K. WATER RESOURCES

The Water Resources section of the EIR evaluates potential impacts of the proposed project on groundwater and surface water resources. The analysis is based primarily on the *Water Resources Assessment* prepared by Fugro West, Inc (refer to Appendix G). That assessment identified a groundwater study area based on local hydrogeologic conditions. This section describes local and regional conditions, identifies the impacts of the proposed project on those conditions, and recommends mitigation measures to reduce any significant impacts to a less than significant level.

1. Existing Conditions

a. Geologic Conditions

The Central Coast hydrologic basin planning area, as defined by the Central Coast RWQCB, encompasses all coastal drainages flowing to the Pacific Ocean between the Pajaro River in southern Santa Clara County and Rincon Point on the coast of western Ventura County. The Landfill is located in the southern portion of the 779-square mile Estero Bay watershed immediately downgradient from the San Luis Obispo groundwater basin and upgradient of the narrow northeast-southwest trending lower Pismo groundwater basin (Plate 3, Appendix G). The Landfill is located in the Pismo (geologic) Basin along the northeastern flank of the Pismo Syncline. The Pismo Basin is bounded on the northeast by the Huasna fault zone and on the west by the Hosgri fault zone. A discussion of specific geologic formations can be found in the Geology and Soils section.

b. Regional Hydrogeology

The principal aquifer of the Pismo Basin consists of the recent alluvial deposits. The alluvium consists of sand, gravel, and clay to a maximum thickness of 100 feet. The Monterey and Pismo formations that underlie the site are not considered major groundwater aquifers, although they do yield usable quantities of water for small-scale operations such as domestic and livestock purposes. Within the Monterey and Pismo Formations, groundwater generally occurs under semi-confined to confined conditions. Recharge to the aquifer occurs by percolation of stream flow, percolation of precipitation, and subsurface underflow. Basin discharges occur through surface outflow, springs, groundwater pumpage, and evapotranspiration (ETo).

c. Local Hydrogeology

Hydrogeologic conditions at the Landfill were determined based on data from the drilling and installation of monitoring wells (Golder, 2007). The drilling, installation, pump testing, and regular sampling of the network of monitoring wells at the Landfill have allowed determination of water level data, hydraulic gradient, flow direction, water quality, and aquifer characteristics.

Groundwater occurs in the Pismo and Monterey formations at the Landfill, both of which are water-bearing materials that appear to be hydraulically connected.

A total of 20 monitoring wells are present at the Landfill (refer to Plate 4, Appendix G). The depth to the water surface varies between approximately seven feet and 93 feet. Groundwater elevations range between approximately 230 feet above mean sea level (MSL) in the northern

well (P-14) and 180 feet above MSL in the southern well (P-11). Groundwater elevations are measured quarterly in the site monitoring wells and the hydrographs are presented on Plate 5, Appendix G.

The hydrographs indicate that MW-2 and P-5 (Monterey Formation wells) have an extended period of seasonal variability. The same seasonal variability may be evident in limited-duration hydrographs for the newer monitoring wells (P-11, P-12, and P-13). For the five-event period of record for newer monitoring wells, groundwater levels have varied between 0.14 feet (Well B-1) and 7.27 feet (Well P-13).

d. Onsite Water Supply Conditions

Six onsite low-capacity wells are located at the Landfill with an estimated total source capacity of approximately 88 gallons per minute (gpm). The wells, as with all wells within the hydrogeologic study area, pump from an area that is not within a defined groundwater basin, but near the San Luis Obispo groundwater basin and lower Pismo groundwater basin. None of the onsite wells have meters to document groundwater production.

In the western corner of the Landfill are three wells known as the "Shop Wells," and are located adjacent to the shop. Two of these wells (PW-1 and PW-2), which operate as a single water source, produce an estimated ten gpm. The third shop well is completed to a depth of 367 feet. Although the well is equipped with a 1-1/2-horsepower pump, it is not used. The three shop wells would be destroyed as part of the proposed project as they are located where proposed Module 10 would occur. Because of their proximity to each other, all are shown as PW-2 on Figure III-10.

Three additional wells, known as the Weir wells, are located along the southeastern edge of the expansion area. The Weir wells, designated as Wells #1, #2, and #3 on Figure III-9, produce water from the Pismo Formation and consist of five-inch-diameter PVC casing and are gravel packed. Well # 1 is 186 feet deep, Well #2 is 156 feet deep, and Well #3 is 245 feet deep. Currently, only Well Nos. 1 and 2 are connected and in use. The produced groundwater is pumped directly to an 86,000-gallon steel tank behind the Materials Recovery Facility (MRF) (65,000 gallons of which are maintained for fire suppression) or to a pond adjacent to Well P-14 where it is stored for operational needs (Golder, 2007). During the expansion, these wells would be the only remaining water supply wells at the Landfill. Based on estimates of historical use, the three Weir wells would have a combined source capacity of 78 gpm, although the current capacity from the two active wells is 62 gpm.

TABLE V.K.-1
Summary of Onsite Water Well Data

Well	Status	Formation Aquifer	Capacity (gpm)	Future Use
Shop Wells (PW-1 & PW-2)	Active	Monterey	10 (combined)	To Be Destroyed
Shop Well PW-3	Inactive	Monterey	0	To Be Destroyed
Weir Well #1	Active	Pismo	40	To Remain
Weir Well #2	Active	Pismo	22	To Remain
Weir Well #3	Inactive	Pismo	16	To Remain

1) Existing Facility Non-Potable Demands

Estimates of current and future Landfill water demand were acquired through an interview with the Facility Manager, Mr. Bruce Rizzoli (Appendix G, Rizzoli, 2007) and based on the project description submitted by the applicant. Water demand at the Landfill has historically varied seasonally and between phases of site operations. The Landfill uses water for dust control purposes, irrigation of compost, MRF uses (excluding potable use), and for the yard/office area (excluding potable use). No onsite groundwater has historically been used as a potable water source

(a) Dust Control

For Landfill-related dust control, water produced from the shop wells is conveyed by water truck and spread as needed around the heavily-trafficked areas. Approximately two to three loads, each consisting of a volume of 4,300 gallons (for a total of 8,600 to 12,900 gallons) is used for these purposes each weekday (Monday through Friday). Weekend water use is typically half of this amount (refer to Table V.K.-2). No dust-suppression water is needed following rainfall events. Conversely, on exceedingly dry, warm, or windy days up to four loads of water (17,200 gallons) is used per day for dust control.

