C. AIR QUALITY

The Air Quality section of this EIR considers operational and construction related emissions, and odors that would result from the proposed project. Emission rates were generated using standard emission factors and the URBEMIS2007 (version 9.2) modeling program, as applicable. URBEMIS data sheets and other emission calculations are included in Appendix B. The proposed project would include a variety of activities, some of which would occur daily and others that would occur sporadically. This analysis attempts to provide a reasonable worst case scenario of potential air emissions resulting from daily operations and construction activities, and recommends mitigation to reduce those impacts to a less than significant level.

1. Existing Conditions

a. Regional Meteorology

San Luis Obispo County is part of the South Central Coast Air Basin, which also includes Santa Barbara and Ventura Counties. The climate of the San Luis Obispo area is strongly influenced by its proximity to the Pacific Ocean. Airflow around the county plays an important role in the movement and dispersion of pollutants. The speed and direction of local winds are controlled by the location and strength of the Pacific high pressure system and other global weather patterns, topographical factors, and circulation patterns that result from temperature differences between the land and the sea.

b. County of San Luis Obispo

San Luis Obispo County constitutes a land area of approximately 3,316 square miles with varied vegetation, topography, and climate. From a geographical and meteorological standpoint, the county can be divided into three general regions: the Coastal Plateau, the Upper Salinas River Valley, and the East County Plain. Air quality in each of these regions is characteristically different, although the physical features that divide them provide only limited barriers to the transport of pollutants between regions.

Approximately 75 percent of the county population, and a corresponding portion of the commercial and industrial facilities, are located within the Coastal Plateau. Due to higher population density and closer spacing of urban areas, emissions of air pollutants per unit area are generally higher in this region than in other regions of the County. The proposed project is located within the Coastal Plateau.

c. Air Quality Monitoring

The county's air quality is measured by nine total ambient air quality monitoring stations, including four County of San Luis Obispo Air Pollution Control District (SLOAPCD)-operated permanent stations, two State operated permanent stations, two special stations, and one station operated by the ConocoPhillips Oil Refinery for monitoring Sulfur Dioxide (SO_2) emissions. Air quality monitoring is rigorously controlled by federal and state quality assurance and control procedures to ensure data validity. Gaseous pollutant levels are measured continuously and averaged each hour, 24 hours a day. Particulate pollutants are generally sampled by filter techniques for averaging periods of three to 24 hours. PM_{10} (inhalable particulate matter ten microns or less in size) and $PM_{2.5}$ (inhalable particulate matter 2.5 microns or less in size) are

sampled for 24 hours every sixth day on the same schedule nationwide. Federal and state standards for ambient air are shown in Table V.C.-1, below.

TABLE V.C.-1
State and National Criteria Air Pollutant Standards, Effects, And Sources

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour	0.09 ppm*	None (formerly 0.12 ppm)	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases and nitrogen oxides react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
	8 hour	0.070 ppm	0.075 ppm		
Carbon Monoxide	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
Nitrogen Dioxide	Annual Avg.	0.030 ppm	0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	none		
Sulfur Dioxide	Annual Avg.	none	0.030 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	24 hours	0.04 ppm	0.14 ppm		
	3 hours	none	none		
	1 hour	0.25 ppm	none		
Respirable Particulate Matter (PM_{10})	24 hours	50 ug/m^3	150 ug/m^3	May irritate eyes and respiratory tract, decreases in lung capacity, cancer, and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	Annual Avg.	20 ug/m^3	none		
Fine Particulate Matter ($PM_{2.5}$)	24 hours	none	35 ug/m^3	Able to penetrate deeply into the lungs and acts in concert with ozone to damage health. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	Annual Avg.	12 ug/m^3	15 ug/m^3		
Lead	Monthly	1.5 ug/m^3	none	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	none	1.5 ug/m^3		

**ppm = parts per million; ug/m^3 = micrograms per cubic meter.*
Current as of April 1, 2008

Source California Air Resources Board, http://www.arb.ca.gov

d. Existing Air Quality

The significance of a given pollutant can be evaluated by comparing its atmospheric concentration to federal and state air quality standards. These standards represent allowable atmospheric contaminant concentrations at which the public health and welfare are protected, and include a factor of safety.

In San Luis Obispo County, ozone and PM_{10} are the pollutants of main concern, since exceedances of state health-based standards for those are experienced here. For this reason the, county has been designated as a non-attainment area for the State PM_{10} and ozone standards.

Ozone levels exceeding the State standard have been measured in Paso Robles, the Carrizo Plain, and Atascadero in recent years. PM_{10} standards have been exceeded in various locations throughout the county, including Paso Robles, San Luis Obispo, Morro Bay, and Nipomo.

On April 28, 2005, the California Air Resources Board (ARB) approved the nation's most health protective ozone standard, with special consideration for children's health. The new eight-hour average standard at 0.070 parts per million (ppm) will further protect California's most vulnerable population from the adverse health effects associated with ground-level ozone. Based on monitoring data, San Luis Obispo County has once again been deemed nonattainment for the new ozone standard.

