5.3.4 Tires

Tires are segregated from the waste stream in the transfer station building and diverted for transport by a private hauler to an offsite recycling or cogeneration facility.

10.5.3.5 Other Waste Requiring Special Handling

Wastes received at the site which require special handling typically include bulky waste, such as stumps, inert material, white goods, and dewatered sewage sludge. White goods are directed to the transfer building and recovered for scrap value. Large inert concrete is directed to a stockpile and reused on-site for road construction, erosion control in constructed drainage channels, or winter tipping pad construction. Large tree trunks are stockpiled and periodically ground to provide ADC or fuel for off-site biomass plants. Dewatered sewage sludge may be used as ADC, as previously described in Section 9.1.

The operations staff direct and stockpile greenwaste, wood waste and construction demolition waste containing wood and gypsum board to a wood and yard waste processing area for periodic grinding as discussed in section 9.1.

10.5.4 Periodic Cover Placement

The active disposal face is covered daily with a minimum of 6 inches of compacted soil from an onsite borrow area or with soil accepted at the site for disposal. Landfill equipment operators are responsible for ensuring that the required cover is placed at the end of each working day. The foreman and superintendent perform routine inspections of adequate cover material placement and compaction.

The soil used for daily cover consists of medium- to fine-grained silts and clays that are cohesive and readily compacted. The compacted soil is a suitable barrier to the emergence of flies, the progress of fires within the landfill, the escape of odor, and excess infiltration of surface water runoff.

The use of alternative daily cover was discussed in Section 9.1.

10.5.5 Intermediate Cover Placement

Intermediate cover is placed on all landfilled areas not expected to receive refuse for more than 180 days pursuant to the requirements of 14 CCR 17684. Intermediate cover has been placed to an approximate thickness of 1 foot over inactive portions of the landfill.

Areas to receive intermediate cover are surveyed to delineate boundaries and grade stakes are placed to ensure that a minimum of 12 inches of intermediate cover is installed. The soil is compacted with either the site dozer or compactor. Areas receiving interim cover are seeded or receive processed green waste to minimize erosion.

10.5.6 Final Cover Placement

Final cover will be placed in phases as the landfill reaches final operational grades. Currently the final cover profile is planned to consist of, from bottom to top, a minimum 2-foot-thick compacted soil foundation layer, a 2-foot-thick barrier layer having a hydraulic conductivity less than or equal to $1x10^{-7}$ cm/sec, a 60-mil-thick geomembrane barrier, a drainage layer (if required), and a 1.5-foot-thick vegetative layer. The interim cover may be incorporated into the foundation layer. Final details of the final cover, including detailed design, stability analysis material properties, and vegetative requirements, will be described in a Final Closure Plan to be prepared by a registered civil engineer or certified engineering geologist and submitted to the LEA, CIWMB, and RWQCB at least 2 years in advance of any planned final cover construction. The final cover placement will be performed under a Construction Quality Assurance plan that is prepared by a registered civil engineer or certified engineering geologist and submitted with the final closure plan. Closure of the final phase will be initiated within 30 days of the last receipt of waste and completed within 180 days of initiation.

10.5.7 Cover Availability

Estimated cover soil requirements and excavation information are based on the base and final grading shown in the Facility Development Plan (Drawings C5 and C6, Appendix C). Cover material is excavated from stockpiles or phases adjacent to the phase requiring cover. Excavation and construction soil in excess of immediate requirements is stored at

the stockpile locations shown on Drawing C3[24] (Appendix C). These current and proposed stockpiles are or will be located at areas that do not interfere with landfill operations, diversion activities, site access, or drainage.

The site remaining capacity and soil excavation quantities are summarized in Table 5. This is based on the overall site development plans and assumptions noted. Table 7 shows an estimate of the soil balance for the site based on the use of on-site soils for liner construction, final cover construction and use of daily and intermediate cover. The Table shows the soil balance for a range of ratios of waste to total daily and intermediate cover volumes. The total cover is a combination of soil and ADC. At the assumptions shown for ADC usage there would be a shortfall at a waste to cover ratio of 3:1, which would transition to a positive soil balance (surplus) as it moved toward 4:1 and higher. Based on discussions with County operational staff and review of operations, it is believed that the operations were experiencing a waste to cover ratio[25] on the order of 3:1 prior to use of ADC. It is assumed that this ratio will continue in the near term but that the use of ADC will provide the requirements for daily and intermediate cover as noted in Table 7. The County expects that the ratio of waste to total cover could increase to 4:1 and higher as the waste stream increases in the future and allows construction of larger daily cells[26]. Therefore, it would be reasonable at this time to assume an on-site soil balance will occur for the entire site development noting the figures in Table 7 for cover ratios for 3, 4 and 5:1.