(b) Compost Operation (CO)

The CO irrigates approximately 16 compost windrows on weekdays. The windrows are not irrigated on weekends. Each windrow is between 200 and 600 feet long and approximately seven feet high. Each windrow requires approximately 8,000 gallons of water per week during the weekdays, or on average of approximately 25,600 gallons per day (gpd). The CO also requires an average of two loads per day for dust suppression (8,600 gpd) associated with processing the material and traffic. In total, approximately 34,200 gallons are used each weekday for this operation. Demand increases in warm weather up to as much as 40,000 gpd. Demand decreases during and following rainfall periods. Occasionally (generally less than once a month) screening occurs on a weekend day. During these days dust control is required for the short travel area between the compost and the screening area. Water use for this purpose is estimated at less than 100 gallons on days when needed.

(c) Materials Recovery Facility (MRF)

Other than for employee water use, the MRF uses water only for periodic washing down of the facility. Less than 1,000 gpd is used during the weekdays, and 300 gpd on the weekends for these operations.

(d) Non-Potable Use

Based on discussions with the County of San Luis Obispo's Environmental Health division, light-industrial workers use an average of about 15 gpd for non-potable uses. In total 79 employees currently work in all components of the Landfill including administrative, disposal area, scalehouse, MRF, CO, Resource Recovery park (RRP), household hazardous waste, and universal and electronic waste components on weekdays. This number is reduced to seven gpd on weekends. The entire Landfill staff is estimated to use about 1,185 gpd on weekdays and 105 gpd on weekends.

(e) Total Demand

Total water use at the Landfill ranges between approximately 45,000 and 60,000 gpd on weekdays. Weekend water use is about ten percent of the typical weekday water use, averaging about 4,700 gpd. Therefore average water demand per day for a typical week is approximately 33,000 gpd (37.4 acre feet per year [afy]).

During exceedingly hot and dry years, Landfill demand could be as great as approximately 59,385 gpd (42.1 afy). Of this total water demand, approximately 700,000 gallons per year (2.1 afy) are satisfied by application of leachate for dust control purposes. Therefore, total groundwater demand is currently approximately 31,500 gpd on average (35.2 afy). Following rainfall events, neither dust-control nor composting irrigation demand exists. During and following rainfall, Landfill water demand can be as low as 5,000 gpd. During the dry months, the wells have typically pumped for 48 hours per week to satisfy demand. Total current onsite water demand is summarized in Table V.K.-2.

TABLE V.K.-2
Summary of Estimated Current Onsite Water Demand

Operation	Typical Weekday Use		Typical Weekend Use		Maximum Use	
	gpd	afy	gpd	afy	gpd	afy
Landfill Dust Control	8,600	6.9	4,300	1.4	17,200	10.1
Compost Irrigation and Dust Control	34,200	27.3	0	0	40,000	30.1
MRF	1,000	0.8	300	0.1	1,000	0.9
Non-Potable Employee Use	1,185	0.9	105	0.03	1,185	1
Total	44,985	35.9	4,705	1.5	59,385	42.1

2) Existing Facility Potable Demands

The facility provides employees with potable drinking water from bottled sources. In San Luis Obispo County, certain non-community water systems, such as schools and small offices that have either poor water quality or an unreliable supply, are allowed to use bottled water for potable uses. Because the facility uses bottled water for potable use, demand on the groundwater is nonexistent.

3) Existing Demand in the Study Area

Groundwater wells surrounding the Landfill are used for domestic and agricultural purposes. The locations of some of the wells were determined based on Fugro's review of approximately 200 Well Completion Reports for the area provided by the Department of Water Resources (DWR). Additional water supply wells, for which records were not included in DWR files, were identified through a field survey. The locations of surrounding wells are presented in Figure V.K.-1.

Approximately 115 acres of vineyards and 33 acres of row crops are planted within the hydrogeologic study area. Based on standards used by the County of San Luis Obispo, vineyards in the area would require 1.2 acre-feet of irrigation water per acre per year (afy/acre [ac]). Row crops would require approximately 2 acre feet per crop per year. In the Edna valley, typically two crops are grown per year. As a result, each acre planted in row crops would require 4 afy. Total water demand from existing agricultural activities would then equal approximately 270 afy (138 vineyards and 132 for row crops).

Based on parcel data supplied by the County of San Luis Obispo Planning and Building Department, approximately 70 parcels exist within the study area and it is assumed for this analysis that each contains a single dwelling. For this analysis, it is assumed that all parcels except for the Landfill parcels currently have one residence. Based on the County's standard water consumption rates of 0.53 afy per rural, large lot residence, domestic water consumption within the hydrogeologic study area is approximately 37 afy.