Ground level ambient ozone is primarily generated by combustion byproducts reacting with sunlight and ambient conditions. San Luis Obispo County's primary areas where ozone violations occur are in the northern and eastern portions of the county, where the summer temperatures are high. In addition, ozone is transported to San Luis Obispo County from upwind regions of the state. Ambient PM_{10} concentrations have been primarily a localized issue of concern in the southern portion of the county, providing the major impetus for the county's non-attainment designation for the State PM_{10} standard. The major sources for PM_{10} are mineral quarries, grading, demolition, agricultural tilling, road dust, and vehicle exhaust. PM_{10} levels in the project area are primarily due to agriculture tilling, road dust, and motor vehicle emissions.

e. Existing Emissions

On a regional basis, ozone is the pollutant of greatest concern in San Luis Obispo County, particularly within the Coastal Plateau. Ozone is a secondary pollutant, formed in the atmosphere by complex photochemical reactions involving precursor pollutants and sunlight. The amount of ozone formed is dependant upon both the ambient concentration of chemical precursors and the intensity and duration of sunlight. Consequently, ambient ozone concentration tends to vary seasonally with the weather. Reactive Organic Gases (ROG) and Nitrogen Oxides (NO_X) are the primary precursors to ozone formation.

NO_X emissions result primarily from the combustion of fossil fuels; ROG emissions are also generated by fossil fuel combustion and through the evaporation of petroleum products. Emissions of ROG and NO_X are fairly equally divided between mobile and stationary sources in the county. Motor vehicles and electrical generation produce the majority of NO_X emissions. Local concentrations of inert (non-reactive) pollutants (carbon monoxide, ozone, PM_{10}) are primarily influenced by nearby sources of emissions, and, thus, vary considerably between

monitoring stations. SO_2 emissions are mainly concentrated around areas where large quantities of fossil fuels are either burned in electrical production or where petroleum products are refined (i.e., SO_2 levels on the Nipomo Mesa and the Morro Bay power plant).

1) Toxic Air Contaminants (TACs)

Air toxics are substances which may cause or contribute to an increase in cancer or serious illness, such as respiratory disease. The 1990 federal Clean Air Act Amendments (CAAA) set up a new, nationwide, air toxics control program. The federal program focuses on larger industrial sources that are of the highest national priority, such as chemical manufacturers. State and local air pollution control agencies adopt measures to minimize Californians' exposure to TACs. The State of California regulates TACs in several ways. The Toxic Air Contaminant Identification and Control Act (AB1807-1983) created California's program to reduce the health risks from air toxics. This law expanded the ARB's authority to evaluate and control air toxics. An additional State law, the Air Toxics "Hot Spots" Information and Assessment Act (AB2588-1987) (or so called ATHS program) supplements the original legislation by requiring a statewide air toxics inventory and notification of local residents of significant risk from nearby sources. A 1992 amendment to the law (SB1731) requires that the risk be reduced from these significant sources.

The Landfill is currently not in the Air Toxics Hot Spot (ATHS) program. The Landfill operators submitted Solid Waste Assessment Reports prior to 1987 in compliance with Health and Safety Code 41805.5, commonly referred to as the Calderon Bill. Thus, SLOAPCD Rule 308, ATHS Fees is not applicable. Compliance with the Calderon testing program exempts the Landfill from the ATHS program per see H&SC 44325. As noted elsewhere, the landfill gas (LFG) is collected and piped to the Price Canyon Oilfield approximately one mile west, where it is conditioned and burned in their steam generators. This combustion has an efficiency of than 98 percent destruction or better. The Landfill performs periodic gas analysis and no significant air toxics have been detected. The following is an excerpt from the APCD rule evaluations for the LFG collection system permit:

> "Use of a candlestick flare at Cold Canyon under breakdown conditions is not expected to result in a significant increase of toxic air contaminant emissions. There is some data to indicate that combustion efficiency is higher in Cal Resource's steam generator, but the estimated VOC destruction efficiency for the candlestick flare is 98 percent, which would satisfy the Rule 426 requirement. LFG will be transferred from Cold Canyon's site to be combusted at Cal Resources' Arroyo Grande Field, so there will be a significant decrease in toxic and carcinogenic air contaminant emissions at Cold Canyon."

2) Odors

An odor is the inhalation through the nose of a gas that produces an olfactory response or sensation. An odor threshold is a sensory property that refers to the minimum concentration necessary to produce this response. Although an odor may be detected, it may not be offensive. Offensive odors rarely cause any physical harm but they may create annoyance. Therefore, odor generators are usually segregated away from potential receptors.

Typical odor generators are wastewater treatment plants, compost facilities, feed lots and dairies, chemical and asphalt plants, landfills, painting and coating operations, and petroleum refineries. There are no federal or state regulations controlling odor emissions; however, local air districts do take enforcement action when they receive complaints from 'a considerable number of persons.' The State law is left intentionally vague to allow local officials leeway in responding and issuing fines and control orders.

The primary sources of odorous gas emissions at the existing Landfill occur when trash is tipped on to the disposal area and when compost is turned and handled. Generally, daytime breezy conditions combined with physical separation from residences helps dilute Landfill related odors for surrounding properties. The Landfill manages the operation to minimize odorous gas generation and emissions through covering freshly tipped garbage, so at night, when winds may be light, the odor source is controlled. The Landfill also implements an odor minimization plan that addresses windrows, acceptance of feedstock, and maintenance of the compost detention basin.