In the event that stockpiles are depleted during future Phases or closure construction, the County will consider import of materials from offsite sources and/or mining of soil on-site outside the Class II landfill footprint. However, this is not considered the probable outcome because the County will monitor operations, and if ADC usage alone[27] is not projected to provide a soil balance the County could also employ the use of tarps which would further decrease the use of cover soil.

[24] 1995 RDSI, by HLA

[25] This ratio includes both ADC and cover soil, and therefore the waste to soil ratio is higher.

[26] Based on personal conversation between Mark Urquhart, EMCON/OWT, and Kent Broglio, Operations Superintendent, May 26, 2005.

[27] ADC usage at a 3:1 waste to cover ratio is assumed to be 40% of daily and intermediate cover for Phase II-B and future phases. At this ratio it is estimated that the weight of ADC will be on the order of 11% by weight of waste tonnages (See calculation notes in Appendix F).

10.5.8 Salvaging and Volume Reduction

Salvaging was discussed in Section 10.2. As noted, the salvaging activities at the Facility take place at the transfer station building .

10.5.9 Non-Salvageable Items

Salvaging is conducted primarily in the transfer station building and by trained County personnel only and limited to the specified salvage items. Drugs, cosmetics, foods, beverages, hazardous chemicals, poisons, medical wastes, syringes, needles, pesticides, and other materials capable of impairing the public health are not salvaged from the incoming waste stream unless approved by the LEA. Site personnel receive waste identification training to prevent such occurrences. Additionally, some of these materials are not accepted for disposal and are prevented from disposal by procedures outlined in the hazardous waste screening program in Appendix O.

10.5.10 Volume Reduction and Energy Recovery Procedures

Volume reduction of yard and construction demolition and wood waste is performed by the County using a mechanical chipper. Chipping currently occurs in the yard and wood waste stockpile and processing area in the southern portion of the Facility, distant from other site operations. Chipped material is removed from the site by truck for fuel in biomass cogeneration facilities or is used on-site for ADC, as discussed in Section 9.1. The frequency of processing and removal or reuse of processed material is based on maintaining conditions such that health, safety, and nuisance problems do not occur.

10.5.11 Inclement Weather Operations

Rain and/or high winds are the predominant inclement weather conditions which may cause the operator to adjust on-site waste handling and disposal procedures. Vehicle access to the unloading areas is provided by gravel or tightly compacted dirt roads. When heavy rains cause the unloading area to become muddy and unusable, operations are moved to a designated wet weather area to provide continuous operation during inclement weather. Stockpiles of soil or ADC material are maintained near the working face and the designated alternate unloading area to provide an adequate supply of cover material.

When high wind conditions occur, the unloading area may be reduced in size and cover operations may also begin earlier in the day to reduce the area of exposed waste on the working face. The operations staff may also delay unloading during high wind conditions.

10.5.12 Transfer Station Waste Handling

All self-haul vehicles and selected permit haulers (transfer station bins and debris boxes) are directed to the transfer station building. The transfer building traffic flow pattern is shown in the Operations Plan (Appendix D). The transfer station building provides segregation of site self-haul customers and permitted hauler trucks because permitted hauler trucks are directed from the scale to the landfill working face and do not use the transfer building . For mixed waste loads, customers drop or "tip" refuse onto the floor. On the tipping floor, County staff segregate recyclables from tipped loads. Segregated refuse, metal, yard waste, and wood waste is pushed by a rubber-tired loader from the tipping floor to one of six "segregated waste" bins. In general, recoverable materials are pushed to the north and refuse is pushed to the south. When full, bins containing refuse are hauled to the landfill working face.

Cardboard is pulled from loads on the tipping floor and set aside for baling. Appliances are pulled from loads on the tipping floor and set aside for processing (e.g., freon removal), compacting and transport offsite for recycling.

The front-end loader may be used to directly gather source-separated materials including containers, paper, cardboard, yard waste, concrete, asphalt, "recycle-only" hazardous materials, tires, mattresses, and resalable items from the tipping floor. Moveable bins or carts are also available on the tipping floor for moving source-separated materials from vehicles to designated receptacles.

Recycling containers for beverage containers, paper, and cardboard are located adjacent to the building. Available storage volumes are currently 40 cubic yards each for paper and beverage containers, and 40 cubic yards for old corrugated cardboard.