TABLE V.K.-3
Summary of Estimated Existing Groundwater Demand within the Study Area

Groundwater User	Current Demand (afy)
Cold Canyon Landfill	35
Domestic User	37
Agriculture (vineyards)	270
Total	342

e. Groundwater Recharge

An estimate of recharge in the hydrogeologic study area was performed by considering percolation of precipitation and percolation of irrigation water. Only a small portion of total rainfall percolates to groundwater. Some of the rainfall runs off, some evaporates directly from the soil surface, or is taken up by plants to be transpired to the atmosphere (a process jointly referred to as ETo). Only after a sufficient amount of rainfall has saturated the soil to some depth can any additional precipitation percolate to become groundwater. Detailed estimates of percolation of precipitation require surface area, soil type, daily measurements of precipitation, and ETo and runoff data. Based on studies completed by the DWR for the Arroyo Grande Plain and the Santa Maria Valley (DWR, 2002, Appendix G), between nine and 16 percent of average annual precipitation percolates to groundwater. This study assumes 12 percent of average annual precipitation percolates to groundwater. Average annual precipitation in the area is approximately 22.1 inches per year. Application of the DWR's average value is 12 percent of the 22.1 inches, or 2.65 inches, to the study area of approximately 1,687 acres, leads to an estimated percolation of precipitation of approximately 373 afy. Assuming that percolation is reduced within the landfill disposal area, this number may more likely be 350 afy.

Percolation of applied irrigation water can be calculated relative to total applied irrigation water. Based on studies in the region that included detailed water balances (refer to Appendix G), it is estimated that as much as 15 percent of irrigation water applied within the study area percolates deeply to the aquifer. If so, an estimated 41 afy would recharge the groundwater.

Total recharge due to percolation of precipitation and applied irrigation water is approximately 391 afy.

f. Hydrogeologic Connectivity

The Landfill is located in an area relatively isolated from its surroundings hydrogeologically. The hydrogeologic study area, which contains the Landfill, is bounded on the north by the Edna Valley fault and the south, east, and west by shallow alluvial valleys. The hydrogeologic study area is underlain largely by the Pismo and Monterey Formations, with alluvial clay and sand deposits in the surrounding valleys. The hydrogeologic study area encompasses approximately 1,687 acres, of which the proposed project would encompass 209 acres, or approximately 12 percent of the entire area. Groundwater users outside of the hydrogeologic study area would likely not be affected by groundwater drawdown associated with pumpage at the Landfill. The boundaries of the hydrogeologic study area consist of a barrier to flow (northern boundary) or a recharge boundary (alluvium). The hydrogeologic study area is believed to be the maximum extent of hydraulic communication with the Landfill.

The EIR analysis for the previous expansion included a Theis analysis (ERCE, 1991). It was performed by ERCE to predict drawdown at distances of 0.25, one, and 1.5 miles from two pumping wells (DG-1 and PW-2) at the project site. Well DG-1 was located in the far western corner of the Landfill. The predicted drawdowns were calculated for durations of one, five, ten, and 20 years from wells that had not been pumped previously. Pumping from the production wells at rates of two and four gpm, respectively, did not cause significant drawdown.

Insert Figure V.K.-1

Back of Figure V.K.-1

After reviewing the data, Fugro concluded that the Theis analysis (1991) discussed above is only appropriate for looking at drawdown on a relatively small scale. The geologic complexities of the area make it inappropriate to model predicted well drawdown at any significant distance. As a result, the 1991 analysis should only be used to gain a general understanding of predicted drawdown as general worst-case guidance.

g. Regional Water Quality

Groundwater quality data from EMCON Associates (1992) and RMC Geoscience (2007) were reviewed in order to determine 1) the background water quality on and surrounding the site, 2) the variability of the native water quality, 3) the impact of the various operations at the Landfill on water quality, and 4) the record of compliance with relevant groundwater quality requirements.

Generally, water quality both regionally and from wells within a one-mile radius of the Landfill is magnesium bicarbonate in chemical character and has not changed significantly since Landfill operations began.

Groundwater within a one-mile radius to the west of the Landfill is high in total dissolved solids (TDS) and slightly elevated with respect to sodium. Groundwater west of the site (within the Monterey Formation), including the Shop Wells, has elevated hydrogen sulfide (H_2S) concentrations, which limit potablity. Hydrogen sulfide is commonly associated with hydrocarbons in the diatomaceous Monterey Formation. TDS concentrations are lower within a mile radius to the south of the Landfill, but sodium concentrations are elevated. Water quality from the alluvium and Pismo Formation east of the Landfill is generally considered to be of potable quality. The three Weir wells are completed in the Pismo Formation.

h. Onsite Water Quality

Water quality data for the Landfill are more complete than regional water quality data. Groundwater sampling has been performed at the Landfill regularly since 1987, originally as part of a hydrogeologic site characterization study (EMCON, 1987). In February 1989, groundwater samples collected from six wells were analyzed for organic and inorganic constituents for comparison with California drinking water standards maximum contaminant limits (MCLs). The results indicate that secondary (aesthetic) MCLs were exceeded for: TDS in all wells, electrical conductivity in all wells except MW-3, chloride in PW-2, and sulfate in MW-2. Except for chloride and sulfate, all downgradient exceedances were also exceeded in upgradient MW-5.

The Water Resources Assessment concluded that the elevated chloride and sulfate character of the groundwater may reflect natural groundwater conditions within the shallow geologic formations in which they were detected. The chloride and sulfate concentrations are likely controlled by relatively higher solubility of chloride and sulfate minerals relative to bicarbonate minerals.

The RWQCB issued Waste Discharge Requirements (WDRs) for the site in 1975, subsequently updated in January 1990 (Order 90-33). Order No. 93-51 was issued in 1993 to allow a horizontal and vertical expansion of the Landfill. The WDRs require quarterly monitoring of groundwater quality to determine if a statistical exceedance occurred in any well and constituent.

In response to the requirements of the order, the Landfill capped 14 acres of the unlined area and constructed a gas extraction system.

i. Enforcement Actions

Order 90-33 was updated in 2002, during which RWQCB staff issued a letter indicating that the Landfill was in substantial compliance with the requirements of the Order and that a comprehensive file review from 1993 to 2002 failed to turn up a single Notice of Violation or other formal enforcement action. The report also indicated that Volatile Organic Compounds (VOC) had been reduced to levels below detectable limits as a result of several corrective actions.