2. Regulatory Setting

a. Federal Clean Air Act Amendments

Air quality protection at the national level is provided through the federal CAAA. The current version of these amendments was signed into law on November 15, 1990. These amendments represent the fifth major effort by the U.S. Congress to improve air quality. The 1990 CAAA are generally less stringent than the California Clean Air Act. However, unlike the California law, the CAAA set statutory deadlines for attaining federal standards. The 1990 CAAA added several new sections to the law, including requirements for the control of toxic air contaminants, reductions in pollutants responsible for acid deposition, development of a national strategy for stratospheric ozone and global climate protection, and requirements for a national permitting system for major pollution sources

b. California Clean Air Act

The California Clean Air Act (CCAA) was signed into law in September of 1988. It requires all areas of the state to achieve and maintain the California ambient air quality standards by the earliest practicable date. These standards are generally more stringent than the Federal standards; thus, emission controls to comply with the State law are more stringent than necessary for attainment of the Federal standards. The CCAA requires that all APCDs adopt and enforce regulations to achieve and maintain the State ambient air quality standards for the area under its jurisdiction. Pursuant to the requirements of the law, the SLOAPCD adopted a Clean Air Plan (CAP) for their jurisdiction in 1991, and has made subsequent updates and revisions.

The most recent San Luis Obispo County CAP (2001) is used by the SLOAPCD to address attainment of national and State fugitive dust (PM_{10}) and ozone standards for the entire county (SLOAPCD, 2004). The CAP is a comprehensive planning document intended to provide guidance to the APCD and other local agencies, including the County of San Luis Obispo, on how to attain and maintain the State standard for ozone and PM_{10}. The CAP presents a detailed description of the sources and pollutants which impact the jurisdiction, future air quality impacts

to be expected under current growth trends, and an appropriate control strategy for reducing ozone precursor emissions, thereby improving air quality.

c. 2001 San Luis Obispo Clean Air Plan

The CAP includes one specific measure for reducing emissions from landfill facilities. It is known as control measure R-9 and is implemented by Rule 426. The measure reads as follows:

> **R-9 Municipal LFG Control.** Methane, carbon dioxide, water, VOCs, and a variety of toxic and odorous compounds are formed in landfills as a result of the decomposition of waste materials. These gases escape to the atmosphere through the porous earthen covers of landfills. Rule 426, LFG Emissions, (LFG) was adopted to implement 1991 CAP control measure R-9. Rule 426 is targeted at controlling VOC emissions, but the associated methane control is desirable since methane is considered a major contributor to the global warming effect. This rule is applicable to existing solid waste disposal sites with more than 500,000 tons of waste-in-place and all new sites constructed after July 26, 1995. Affected landfills are required to quantify emissions of VOCs by performing testing or emissions modeling. If VOC emissions are found to be greater than 15 tons per year, installation and operation of a LFG collection system is required within 18 months of that determination. Collected gas would be cleaned and sold, incinerated, or used to generate electricity.

The Landfill has included a gas collection system since 1991 and is proposing to expand this system as part of the proposed project. The collected gases are piped to the nearby Price Canyon Oilfield and combusted for steam generation. This gas collection system captures and destroys most toxic air contaminants and odors, and converts methane to carbon dioxide, as described in section V.E., Climate Change/Greenhouse Gas Emissions.

d. Assembly Bill 32

AB32, the Global Warming Solutions Act of 2006 is considered in the Climate Change/Greenhouse Gas Emissions section.

3. Thresholds of Significance

The significance of potential air quality impacts are based on thresholds identified within Appendix G of the CEQA Guidelines and standards established within the SLOAPCD CEQA Air Quality Handbook. The specific thresholds are defined below.

a. CEQA Guidelines

Appendix G of the CEQA Guidelines and the County's Environmental Checklist provides the following thresholds for determining significance with respect to air quality. Air quality impacts would be considered significant if the proposed project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

- Result in cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or,
- Create objectionable odors affecting a substantial number of people.

b. SLOAPCD CEQA Air Quality Handbook

According to the April 2003 CEQA Air Quality Handbook, project impacts may also be considered significant if one or more of the following special conditions apply:

- If the project has the ability to emit hazardous or toxic air pollutants in the close proximity of sensitive receptors such that an increased cancer risk affects the population.
- If the project has the potential to emit diesel particulate matter in an area of human exposure, even if overall emissions are low.
- Remodeling or demolition operations where asbestos-containing materials will be encountered.
- If naturally occurring asbestos has been identified in the project area.
- If project has the ability to emit hazardous or toxic air pollutants in the close proximity of sensitive receptors such as schools, churches, hospitals, etc.
- If the project results in a nuisance odor problem to sensitive receptors.
- If areas of 4 acres or more are being graded at any given time.

The CEQA Air Quality Handbook defines thresholds for long-term operational emissions and short-term construction related emissions. Depending on the level of exceedance of a defined threshold, the SLOAPCD has established varying levels of mitigation.

1) Significance of Long-term Operational Emissions

The threshold criteria established by the SLOAPCD to determine the significance and appropriate mitigation level for long-term operational emissions (i.e., vehicular and area source emissions) from a project are presented in Table V.C.-2. Emissions that equal or exceed the designated threshold levels are considered potentially significant and should be mitigated. As shown in Table V.C.-2, the level of analysis and mitigation recommended follows a tiered approach, based on the overall amount of emissions generated by the project. For projects requiring air quality mitigation, the SLOAPCD has developed a list of both standard and discretionary mitigation strategies tailored to the type of project being proposed: residential, commercial, or industrial. The level of mitigation is shown in Table V.C.-3.