Yard and wood waste may be segregated from the incoming waste stream and diverted to bins in the transfer station building or to yard and wood waste stockpiles in the southern portion of the Facility, away from other site operations.

Tires are segregated from the incoming waste stream and diverted to a covered trailer parked adjacent to the transfer station loading docks. To prevent vector propagation, tires are stored in a fully enclosed, moveable container that remains closed except during loading and unloading. A maximum 2,000 tires can be stored onsite at any time.

Mattresses suitable for refurbishment may be segregated from the incoming waste stream and diverted to a covered trailer. A maximum of 80 cubic yards of mattresses are stored onsite at any time.

Ferrous materials are segregated from the incoming waste stream and diverted to an open bin away from the public. The maximum quantity of diverted ferrous materials stored onsite at any time is approximately 120 cubic yards.

Lead-acid batteries are segregated from the incoming waste stream and diverted to the HHW collection facility in the transfer station building. A maximum 100 lead-acid batteries are stored onsite at any one time. Petroleum oil, antifreeze, and water-based paint are segregated from the incoming waste stream and diverted to separate tanks or 55-gallon drums in the HHW collection facility. A maximum 600 gallons each of petroleum oil and water-based paint and a maximum 200 gallons of antifreeze are stored onsite at any one time.

Appliances containing CFC refrigerants are segregated from the incoming waste stream and diverted to a staging area in the building. A maximum 50 appliances containing CFCs are onsite at any one time. Latches from refrigerators and freezers are removed upon arrival at the site. A variety of reusable household items are removed from the waste stream and are placed in a designated area in the building.

Cathode ray tubes, that are mainly received in televisions and computers, are directed or moved to a an area segregated from the rest of the general waste tipping floor area. These are appropriately stored for transport to appropriate off-site certified recyclers.

10.5.13 Load Checking for Hazardous Waste

Refuse loads tipped in the transfer station building, which are a majority of the loads accepted, are visually screening on the tipping floor. HHW that is observed is removed for proper disposal at the HHW facility co-located in the building. Periodic working face load checking is performed monthly.

11 ENVIRONMENTAL CONTROLS

11.1 Nuisance Control

CIWMB 27 CCR 21600(b)(8)(A)

Rock Creek SWF is a low-volume facility in a remote area of Calaveras County. There are no residences within 1,000 feet of the site. The site is operated by trained personnel having the necessary equipment and supervision to operate the Facility in a manner that prevents creation of a public nuisance. The Facility is operated according to applicable regulations, agency approved documents, and permits. Measures such as waste handling procedures, dust control, vector control, litter control, and daily cover requirements prevent creation of public nuisance.

Public input to the planning of Rock Creek SWF was invited through the CEQA process. Responses to public concerns and comments during the CEQA process are included in the *Final Environmental Impact Report Tier Two: Rock Creek Landfill Permitting Process* (Calaveras County, 1989). Complaints or inquiries about landfill operations may be directed to the County Solid Waste Division or to agencies having jurisdiction over landfill operations.

During the past five years, the Solid Waste Division has documented complaints and/or inquiries associated with litter along Rock Creek and Milton Roads, fires, and prohibited vehicles on Rock Creek Road. The nature of each inquiry and the County's responses are summarized below.

The Solid Waste Division has received occasional complaints regarding litter and illegal disposal of solid waste along Rock Creek and Milton Roads, not all of which are documented. In response to such complaints, the Solid Waste Division has dispatched a work crew to patrol Rock Creek and Milton Roads and collect litter. Litter control is further described in Section 11.7.

The Solid Waste Division has received complaints expressing concern regarding fires at the landfill. The County has responded in writing to clarify the extent and nature of fires

that have occurred at the landfill and to describe the Facility fire protection capabilities. Fire control is further discussed in Section 11.2.

11.2 Fire

CIWMB 27 CCR 21600(b)(8)(B)

Fires can be created by vehicular traffic, facility users, equipment operations, smoldering wastes disposed at the active face, decomposition within the landfill, lightening strikes, and spread of offsite fires. Immediate fire danger exists at the active landfill face, at fuel storage and maintenance areas, at areas containing dry grasses, at locations having accumulation of landfill gas, at the transfer station building, and at the wood waste area. The transfer station building is equipped with a fire suppression and sprinkler system as required by applicable building codes.