The 2002 RWQCB report also indicated that there may have been a release (of undocumented constituents) from the existing Landfill in the vicinity of MW-2 and MW-3. However, upon installing Wells P-8 and P-9, and performing subsequent monitoring, it was determined that the release had not migrated beyond MW-2 and MW-3. Subsequent groundwater monitoring reports have not identified any release.

j. Water Quality Monitoring System

The Landfill is subject to water quality sampling requirements contained in the adopted WDR Monitoring and Reporting Program (MRP) No. R3-2002-0065. The MRP requires that 15 of the monitoring wells on site be sampled and analyzed on a quarterly or semiannual basis as a part of three routine monitoring programs. Detection monitoring includes those constituents that have not been exceeded. Corrective action monitoring is based on inorganic constituents that occasionally exceed statistically-derived concentration limits for chloride, sulfate, or dissolved manganese. All constituents involved with Corrective Action Monitoring are naturally occurring or associated with naturally-occurring oil and tar in the geologic formations underlying the site. A summary of the monitoring status of each of the monitoring wells is presented in Table V.K.-4.

TABLE V.K.-4
Summary of Existing Groundwater Monitoring Requirements

Well	Detection Monitoring	Corrective Action Monitoring	Other Monitoring
MW-1	X (VOCs)	X (Inorganics)	
MW-2		X (VOCs and Inorganics)	
MW-3	X (VOCs)	X (Inorganics)	
MW-5	X		
P-1A			X
P-1B	X		
P-2			X
P-3A	X (VOCs)	X (Inorganics)	

Well	Detection Monitoring	Corrective Action Monitoring	Other Monitoring
P-3B	X		
P-4			X
P-5	X		
P-6			X
P-7	X (VOCs)	X (Inorganics)	
P-8	X		
P-9	X		
X indicates inclusion in monitoring program			

2. Regulatory Setting

This section includes a discussion of federal, state, and local regulations that address water resources. There are a number of agencies responsible for assuring compliance with these regulations, including the Environmental Protection Agency, Army Corps of Engineers, the RWQCB, and the County Division of Environmental Health, among others.

a. Federal Policies and Regulations

1) Safe Drinking Water Act of 1974

The Safe Drinking Water Act implemented by the Environmental Protection Agency (EPA) is the primary federal regulation controlling drinking water quality. The Safe Drinking Water Act grants the EPA the authority to establish and enforce guidelines for the achievement of minimum national water quality standards for every public water supply system serving 25 people or more.

2) The Clean Water Act

The Clean Water Act (CWA) controls the discharge of toxic material into surface water bodies. Under this act, states are required to identify water segments impaired by pollutants and develop control strategy/management plans to reduce pollution and meet certain water quality standards.

3) Waters of the U.S: Sections 404 and 401 of the Clean Water Act of 1977

Regulatory protection for water resources throughout the United States is under the jurisdiction of the Army Corps of Engineers (ACOE). Section 404 of the Clean Water Act prohibits the discharge of dredged or fill material into waters of the United States without formal consent from the ACOE. Waters of the U.S. include marine waters, tidal areas, stream channels, and associated wetlands. Wetlands include freshwater marshes, vernal pools, freshwater seeps, and riparian areas.

Under Section 404, activities in Waters of the U.S. may be subject to either an individual permit or a general permit, or may be exempt from regulatory requirements. Some activities have been given blanket authorization under the provisions of a general permit through the Nationwide

Permit system. Individual Permits require the applicant to prepare and submit an alternatives analysis of the project.

Section 401 of the Clean Water Act and its provisions ensure that federally permitted activities comply with the federal Clean Water Act and state water quality laws. Section 401 is implemented through a review process conducted by RWQCB, and is usually triggered by the 404 permitting process. Specifically, the RWQCB certifies via section 401 that the proposed project complies with applicable effluent limitations, water quality standards, and other conditions of California law. If the RWQCB denies certification, the lead federal agency must deny the federal permit application.

b. State Policies and Regulations

The establishment and enforcement of water quality standards for the discharge into and maintenance of water throughout California is managed by the State Water Resources Control Board (SWRCB) and its nine RWQCBs. The SWRCB enforces the federal CWA on behalf of the EPA. Most of the quantitative objectives are based on the California Code of Regulations (CCR), Title 22 - State Drinking Water Standards. Other considerations include the University of California Agricultural Extension Guidelines for Agricultural Irrigation Use, the Porter-Cologne Water Quality Control Act, and the RWQCB's Non-degradation Policy. The County of San Luis Obispo lies entirely within Region 3 - Central Coast RWQCB. The RWQCB is the primary State agency ensuring that the quality of potable water supplies is protected from harmful effects by man.

The California Department of Health Services (DHS) is responsible for overseeing the quality of water once it is in storage and distribution systems. DHS oversees the self-monitoring and reporting program implemented by all water purveyors, performs inspections, and assists with financing water system improvements for the purpose of providing safer and more reliable service.

1) California Integrated Waste Management Board Title 27, Chapter 3

The California Integrated Waste Management Board (CIWMB) Title 27, Chapter 3 (Criteria for all Waste Management Units, Facilities, and Disposal sites ensures liner system and leachate management system are designed and constructed to substantially reduce the potential for release of leachate. Chapter 3 outlines procedures that shall be followed for all landfill activities from siting the facility, water monitoring, operating criteria, using daily covers, fire control, gas monitoring, and closure and post-closure procedures.

2) State Water Code

Section 13260(a) of the California Water Code requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, that could affect the quality of the waters of the State, file a report of waste discharge. These must implement the applicable water quality control plan (Basin Plan) for the Region affected by the discharge.