TABLE V.C.-2
APCD Thresholds of Significance for Operational Emissions Impacts

Pollutant	Threshold	Tier I	Tier II	Tier III
ROG, NO_X, SO_2, PM_{10}	<10 lbs/day	10 lbs/day	25 lbs/day	25 tons/yr
CO	<550 lbs/day	---	550 lbs/day	---
Level of Significance	Insignificant	Potentially Significant	Significant	Significant
Environmental Document	Negative Declaration	Mitigated ND	MND or EIR	EIR

Source: County of San Luis Obispo, APCD CEQA Air Quality Handbook, 2003

TABLE V.C.-3
Mitigation Threshold Guide

Emissions	Mitigation Measures Recommended		
	Standard Discretionary	Discretionary	Off-Site
< 10 lbs/day	None	None	None
10 - 14 lbs/day	All	3	None
15 - 19 lbs/day	All	6	None
20 - 24 lbs/day	All	10	None
≥ 25 lbs/day	All	All Feasible	Maybe
≥ 25 tons/yr	All	All Feasible	Yes

Source: County of San Luis Obispo, APCD CEQA Air Quality Handbook, 2003

2) Significance of Short-term Construction Emissions

Use of heavy equipment and earth-moving operations during project construction generates fugitive dust and combustion emissions that may have substantial temporary impacts on local air quality. Fugitive dust emissions would result from land clearing, demolition, ground excavation, cut and fill operations, and equipment traffic over temporary roads at the Landfill. Combustion emissions, such as NO_X and PM_{10}, are most significant when using large diesel fueled scrapers, loaders, dozers, haul trucks, compressors, generators, and other types of equipment. Because specific construction equipment information is often not available during the EIR process, the SLOAPCD has developed an alternative method for calculating construction emissions based on the amount of earthwork involved for a particular project. This is shown in Table V.C.-4.

TABLE V.C.-4
Level of Construction Activity Requiring Mitigation

Pollutant	Emissions		Amount of Material Moved	
	Tons/Qtr	Lbs/day	Cu. Yds/Qtr	Cu. Yds/Day
ROG	2.5	185	247,000	9,100
	6.0	185	593,000	9,100
NO_X	2.5	185	53,500	2,000
	6.0	185	129,000	2,000
PM_{10}	2.5		Any project with a grading area greater than 4.0 acres of continuously worked area will exceed the 2.5-ton PM_{10} quarterly threshold. Combustion emissions should always be calculated based upon the amount of cut and fill expected.	
All calculations assume working conditions of 8 hours per day, 5 days per week, for a total of 65 days per quarter.				

Source: County of San Luis Obispo APCD CEQA Air Quality Handbook, 2003

3) Odors

An odor characteristically has three significance thresholds. The first threshold is the detection threshold, which is the minimum amount of odor-free dilution air needed to prevent an individual from detecting the odor. The detection threshold is the point where an individual detects an odor. This threshold varies for each individual. The second threshold, the recognition threshold, occurs at lower dilutions (higher concentrations). At the recognition threshold, other odor parameters such as odor character and relative pleasantness, are noticeable. The third threshold is called the annoyance threshold. The annoyance threshold is at or above the recognition threshold. At the annoyance threshold, people complain about an odor. This can even occur when the odor is pleasant. For example, a person passing by an industrial bakery or chocolate factory may experience the odor as pleasant. However, individuals living near these facilities and subject to the odor constantly would likely consider it a nuisance.

California does not use a numerical or a quantified regulatory standard to identify the intensity of odors that may be acceptable or unacceptable. Instead, the California Integrated Waste Management Board (CIWMB) regulates odor sources as potential nuisances. A "nuisance" at a solid waste facility is defined by CIWMB as a storage, removal, transport, processing, or disposal activity which "is injurious to human health or is indecent or offensive to the senses and interferes with the comfortable enjoyment of life or property," and "affects at the same time an entire community, neighborhood or any considerable number of persons" (14 Cal. Code Regs. §17402(a)(12); 27 Cal. Code Regs. §20164).

4. Impact Assessment and Methodology

The SLOAPCD has established four separate categories of evaluation for determining the significance of air quality emissions. Full disclosure of the potential air pollutant and/or toxic air emissions from a project is needed for these evaluations, as required by CEQA. The evaluation categories include:

- Comparison of calculated project emissions to APCD emission thresholds;
- Consistency with the most recent CAP for the County;
- Comparison of predicted ambient pollutant concentrations resulting from the project to State and Federal health standards, when applicable; and,
- The evaluation of special conditions that apply to certain projects.

Impacts associated with the proposed project have been analyzed using a reasonable "worst-case" analysis approach for air quality resources. The specific methodologies of each "worst-case" approach are described within subsection 5, Project-Specific Impacts and Mitigation Measures, under each project component heading, as applicable. Emission estimates for the proposed project have been determined through the following:

- Consultation with the SLOAPCD;
- Use of the SLOAPCD CEQA Air Quality Handbook (April, 2003);
- Use of the SLOAPCD Clean Air Plan (December, 2001);
- Use of the 2007 URBEMIS 9.2 modeling software program designed to estimate operational air emissions from land development projects;
- Use of established emission factors that quantify the amount of emissions of a pollutant per unit time or energy volume;
- Mass emission estimates that quantify the amount of emissions of a pollutant in pounds per cubic yard of earthwork;
- Incorporation of the Traffic and Circulation Study prepared by Pinnacle Traffic Engineering for the proposed project and included in Appendix F;
- Earthwork estimates provided by the applicant; and,
- Equipment type and quantity provided by the applicant.

It is important to note that heavy construction equipment would be used for both short-term construction (i.e., excavation of new modules, construction of the new Resource Recovery Park [RRP] and the new entrance) and during daily operations (i.e., placement or daily and intermediate cover, compacting debris, sorting C&D debris and for hauling recycled and composted material, among other activities).