The following measures reduce the probability of fire:

- Vehicular traffic is restricted to graded roads
- Equipment fueling and exhaust systems are maintained
- Smoking prohibitions/designated smoking areas are posted
- Tank and fueling controls are installed at the fuel storage area
- County vehicles and heavy equipment are equipped with fire extinguishers
- Disposed materials are observed by landfill personnel for the presence of hot or smoldering objects
- The active face is kept to a minimum required size and is covered daily with a minimum 6 inches of soil
- Diverted materials are removed from the site on a regular basis
- Landfill gas monitoring is performed on a regular basis
- The wood waste area is located in a clear, flat area and the perimeter is maintained free of combustible vegetation to a distance of approximately 150 feet
- Site personnel are trained in basic fire prevention measures
- A 15-foot-wide fire break is cleared around the site each spring to reduce the chance of surrounding fires affecting the site
- Annual inspections are performed by local fire authorities to verify proper fire prevention practices.

To respond to fires, Facility fire protection installations include two 50,000-gallon water tanks that supplies four water fire hydrants located around the Class II landfill as shown

on Drawing 1, Appendix B. A hydrant was installed around Phase II as shown on Drawing 2, Appendix B. A 750-gpm pump supplies water to the hydrants from the tank. The tank is refilled by a water supply well located near the southern end of the site (Drawing C3, Appendix C). Fire hoses for use in fighting fires are present onsite.

Emergency response personnel may be contacted by dialing 911 from site telephones. The California Forestry and Fire Protection Department is located in Valley Springs, 17 miles from Rock Creek SWF.

The application of daily soil cover material limits the oxygen available for combustion. In case of fires within the landfill, they can be extinguished with cover soil. In addition, a water truck is available at the site for fire control.

11.3 Leachate

CIWMB 27 CCR 21600(b)(8)(C)

Leachate is produced when infiltration into the landfill exceeds the moisture-holding capacity of the refuse fill. Groundwater impacts can occur where water and wastes are in contact, or where groundwater, precipitation, or surface water is allowed to drain through wastes and exit the landfill as leachate.

During landfill operations, leachate generation from the active waste disposal area will be controlled by operating practices. These operating practices include compacting waste to decrease its permeability and increase its ability to shed water; grading waste to promote run-off away from the active disposal area; and covering waste to help prevent water from entering the waste.

Should excessive rainfall occur resulting in run-off from exposed waste, the run-off will be managed as leachate. The run-off will be contained using earth berms, downdrains or other means, and added to the on-site leachate system using either pumps or tanker trucks.

If leachate seeps are discovered, the seeps will be contained using earth berms or other means. Fencing will be placed around any accumulated leachate to control access. The leachate will be added to the on-site leachate system using either gravity, pumps or tanker trucks. The leachate seep area will be repaired when site conditions allow.

11.4 Dust Control

CIWMB 27 CCR 21600(b)(8)(D)

Primary potential sources of dust at the Facility include soil cover over the Class II landfill, unsurfaced and gravel access roads, and the wood waste area.

Dust is controlled by compacting soil, establishing vegetation, and applying leachate and water as needed. Leachate application is restricted to lined areas of the Class II landfill, typically on the active Phase of the landfill. Water is sprayed by a 2,000-gallon water truck that uses water from the sediment basins in the spring and from the 50,000-gallon tank during other times of the year. The frequency of water spraying varies as necessary to prevent a nuisance depending on temperature and wind conditions. Fugitive dust control measures have proven sufficient to comply with CCAPCD rules and regulations.

11.5 Vectors

CIWMB 27 CCR 21600(b)(8)(E)

Birds and insects, rodents, and other vectors are controlled by collecting litter, grading surfaces to prevent ponding of water, regularly removing diverted materials from the site, using small active disposal areas, following consistent daily cover practices, and placing interim cover over inactive areas. The Class II surface impoundment is covered by a net to prevent bird contact with the impoundment contents. Site personnel inspect landfill areas regularly for any signs of rodent activity. If such activity is observed, site personnel will contact pest control specialists for professional advice and services necessary to ensure that a vector nuisance does not develop. With the use of the above controls and minimizing the size of the working face, vectors have been successfully controlled to below nuisance levels.

11.6 Drainage and Erosion Control

CIWMB 27 CCR 21600(b)(8)(F)

Drainage and erosion control measures are discussed in section 8.2.

11.7 Litter Control

CIWMB 27 CCR 21600(b)(8)(G)

Loads to the Facility are required to be covered during transport. Litter is controlled onsite by the maintenance of only a small working face of the active landfill, the use of portable fences, and litter cleanup. Litter is occasionally blown from the working face during high or gusting wind conditions. Windblown litter is gathered as needed by the County personnel or work crews from County Law Enforcement facilities. Litter occasionally occurs due to illegal disposal along access routes.