The Landfill currently operates under revised Waste Discharge Requirements (WDR) Order No. R3-2002-0065. The WDR describes requirements to protect groundwater quality related to the

operation of the Landfill. The WDR discusses the site description and history of monitoring; status of the monitoring programs; basin water quality issues; prohibitions; and, provisions for groundwater monitoring, onsite use of water, post-closure maintenance plans, reporting, and general provisions. The MRP discusses the self-monitoring program to document compliance with RWQCB requirements as follows. The MRP identifies the monitoring and observation schedules; site, leachate, and drainage system inspections; specific monitoring points; sampling methods, analyses, and frequency; and, record keeping and reporting requirements. The MRP also summarizes the contingency response necessary if a release is tentatively identified including general conditions for the preparation of an Evaluation Monitoring and Reporting Program, and release discovery responses.

3) The Porter-Cologne Water Quality Control Act of 1987

The Porter-Cologne Water Quality Control Act provides the authority and method for the State of California to implement its water management program. The act establishes waste discharge requirements for both point and non-point source discharges, affecting surface water and groundwater.

4) Safe Drinking Water and Toxic Enforcement Act of 1986

The Safe Drinking Water and Toxic Enforcement Act prohibits the discharge or release of any significant amount of chemical known to cause cancer or reproductive toxicity into the drinking water supply, by any person in the course of doing business.

5) The Groundwater Management Act of 1992 (AB 3030)

The Groundwater Management Act was designed to provide local public agencies with increased management authority over groundwater resources in addition to existing groundwater management capabilities. A key element of this law is the development and implementation of groundwater management plans.

c. Local Policies and Regulations

At the time of building permit issuance, the County determines a project's water demand and the availability of water for allocation to the project. County staff then evaluates existing water supply to see if it is sufficient to meet the increase in demand, accounting for adjustment of the adopted growth rate. The County can influence the use of water for residential and non-residential purposes at the project specific level as well as at an area wide level. At the project level, the county considers the availability of water as part of the discretionary approval process. Long-term water supply is analyzed annually as part of the County Resource Management System (RMS). As limitations are identified under this process, mitigation measures or more detailed studies are recommended.

The County Environmental Health Division and the Central Coast RWQCB are the local agencies responsible for effluent treatment standards and siting of wastewater disposal fields. These agencies ensure that proposed projects conform to all applicable local standards. Since the proposed project now includes onsite wastewater treatment and disposal, requirements that would be imposed on this project potentially affecting water resources include:

- Depth to groundwater (Minimum vertical separation of five feet from the bottom of the disposal field for soils having percolation rates slower than 30 minutes per inch. Greater separation distances are required for faster percolation rates).
- Setbacks (Minimum setback of 100 feet between disposal area and any water supply well, spring, or water course).
- Surface and Subsurface Irrigation Water Recycling (subject to Title 22 of California Code of Regulations for water reuse criteria).
- Depth to bedrock and the potential for effluent daylighting.

3. Thresholds of Significance

Appendix G of the CEQA Guidelines and the County's Initial Study Checklist states that a significant water resource impact would occur if the project:

- Substantially depletes groundwater supplies or interferes substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Requires or results in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental issues; or,
- Did not have sufficient water supplies available to serve the project from existing entitlements and resources.

One criterion for evaluating the significance of hydrology and water quality impacts included in the CEQA Guidelines is also applicable to this section of the EIR. Impacts would also be considered significant if development would result in any of the following:

- Potentially degrade surface or groundwater quality below standards established by the Regional Water Quality Control Board;

4. Impact Assessment and Methodology

The Water Resources section of this EIR evaluates potential impacts of the proposed project on groundwater resources. To do so, the consultant compiled and reviewed information related to the project site and underlying groundwater basin, described the estimated current and future water demand for the project, assessed the hydrologic connectivity between the landfill and adjacent properties, assessed onsite water availability, identified potential short- and long-term impacts to local groundwater supplies including potential drawdown effects from onsite wells, and identified potential impacts to local groundwater supplies from the cumulative demand of other groundwater users.

Data were collected from federal, state, regional, and local agencies describing existing local water demand, land use, climate, hydrology, and hydrogeology. Well completion reports were obtained from the California Department of Water Resources (DWR) for an area approximately

one mile in radius from the project site. Many geologic and hydrogeologic reports and maps have been prepared that frame the geology and regulatory framework at the Landfill. Baseline data for this EIR have been extracted largely from published data sources and through discussions with Landfill staff.

5. Project-specific Impacts and Mitigation Measures

a. Groundwater Demand and Recharge

1) Daily Operations

As part of the proposed project, the Landfill would begin accepting greater quantities of waste. Daily tonnage limits would increase at the RRP (450 tons per day, up from zero tons per day), the CO (450 tons per day, up from 300 tons per day) and the MRF (400 tons per day, up from 120 tons per day). A summary of the current and future tonnage limits is presented in Section III, Project Description.

The increase in tonnage to be processed as part of the RRP would result in no additional water demand. The 50 percent increase in compost generation would result in a total demand of 38,400 gpd, up from 25,600 gpd. At the MRF, the increase in tonnage is best quantified by the increase in employee water use. A total of 120 people would be employed at the expanded Landfill, an increase from the current employment of 79 people. The total future Landfill water demand is presented in Table V.K.-5. It is important to note that operations would be increasing incrementally over the life of the Landfill. Therefore the maximum daily use estimates below represent full buildout of the proposed project, which may not occur for five to ten years, or more. Taken into account weekday and weekend demand, the average daily demand at buildout is expected to be 44 afy or 39,200 gpd.