5. Project-specific Impacts and Mitigation Measures

a. Short-term Construction Emissions

Short-term construction emissions would result from the earthwork associated with construction of the new entrance and RRP, and daily excavation of new modules, construction of drainage layers and clay liners, application of daily cover, and the final cover once the disposal area is at capacity.

1) Combustion Emissions (ROG and NO_X)

Combustion emissions are most significant when using large, diesel-fueled scrapers, loaders, bulldozers, haul trucks, compressors, generators, and other heavy equipment. Emissions can vary substantially from day to day, depending on the level of activity and the specific type of operation. Table V.C.-4 provides a general estimate of emission factors for construction equipment typically used during grading and construction activities. ROG and NO_X are the critical pollutants from construction work because of the high output of these pollutants by heavy diesel equipment normally used in grading operations

In addition to ROG and NO_X, diesel particulate matter is of special concern to the SLOAPCD. In July 1999, the ARB listed the particulate fraction of diesel exhaust as a toxic air contaminant, identifying both chronic and carcinogenic public health risks. There is no threshold below which there are no significant health risks. Therefore, mitigation requirements and the need for health risk assessments are evaluated by the SLOAPCD on a case-by-case basis, based on emission estimates and the potential risk for human exposure and effects. The proposed project would occur in a semi-rural area, where there are existing single-family residences located in close proximity, and there would be potential exposure to humans from diesel particulate matter. Components of the proposed project that result in short-term construction emissions are described below.

(a) Non-Module Earthwork

Non module-related earthwork resulting from the proposed project would include relocating the RRP, entrance, and access road. These activities would occur simultaneously so that the existing Landfill could remain open during the construction. Earthwork associated with each of those activities would result in 242,700 cubic yards (cy) of earthwork (refer to Table V.C.-5). The applicant proposes that the material to be excavated for the RRP be used for cover to the maximum extent feasible reducing the need to stockpile and move material again at a later date.

(b) Module Excavation

The proposed project would result in the construction of seven new modules. Excavation of a new module precedes completion of the previous module to ensure that the Landfill always has capacity available to accept waste. Earthwork associated with excavation of the proposed new modules would include 2,998,800 cy of cut (refer to Figure V.C.-5). As with the non-module earthwork, there would be some times when excavated material would be stockpiled and then reused at a later date.

(c) Drainage Layer and Liner Construction

Construction of the drainage layer and liner at the bottom of the excavation would require 139,700 cy of fill. Approximately 49,900 cy necessary for the drainage layer would be imported gravel, brought on to the project site by heavy truck (refer to Table V.C.-5). The type of gravel necessary for this work is available in the county.

(d) Daily, Intermediate, and Final Cover

Installation of the daily, intermediate, and final cover would require the excavation of 644,000 cy stockpiled during construction of previous modules; it would also require 3,425,200 cy of fill. The source of fill material shall be from onsite excavations.

Table V.C.-5 shows the total amount of earthwork that would result from the proposed project. It "double counts" a portion of the earthwork associated with module excavation because, in some cases, excavated material (cut) would have to be stockpiled (fill) and then excavated again (cut) to be used as cover material. The second fill is accounted for in the daily, intermediate, and final cover estimates provided by the applicant.

For this analysis, it was assumed that 25 percent of the excavated material (749,700 cy) would have to be stockpiled due to logistical constraints with Landfill operation and, therefore, could not be used directly as cover material. That material would have to be moved two additional times more than if it were excavated and then used immediately as cover material for daily operations. This amount is shown as a "Stockpile Factor" in the Table V.C.-5 below.

TABLE V.C.-5
Earthwork Totals (cy)

Project Component	Cut	Fill	Stockpile Factor	Total Earthwork
Relocate Entrance Road	19,300	7,100		26,400
Relocate RRP	216,200	100		216,300
Module Excavation	2,998,800	77,900*	1,499,400	4,576,100
Drainage Layer and Liner Construction		139,700		139,700
Daily, Intermediate, and Final Cover	644,300	3,347,300		3,991,600
Total	*3,878,600*	*3,572,100*	*1,499,400*	*8,950,100*

**Fill associated with module excavation near the existing entrance and in the expansion area.*

The majority of the earthwork described above would occur constantly throughout the life of the disposal area, which would be until approximately 2040. One exception would be the relocation of the RRP and entrance road. Assuming that all of this earthwork would occur at a fairly consistent rate during the estimated 26 year life of the landfill, and that operations would occur 360 days per year, approximately 956 cy of material would be moved per day (8,950,100cy/26 years/360days per year). At this rate, daily earthwork would result in construction emissions below SLOAPCD thresholds (2,000 cy per day) that require mitigation (refer to Table V.C.-6).

There would be periods where module excavation rate would exceed the rate at which material is needed for cover. In these cases, material would be stockpiled for later use. During these periods, daily earthwork may exceed the 956 cy average described above. To estimate a

"reasonable worst-case scenario" for the period during which the accelerated excavation was occurring, the following scenario was developed:

- Daily, intermediate, and final cover activities would occur consistently over the life of the landfill, resulting in 426 cy of earthwork per day (3,991,600/26yrs/360 days per year).
- Each module would require an average of 428,400 cy of cut (2,998,800/7 modules).
- 25 percent of that excavated material, 107,100 cy would be cut and stockpiled (214,200 cy of total earthwork) at an accelerated rate to ensure that the new module is ready to accept refuse before capacity is met within the existing module.
- This accelerated excavation would occur over a period of 100 days (five months, five days per week). This rate is based on the excavation of Module 6, which included 500,000 cy of cut and took approximately six months of mass, or "accelerated," grading (Padre, 2008).