11.8 Noise Control

CIWMB 27 CCR 21600(b)(8)(H)

Landfill equipment is maintained to minimize noise generation. Site personnel are supplied with ear protection for use while operating site equipment. Stump grinding is a high-noise activity that occurs only once or twice a year. No complaints have been documented from the town of Milton or from the residence nearest the stump grinding area.

11.9 Traffic Control

CIWMB 27 CCR 21600(b)(8)(I)

Access to the Rock Creek SWF is shown on Figure 1. The site may be accessed from Valley Springs by proceeding south on Highway 26 to its junction with Jenny Lind Road, south on Jenny Lind Road to its junction with Milton Road, south on Milton Road to Hunt Road, and 3/4 mile east on Hunt Road to the Facility entrance. Access from the south uses Highway 4 then proceeding north on Milton Road to Hunt Road, and 3/4 mile east on Hunt Road to the Facility entrance. Milton Road and Hunt Road (between Milton Road and the site entrance) provide the only site access for commercial haulers. Restrictions in CUP 87-01 (Section 1.3) limit use of Hunt and Rock Creek roads.

The locations of controlled site access are shown on Drawing C3, Appendix C. The primary gated access located adjacent to Hunt Road is open during operating hours. The gated access at Rock Creek Road at the south end of the Facility is locked at all times. The 24-foot-wide main access road is striped and signed. The access road surface from the entrance at Hunt Road to the transfer station building is asphaltic concrete pavement. This paved road surface minimizes airborne dust generation and tracking of soil or rocks from the Facility onto Hunt Road. The access road beyond the paved section is surfaced with aggregate base rock and provides access to the landfill as shown on Drawing 1. The

main access road continues through the site to the Rock Creek Road access gate. Additional existing unsurfaced roads shown on the topographic base map (Drawing 1) provide access to the water supply well, stockpiles, detention basins, monitoring installations, and ancillary facilities.

Access roads are periodically relocated to accommodate landfilling activities. Access for continued landfill development will be from roads to be constructed on the east side of the landfill canyon. The access road for Phase II and the Class II impoundment is presented on Drawing 1.

Traffic arriving at the Facility comprises collection trucks, transfer trucks, employee vehicles, and general public vehicles, typically cars, pickups and light trucks. During the 12-month period from January 2004 through December 2004, the average number of daily disposal arrivals was 14 refuse trucks and 123 public vehicles. The low volume of traffic flow prevents stacking of vehicles on public roads. Vehicles entering the Facility are directed by the scalehouse operator to the appropriate unloading areas. Traffic volume is low enough that departing vehicles can use the same scale upon entering and exiting the site. If additional vehicles enter the Facility while a vehicle is on the scale, sufficient space exists for staging.

11.10 Odor Control

CIWMB 27 CCR 17863.4

Odor at the Facility is controlled by applying daily cover over the active disposal face of the Class II landfill, cleaning site equipment, implementing drainage controls and special waste handling procedures, and minimizing the area of the active face.

No odor complaints have been documented at the site.

11.11 Hazardous Waste, Medical Waste, and Dead Animals

CIWMB 27 CCR 21600(b)(8)(J)

This section summarizes the load-checking program at the Facility. The waste load check program is presented in Appendix N. The procedures for disposal of dead animals was described in Section 10.5.3.1. The handling procedures for treated medical waste is described in Section 10.5.3.5. Non-treated medical waste is not accepted.

11.12 Customer Notification

Signs are posted at the entrance to the Facility informing customers about prohibited wastes. Customers are questioned by scalehouse personnel about load contents as part of the prohibited waste load check program.

11.13 Waste Inspections

The waste inspection program at the Facility includes visual inspections at the scalehouse, at the transfer station tipping floor, and the working face, and random load checks. Trained personnel identify the nature of materials received in a load, and whether the materials are regulated hazardous wastes. If hazardous waste is detected, it properly contained and managed, which includes processing small quantities through the HHW facility in the transfer station building.

11.14 Recordkeeping

As required by 27 CCR 20515, landfill personnel record and retain at the site office an operating record containing load-checking documentation, incident reports, training records, and permits and variances. The operating record is updated regularly, as necessary, and is available for review by regulatory agencies during normal business hours.

11.15 Corrective Action Financial Assurance

Section 22220, Title 27 CCR requires operators of disposal facilities to demonstrate the availability of financial resources to conduct corrective action activities as required under Article 1, Subchapter 3, Chapter 3 (section 20380 et seq.). Calaveras County has secured the required financial mechanism for corrective action to remediate a potential release from the Facility. Proof of this coverage has been submitted to the CVRWQCB.

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LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.