TABLE V.K.-5
Estimated Future Daily Operations Water Demand (afy)

Operation	Typical Weekday Use	Typical Weekend Use	Maximum Use
Landfill (dust control)	6.9	1.4	10.1
Composting (compost irrigation)	37.5	0.0	42.3
MRF (toilets, hand washing, cleaning, facility maintenance)	0.8	0.1	0.9
Non-Potable Use (toilets, hand washing, cleaning)	1.4	0.03	1.5
Total (afy)	46.6	1.5	54.8

2) Module Construction

Construction of the Landfill modules would entail a significant short-term increase in water demand associated with excavation and construction. The proposed project would include construction of seven additional cells with a total area of approximately 46 acres and a total

disposal capacity of 13.1 million cubic yards. Based on previous modules, the excavation and construction of each would likely occur for approximately six to seven months and require approximately 4,000 gpd, 87,000 gallons of water would be required per month or 522,000 gallons (1.60 acre-feet) per module.

Construction of each of the past three cells was performed by three different contractors, each of whom was required to provide water for the construction. Each contractor obtained off-site water from the adjacent Corbett Canyon Winery (now Vintage Wine Trust) through methods that included a combination of placing temporary pipelines directly from a well to a cell area, or to a pond with use of water trucks.

3) Landscaping

As part of the proposed project, additional short-term water demand would be needed for re-landscaping associated with the relocation of a new scalehouse and entrance (refer to Figure III-11). The extent of this water demand was estimated in the Landscape Plan provided by the applicant (Wallace Group, 2008). The demand was based on a worst-case water demand estimate for re-landscaping. The Landscape Plan focuses on southwestern, southern, and southeastern boundaries of the Landfill and would consist of planting natives or plants adapted to the Central Coast climate. A summary of the estimated water demand associated with the Landscape Plan is presented in Table V.K.-6. The values presented in Table V.K.-6 have not been adjusted for precipitation, which would potentially offset some portion of the landscaping demand.

TABLE V.K.-6
Summary of Estimated Landscape Water Demand

Planting Type	Water Demand 1st Year (afy)	Water Demand 2nd Year (afy)[1]	Water Demand 3rd Year (afy)[2]
Screen Planting	2.86	1.43	0.71
Wetland Enhancement	3.89	1.94	0.97
Bioswale	0.83	0.42	0.21
Bioretention	0.61	0.31	0.15
Oak Trees	0.09	0.04	0.02
Total	8.27	4.14	2.07

[1] Second year demand is calculated as half of first year demand
[2] Third year demand is calculated as quarter of first year demand

4) Total Demand

For purposes of this analysis, a reasonable daily worst case scenario was developed. This scenario assumes that daily operations have reached maximum capacity, but does not include any demand for landscaping, because it is likely that landscape irrigation, which should only take three years, would be complete well before the Landfill operations were at full capacity. The

resulting demand, along with the additional demand associated with module excavation is shown in Table V.K.-7.

TABLE V.K.-7
Total Anticipated Future Average Daily Demand

Project Component	gpd	afy
Daily Operations	39,200	44[1]
Module Excavation	4,000	1.6[2]
Total	43,200	45.6

[1] This amount is the average total use (weekday and weekend) from table V.K.-5
[2]This amount would be necessary for approximately 6 months of 7 different years (one for each new module) of the anticipated 25 year life of the operation.

5) Proposed Supply

The water supply for average daily operations would include produced leachate (for dust control) and use of the Weir wells. Historically there has been approximately 700,000 gallons of leachate produced per year (2.1 afy). This leachate has been approved by the RWQCB for use as dust control. To meet the remaining average daily demand, Weir wells #1 and #2 would be pumped at approximately 24 and 14 gpm respectively. Both wells would be pumping for 16 hours per day at this rate to produce the 43.5 afy (refer to Table V.K.-8 below).

TABLE V.K.-8
Proposed Water Supply by Well (afy)

Well	Production
Weir Well 1	27.5
Weir Well 2	16
Subtotal	43.5
Weir Well 3	16

Modeling was performed to determine what affect this pumping rate may have on groundwater levels; a Theis analysis was used to predict drawdown within Wells #1 and #2 and drawdown at the nearest property boundary, approximately 80 feet to the south. Specific parameters used in the analysis can be found on page 19, Appendix G. The analysis concluded that after 20 years of pumping at that sustained rate, drawdown in Wells #1 and #2 would reach 32 feet and nine feet respectively. Drawdown at the property line would vary from 2.2 (due to Well #1) to nine feet (due to Well #2). The results are shown in Table V.K.-9.

TABLE V.K.-9
Predicted Drawdown after 20 Years of Pumping

Well/Location	Drawdown (feet)
Well #1	88
Well #2	46
Property Line (Well #1 and Well #2)	9 and 32

These results are considered high for three reasons:

1. The first is that the modeling assumes that no pumping has occurred in the past; however, these wells have been used frequently during the life of the Landfill. Therefore, water levels may have already reached an equilibrium.

2. The wells would not need to be pumped at that sustained level for 20 years. That level of pumping would only be required once all Landfill activities reached maximum capacity.

3. Most monitoring wells, some of which have data going back to 1989, have shown no significant declines even though current activities require a substantial amount of pumping. Of the 14 well hydrographs wells shown on Plate 5 in Appendix G, four have shown declines (MW-2, P-5, P-7, and P1-B) nine have remained relatively stable or shown slight declines or increases (MW-3, P-4, MW-1, P-1A, P-2, P-3A, P-3B, P-6 and P-8), and one (MW-5), has increased. MW-2 has shown the largest decrease of approximately one foot per year. Water levels in MW-5 have increased over that same period by approximately 10 feet. However it is important to note that pumping has resulted in a localized depression of groundwater levels in the area surrounding the Weir Wells (refer to Plate 6, Appendix G).