This scenario results in daily earthwork of 426 cy for the cover activities and 2,142 cy (214200 cy/100 days) of module excavation earthwork, for a total of 2,568 (refer to Table V.C.-6). This amount would exceed the SLOAPCD thresholds for NO_X as noted in Table V.C.-4.

TABLE V.C.-6
Reasonable Worst Case Scenario
Construction Emissions

Activity	Earthwork Per Day
Daily, Intermediate, and Final Cover	426
Accelerated Module Excavation	2,142
Total	*2,568*

AQ Impact 1 **Emissions generated from construction activities during periods of module excavation would result in an exceedance of emissions thresholds for NO_X.**

AQ/mm-1 **Prior to commencement of mass grading for module excavation**, the applicant shall submit a Construction Activities Management Plan for review and approval by the SLOAPCD. This plan shall include, but not be limited to, the following Best Available Control Technology for diesel-fueled construction equipment:

a. Minimize the number of large pieces of construction equipment operating during any given period.
b. Schedule construction related truck/equipment trips during non-peak hours to reduce peak-hour emissions.

c. Regularly maintain and properly tune all construction equipment according to manufacturer's specifications.
d. Fuel all off-road and portable diesel powered equipment including, but not limited to: bulldozers, graders, cranes, loaders, scrapers, backhoes, generators, compressors, and auxiliary power units with CARB motor vehicle diesel fuel.
e. Use 1996 or newer heavy duty off road vehicles for at least 75% of the mass grading related heavy equipment.
f. Electrify equipment where possible.
g. Use Compressed Natural Gas (CNG), liquefied natural gas (LNG), bio-diesel, or propane for on site mobile equipment instead of diesel-powered equipment.
h. On and off-road diesel equipment shall not be allowed to idle for more than five minutes.
i. To the greatest extent practicable, use Purinox or similar NO_X reducing agents diesel fuel.
j. To the greatest extent feasible, install catalytic reduction units on heavy equipment performing this work.

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

2) Fugitive Dust Emissions (PM_{10})

Heavy equipment performing earth-moving during module and other construction activities would generate fugitive dust that would result in substantial temporary impacts on local air quality. Fugitive dust emissions would result from land clearing; module excavation; application of the daily, intermediate and final covers; and, equipment traffic over temporary dirt roads. Fugitive dust emissions in the form of PM_{10} would occur at a rate of approximately 55 lbs/acre/day of disturbed land (U.S. Environmental Protection Agency, 1996). Impacts from fugitive dust emissions would be significant because they potentially could cause a public nuisance or would exacerbate the existing PM_{10} non-attainment status of the SLOAPCD.

Since the County is non-attainment for PM_{10}, the SLOAPCD requires Best Management Practices (BMPs) for all projects involving earthmoving activities regardless of the project size or duration. All standard SLOAPCD dust control mitigation measures shall be incorporated into the daily activities at the Landfill to reduce the potential to generate nuisance dust problems and maintain PM_{10} emissions below the SLOAPCD's mitigation threshold. The applicant currently has an approved dust control plan used for previous activities. AQ/mm-2 requires the plan to be updated to ensure it reflects the latest dust control methods required by the SLOAPCD.

AQ Impact 2 **PM_{10} emissions resulting from construction activities would result in direct short and long-term impacts on air quality, further exacerbating the County non-attainment status for PM_{10}.**

AQ/mm-2 **Prior to issuance of the grading permit**, a Dust Control Plan shall be prepared and submitted to the SLOAPCD for approval prior to commencement of construction activities. The Dust Control Plan shall:

a. Use APCD-approved BMPs and dust mitigation measures;
b. Prohibit visible fugitive dust from any applicable source beyond the property line.
c. Prohibit visible fugitive dust from any applicable source that equals or exceeds 20 percent opacity for 3 minutes or more in any one hour.
d. Provide for monitoring dust and construction debris during construction;
e. Designate a person or persons to monitor the dust control program and to order increased watering or other measures as necessary to prevent transport of dust off-site. Duties should include holiday and weekend periods when work may not be in progress (but strong winds may blow);
f. Provide the name and telephone number of such persons to the APCD prior to construction commencement;
g. Identify complaint handling procedures;
h. Fill out a daily dust observation log; and,
i. Provide a list of all heavy-duty construction equipment operating at the site. The list shall include the make, model, engine size, and year of each piece of equipment.

AQ/mm-3 **Prior to issuance of the grading permit**, the following mitigation measures shall be shown on all project plans and implemented during daily activities to reduce PM_{10} emissions during earth moving activities:

a. Reduce the amount of the disturbed area where possible.
b. Water trucks or sprinkler systems shall be used in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency shall be required whenever wind speeds exceed 15 mph. Reclaimed (non-potable) water shall be used whenever possible.
c. All dirt stockpile areas shall be sprayed daily as needed.
d. Exposed ground areas that are planned to be reworked at dates greater than one month after initial grading shall be sown with a fast-germinating native grass seed and watered until vegetation is established.
e. All disturbed soil areas not subject to re-vegetation shall be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the APCD.
f. All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible after initial site grading. In addition, building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

g. Vehicle speed for all construction vehicles shall be posted to not exceed 15 mph on any unpaved surface at the construction site.
h. All trucks hauling dirt, sand, or other loose materials are to be covered or shall maintain at least two feet of free board (minimum vertical distance between top of load and top of trailer) in accordance with CVC Section 23114.
i. Wheel washers shall be installed where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site.
j. Streets shall be swept at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water shall be used when feasible.
k. Permanent dust control measures shall be implemented as soon as possible following completion of any soil disturbing activities.

AQ/mm-4 **During operations**, the applicant shall maintain monthly compliance logs verifying that all equipment and operations continue to comply with the APCD requirements.

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

3) Hazardous Air Pollutant Emissions

It is possible that local residents and contractors could deliver hazardous construction materials to the Landfill. These materials may emit hazardous air pollutants. Individual loads from residents and construction contractors are currently routed to the Resource Recovery Park and processed for reuse or proper disposal. Materials are separated by material type, including metal, wood, painted wood, glass, concrete, etc. This separation allows Landfill employees to identify potentially hazardous materials and ensure they are handled and disposed of properly. This process would continue with the proposed project and would minimize impacts associated with hazardous air pollutants that are unknowingly delivered to the landfill. In the event that materials were delivered to the permanent disposal area, they would be subject to the dust control efforts and the daily cover process, which would minimize the potential that hazardous air pollutants would become airborne.

Demolition and/or remodeling activities have the potential to negatively impact air quality. Relocating the RRP, and moving the entrance and shop to the new proposed locations would involve the demolition of several older buildings and pipelines. The possibility exists that these structures could include asbestos-containing building materials or other hazardous building materials. Demolition and remodeling activities would be subject to the requirements stipulated in the National Emission Standard for Hazardous Air Pollutants (NESHAP) pertaining demolition activities.

AQ Impact 3 **Demolition and relocation activities have the potential to result in adverse air quality impacts associated with hazardous building materials.**

AQ/mm-5 **Prior to commencement of demolition activities** at the existing entrance area, the applicant shall:

a. Notify the APCD at least ten working days prior to commencement of any demolition activities;
b. Conduct an Asbestos survey by a Certified Asbestos Inspector;
c. Use applicable disposal and removal requirements for any identified asbestos containing material; and,
d. Contact the SLOAPCD Enforcement Division prior to final approval of any demolition activity.

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

b. Long-Term Project Operational Emissions

For this analysis, operational emissions would result from new traffic generated by the proposed project (commercial haulers, public trips, commute trips, etc.). In addition, other daily operations that don't include earthwork (compost operations, wood grinding, construction and demolition sorting, etc.) and area source emissions associated with operating the offices and other structures would result in operational emissions.

1) Traffic Emissions

Based on section V.J., Transportation and Circulation, the proposed project is expected to increase the number of daily trips to the Landfill from 660 to 860, an increase of 200 trips per day. Approximately 680 of those daily trips (approximately 80 percent) would be made by large vehicles, such as commercial haulers or other large trucks. The remaining 180 trips (20 percent) would be made by small vehicles, such as pick-up trucks and automobiles.

URBEMIS 2007 v9.2 was used to quantify emissions resulting from traffic associated with the proposed project. This increase in traffic would occur incrementally over a period of at least ten years, depending on the rate of growth in the Landfill's service area. A target year of 2018 was used in the modeling of traffic related emissions. To estimate trip length, it was assumed that most of the trips would be made from large population centers (e.g., City of San Luis Obispo and the Five Cities area) to the Landfill. The Landfill is located approximately ten miles from downtown San Luis Obispo and eight miles from Grover Beach. Most commercial haulers do not drive straight to the Landfill, they have to idle and drive from location to location, picking up waste before heading to the Landfill. To account for this additional distance, five more miles were added to the average haul distance, bringing the average trip length to 14 miles, one way. Traffic emissions have been combined with area source emissions and are shown in Table V.C.-7.

2) Area Source Emissions

Area source emissions would result from the operation of the buildings on the project site. Emissions result from architectural coatings, operation of water heaters, air conditioners, etc. URBEMIS 2007 v9.2 was used to calculate area source emissions. Proposed structures on the project site would cover approximately two acres, most of which would be the expanded MRF.

TABLE V.C.-7
Area Source Emissions

Pollutant	Annual (tons/yr)	Summer (lbs./day)	Winter (lbs./day)
ROG	0.6	3.2	3.3
NO_X	2.2	11.5	13.1
CO	5.5	29.7	30.4
SO_2	0.01	0.1	0.01
PM_{10}	1.6	9.0	9.0
$PM_{2.5}$	0.3	1.8	1.8
$C0_2$	1391.6	7644.2	7585.3

Vehicle emissions account for the majority of the emissions shown in Table V.C.-7. None of the resulting emissions exceed SLOAPCD thresholds requiring mitigation. Long-term vehicle and area source emissions resulting from the proposed project are *less than significant, (Class III).*

3) Daily Equipment Operations

The proposed project would include a number of additional operations that may result in the use of heavy equipment. The operations include composting, construction and demolition sorting, MRF sorting and processing, and wood waste grinding. The estimated emissions from all heavy equipment operating on site are shown in Table V.C.-8 below; detailed calculations are shown in Appendix B.

According to the ARB, (Offroad Model 2007) emissions from heavy equipment in San Luis Obispo County are expected to drop by over 50 percent below current levels by 2020. These improvements would come from cleaner engines, retrofit technology (e.g., catalytic converters), and cleaner fuels. In the mean time, the proposed project Landfill would be accepting approximately 40 percent more waste (assuming a three percent annual growth). Estimated emissions for Year 2020 take into account these two factors and are also presented in Table V.C.-8. The table shows that emissions would be reduced, even though the Landfill would process more waste, due to advances in engine technology and fuels.