To supplement groundwater supplies, the applicant has suggested that additional water would be secured from the neighboring winery. It has been estimated that approximately 2 afy of winery wastewater may be available. At the time this EIR was prepared no specific agreement had been reached or was made available for review. This water would be used for module construction-related activities only. It has also been suggested that Well #3 would also be available if necessary. Well #3 is estimated to produce approximately 16 gpm; however, it is currently offline. There are currently no water meters on wells at the Landfill. Use estimates are based on

institutional knowledge of the water system, daily operations, and the capacities of water trucks tanks, and ponds.

During module construction, which usually occurs during the drier seasons, water use would be highest. An additional 4,000 gpd (1.6 afy) may be required during the approximately six months that it takes to excavate a module. It appears that groundwater levels are stable enough and that recharge rates in the groundwater basin are high enough that there would be enough groundwater available at the Landfill to satisfy demands, even during module construction. However the existing capacities of Weir Wells #1 and #2 may not be sufficient to meet these high demand periods when compost irrigation and module construction related dust control is most necessary.

The applicant has suggested that they could bring Weir Well #3 back online and/or utilize wastewater from a neighboring winery to supplement the existing Landfill supply; however, there is currently no agreement in place with the winery. The Water Resource Assessment did conclude that drilling another well onsite is a feasible method of obtaining enough water from Landfill sources to meet peak demand (page 28, Appendix G) in the event that wastewater is not available.

WR Impact 1 **Water demand, particularly during module construction, may exceed the capability of the existing onsite water supply system.**

Implement AQ/mm-7.

WR/mm-1 **Prior to issuance of the initial Notice to Proceed**, the applicant shall install meters on all proposed water supply wells.

WR/mm-2 To ensure the Landfill can meet demands during peak use periods from their onsite system, **prior to issuance of the initial Notice to Proceed**, Weir Well #3 or an equivalent water source shall be brought online. The additional well shall be capable of sustained pumping of approximately 16 gpm. Verification of capacity shall be in the form of a 72-hour pump test. This mitigation does not preclude the applicant from using winery wastewater to the extent it is suitable for dust control, and available.

WR/mm-3 The required Dust Control Plan (AQ/mm-2) shall incorporate non-water based dust control methods to the maximum extent feasible. The Plan shall identify all roads and other portions of the site where permanent dust control such as paving, using chemical soil stabilizers, or seeding shall be incorporated.

WR/mm-4 Proposed detention basins shall be designed to retain stormwater for use onsite as dust control or as irrigation water for the Compost Operation.

Residual Impact As described in the Project Description, the covered ASP process offers the potential to reduce water consumption because the compost is covered, trapping some of the moisture in the compost. It also reduces the number of times compost is turned, which may in turn reduce moisture loss.

However, the actual water reduction associated with this composting method cannot be quantified and is related specifically to the existing moisture in the material, the material type, and specific climatic conditions. It is unclear how much runoff which would be retained as a result of the implementation of WR/mm-4. In addition, stormwater would be retained during wet months, when both irrigation and dust control requirements would be minimal. With implementation of these measures, the impact would be mitigated to a *level of insignificance (Class II)*. No additional mitigation is required.

Secondary Impact Depending on its location, construction of a new well may result in impacts to biological or cultural resources.

WR/mm-5 The new well location shall avoid cultural resources identified in this EIR. All protected, sensitive resources and revegetation areas shall be avoided as well.

Residual Impact With implementation of this measure, secondary impacts would be mitigated to a *level of insignificance (Class II)*. No additional mitigation is required.

b. Potable Water Supply

The Landfill currently meets potable water demands through use of bottled water. According to the County's Division of Environmental Health this is an acceptable way to meet potable water demands for employees, but generally they need proof that the onsite supply is capable of meeting basic water quality standards. There are cases, however, in which public facilities whose onsite water supply does not meet drinking water standards are still permitted by the Division of Environmental Health (Prior, 2008) and meet their potable water demands through use of bottled water. There is no water quality data from the Weir wells, however they were previously used as the potable water source for the Weir residences, and therefore most likely would be able to meet potable water quality standards, particularly if treated.

WR Impact 2 **The proposed onsite water supply may be incapable of providing potable water supply for employees of the Landfill.**

WR/mm-6 **Prior to issuance of construction permits**, the applicant shall provide verification to the County Planning and Building Department that it has been permitted by the Environmental Health Division to function as a "non transient, non-community water system," or that it has been granted an exemption to this standard.

Residual Impact With implementation of this measure, the impact would be mitigated to a *level of insignificance (Class II)*. No additional mitigation is required.

c. Groundwater Quality

Cold Canyon Landfill has an extensive monitoring system and a substantial amount of water quality data going back 20 years or more. That data shows that the landfill has not significantly impacted groundwater quality.

There have been incidents identified during the standard monitoring protocol that required additional testing and remedial work. These incidents include a potential "release" in 2002 identified by the RWQCB. Subsequent groundwater testing and monitoring required by the RWQCB has not shown any signs of the release.
In March 2002, the Landfill documented that chloride and sulfate concentrations measured in Well P-7 were statistically significant. The cause was identified as seepage associated with a former wet-weather fill area. That seepage has since been corrected. Conditions in Well P-7 have not been replicated since, and additional monitoring or corrective action was not required.

Per State law, before the expansion of the disposal area can begin, the applicant must obtain eight quarters of background water quality data from the monitoring well network. Data obtained from these data would be used to develop the future WDRs and MRPs. The intent of the MRP would be to obtain water quality data from the recently installed monitoring wells (P-10 through P-14) and the existing monitoring well network. Compliance with the WDRs and MRPs would require quarterly review of water quality data for identification of any statistically-significant releases from the facility.

The RWQCB requires that any release from the Landfill, as determined from periodic groundwater, leachate, and landfill gas monitoring be reported immediately and followed by implementation of a corrective action plan. Such plans typically include comprehensive investigations to assess the vertical and horizontal extent of the release. If any groundwater contamination is deemed significant, a groundwater remediation program would be required by the RWQCB.

Compliance with existing regulations, including CIWMB Title 27, Chapter 3 would require expansion of the groundwater monitoring program, and quarterly testing of monitoring wells. Construction of new modules would occur within the federal and state framework, providing construction standards intended to minimize seepage of contaminated leachate from the landfill modules. The Landfill has a consistent record of compliance with these measures. Continued compliance with federal and state regulations governing landfill construction and groundwater monitoring would result in impacts that are *less than significant (Class III).* No additional mitigation would be required.

6. Cumulative Impacts

The Cumulative Development Scenario proposed in Section IV, Environmental Setting, is not adequate to determine potential cumulative demand for water in the hydrogeologic study area. Therefore, this section uses a water-specific "build out" within the study area, based on the assumption that: 1) parcels not currently developed with intensive agriculture, but within the agriculture land use category would be developed with vineyards; and, 2) within the designated hydrogeologic study area, secondary dwellings would be built on parcels classified in the Residential Rural (RR) land use category. Figure V.K.-1 shows parcels within the study area

where water consumption may increase significantly due to vineyard planting and/or residential development.

a. Future Agriculture Demand

Currently, and into the foreseeable future, the predominant agricultural crop is and would be grapes. Other land uses include dry-land farming of grasses and native vegetation in support of livestock grazing. Approximately 147 acres of vineyards and row crops are planted within the hydrogeologic study area. Vineyards in the area require 1.2 acre-feet of irrigation water per acre per year (afy/ac) and row crops approximately 2 afy, per crop – with land capable of producing two crops per year. The estimated current groundwater demand to satisfy agricultural demands is 270 afy.

To determine cumulative water demands for agriculture, intensification of grazing or fallow land to vineyards is expected for much of the hydrogeologic study area. The soil types and topography in the area are similar to those in areas to the north and east of the Landfill currently developed with vineyards. In some places, steep slopes and heavy vegetation make vineyard development less likely. These areas have not been included in the acreage calculations. Based on Figure V.K.-1, as many as 450 acres of new vineyards may be planted within the next 20 years and 100 acres are suitable for row crop production. This intensification would increase demand for groundwater by approximately 940 afy. Total groundwater demand to satisfy agricultural demands in the basin would equal 1210 afy, more than 3 times the annual sustainable yield.

b. Future Residential Demand

Approximately 70 parcels exist within the hydrogeologic study area. For this analysis, it is assumed that all parcels except for the Landfill currently have at least one single dwelling. Also, it is assumed that AG parcels would only have one dwelling unit, as the remainder of the land would be used for the agricultural intensification described above. This scenario represents the reasonable worst case for water use. Based on the County's standard water consumption rates, each dwelling located on a large lot in a rural area requires approximately 0.53 afy. Therefore, the current domestic water consumption within the hydrogeologic study area is approximately 37 afy.

For this analysis it is assumed that construction of secondary dwellings would be the only source of residential development within the study area over the next 20 years. This type of development is possible for parcels that are both designated within the RR land use category and within the study area. Future residential demand does not include secondary residences on AG parcels, because agricultural intensification of those parcels would result in the reasonable worst case scenario for water use.

A total of 42 such parcels exist on which secondary dwelling units could potentially be constructed. To develop a reasonable worst-case development scenario, this analysis assumed that all parcel configurations within the RR land use category could accommodate a secondary dwelling. This may not be the case on smaller parcels and those with steep slopes. Based on County water use standards, each secondary dwelling requires approximately 0.33 afy.

Therefore, total water consumption resulting from future development of secondary dwellings would equal approximately 14 afy.

The proposed project would increase demand by approximately nine afy. Total groundwater demand could increase from approximately 342 afy to over 1,000 afy, well beyond the potential recharge potential. The Landfill demand would increase by approximately 26 percent, domestic demand by 38 percent and agricultural demand by over 300 percent. Estimates of current and maximum future groundwater demand within the study area are presented in Table V.K.-10.

TABLE V.K.-10
Estimated Current and Maximum Future Groundwater Demand within the Study Area

Groundwater User	Current Demand (afy)	Maximum Future Demand (afy)	Increased Demand	
			Afy	percent
Cold Canyon Landfill	35	44	9	26
Domestic Use	37	51	14	38
Agriculture (vineyards / row crops)	270	1170	940	348
Total	342	1,009	683	200

This increased Landfill demand would occur from the period when the Landfill is at full operating capacity (five or ten years into the future) until the proposed expanded disposal area has been filled, which would be a period of less than 25 years. At this time water used for dust control associated with excavation and disposal would not exist. The CO would most likely be continued, onsite in perpetuity, and the demand for CO irrigation and dust control water would still exist. Recharge of the groundwater study area has been estimated to be approximately 392 afy. Based on Table V.K.-10 above, the cumulative development scenario demand would far exceed the supply, resulting in overdraft of the local groundwater supply. Further, given that the groundwater basin may only sustainably yield an additional 49 afy, the proposed project represents a cumulatively significant (18 percent) demand on the remaining water.

WR Impact 3 **The proposed project would contribute to a cumulative groundwater demand that would potentially exceed the sustainable yield of the groundwater basin**

Implement WR/mm-1 through 4 and AQ/mm-7.

Residual Impact It is unclear how much water may be saved after implementation of these measures. The largest water demand is from the irrigation of the compost. Utilizing the covered ASP method may result in a water savings, although there is no data to suggest that reductions measured in afy are possible. The proposed project would still result in a *significant, unavoidable adverse cumulative impact (Class I)* to water resources.

This page intentionally left blank.