TABLE V.C.-8
Heavy Equipment Emissions Year 2007

	2007		2020	
Pollutant	Daily (lbs/day)	Annual (tons/yr)	Daily (lbs/day)	Annual (tons/yr)
ROG	22	4.0	15	3
NO_X	265	47	186	33
CO	185	33	130	23
PM10	11	2	8	1
Note: This table is a summary of the data in Appendix B, Heavy Equipment Emissions Calculations				

The results in table V.C.-8 indicate that air quality impacts associated with heavy equipment use at the Landfill as a result of the proposed project would be *less than significant, (Class III).*

4) Odors

Odors were considered one of the significant issues discussed by neighbors of the Landfill at the EIR scoping meeting. Odor complaints were focused on the Compost Operation (CO), and neighbors suggested that odors are most offensive during warmer weather periods and/or when the compost rows are turned. Odors may also be produced by decomposing waste in the working face of the disposal areas, although these are minimized through application of daily cover. The prevailing winds at the site are from the north and west, and as a result odors are most noticeable to residents living south and east of the Landfill. Based on comments at the scoping meeting, residents that find the odors a nuisance are located as far as one mile or more south of the existing CO location. The number of comments received regarding odors makes it likely that they would be considered a "nuisance" using the CIWMB definition provided in the Regulatory Setting description of this chapter.

The amount of material received by the landfill would increase about three percent annually over the life of the project. In addition, the applicant proposes to accept additional waste materials at the CO, including biosolids, sludge, and food waste. These organic materials can all produce odors considered offensive by the public. Odor generation would vary based on the types of organic material received on any given day, by the processing of these materials, and by the weather. This increase in quantity and additional material type of materials would probably release more odorous gasses and would potentially cause a nuisance to downwind residents The proposed CO would be relocated approximately 1,500 feet north (upwind and farther from residences currently affected by odors) and 100 feet higher than it's current location. These changes may allow odors from the CO to be more dispersed (diluted) by the prevailing wind.

Even with the new location and implementation of the applicant's odor minimization plan, it is anticipated that during certain combinations of meteorological conditions (i.e., compost turning and summer heat) odors may be highly detectable to residents downwind.

AQ Impact 4 **Increased waste processing at the permanent disposal area and Compost Operation would potentially result in increased odors.**

AQ/mm-6 The applicant shall continue to use Best Management Practices to minimize odorous gas generation, and shall implement the following odor control procedures throughout the life of the operation as long as the tonnage remains at 300 tpd or less.:

Odor-Screening and Load-Checking Procedures

As garbage arrives at the facility, the loader operator shall screen materials to assess the potential for the production of objectionable odors. If necessary, the facility operator would implement one or more of the following measures:

a. Within four hours of receipt, bury loads that produce objectionable odors;
b. Blending or cover materials producing objectionable odors; and/or,
c. Quickly treat garbage capable of producing objectionable odors with a neutralizing agent such as lime, or other suitable agent within four hours of delivery and additionally, as needed.

Good Housekeeping Procedures

The landfill operator shall implement the following housekeeping and operational procedures:

a. Prior to the rainy season (i.e., by October 1st of each year), the landfill facility operator shall undergo pre-season site preparation to ensure that conditions that could result in ponding are minimized or eliminated; and,
b. If ponding occurs after a rain, the puddles shall be treated with lime or other suitable material and the feature causing the ponding shall be eliminated.

Odor Complaint Response System

a. The landfill operator shall designate an "odor impact coordinator" who would be responsible for responding to any complaints about odors;
b. Establish a telephone hotline for nearby receptors to contact the landfill facility. Complaints shall be recorded in writing and provided to the LEA and the air district for review as requested;
c. The odor impact coordinator shall immediately notify the LEA of any odor-related complaints;
d. The odor impact coordinator shall coordinate with the air district, CIWMB and the LEA to make any necessary operational and/or technical modifications necessary to minimize the likelihood of future odors.

AQ/mm-7 To minimize additional odors that may be generated by the expanded CO, once the amount of material to be processed exceeds 300 tpd, the applicant shall implement a covered ASP (aerated static pile) composting system. The ASP system shall be implemented for all processed material beyond 300 tons per day, at minimum. The ASP shall include use of an aeration system that allows the use of biofilters to control odors.

Residual Impact Implementation of these mitigation measures would potentially reduce odors associated with the proposed project. The use of biofilters along with a covered ASP composting system reduces odors generated by the composting material. This is due to the cover as well as the reduced turning necessary with this method. The proposed project would still result in odors impacts that are *significant and unavoidable (Class I)* due to the nature of the type of material being processed and the proximity of those processing activities to downwind residents.

6. Cumulative Impacts

The County of San Luis Obispo has not identified any other significant projects in process in the vicinity of the Landfill. Generally, development in the area would include winery and residential construction. This type of development is consistent with the land use categories in place in the vicinity of the project and, therefore, are anticipated in the SLOAPCD Clean Air Plan. Dust generation from these projects would be mitigated by existing SLOAPCD and County Department of Planning and Building dust control regulations. Based on the discussion in section 5.b.3 above, emissions from offroad heavy equipment (construction vehicles) use would be less than current levels.

Another potential odor source in the vicinity of the proposed project is the Price Canyon Oilfield, located approximately one mile west. The most recent EIR prepared for the Price Canyon Oilfield (Padre, 2008) determined that odors from operation of the proposed water reclamation facility could be mitigated to a less than significant level. The oilfield is also known to produce odors, both from operation of the oilfield and naturally occurring odors associated with the petroleum deposits in the area. However there are no anticipated new odor sources in the area other than the proposed project. As a result, cumulative odor impacts are considered *less than significant (Class III).*

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