Appendix F: Air Quality Assessment

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AIR QUALITY IMPACT ANALYSIS

SEPTEMBER RANCH SUBDIVISION

CARMEL VALLEY, CALIFORNIA

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AIR QUALITY

Introduction

The purpose of this analysis is to describe general meteorological conditions in the project vicinity and assess project effects on local and regional air quality as a result of construction and operations of the proposed subdivision. Indirect emission (generally associated with automobile emissions) forecasts are generated based on conclusions and assumptions about trip characteristics identified in "Traffic Impact Study for the September Ranch Subdivision" (TJKM, 2003).

Climate and Meteorology

The September Ranch project site is located in Carmel Valley, a northwest-southwest trending valley bounded by ridges of the California coastal range. Carmel Valley experiences a "Mediterranean" climate with warm, dry summers and mild, rainy winters. Daily variations in the valley climate are influenced by the interaction between ocean and land air masses that create on-shore (up-valley) winds in the daytime and weak offshore (down-valley) breezes at night. Inversion layers, which tend to aggravate pollution problems created by automobile emissions, are present in the valley a significant part of the year.

Meteorological conditions in the North Central Coast Air Basin [NCCAB] (Monterey, Santa Cruz and San Benito counties) are generally favorable in terms of maintaining relatively good air quality. Onshore winds across Monterey Bay normally bring clean air into the region. Degraded air quality may sometimes be experienced in San Benito County due to airflow from the Santa Clara Valley and dust and odor may be experienced around agricultural operations or other localized sources. The Carmel Valley is shielded from both any substantial intrusion from polluted airsheds and contains few localized sources of emission. Project site air quality responds very favorably to the effects of meteorology and topography.

Ambient Air Quality Standards (AAQS)

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for administering the Federal Clean Air Act Amendments of 1990. As a regulatory agency, EPA's principal functions include setting national ambient air quality standards (AAQS). These standards define the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect "sensitive receptors" defined as that segment of the public most susceptible to respiratory distress or infection such as asthmatics, the very young, the elderly, people weak from other illness or disease, or persons in heavy work or exercise. Since California already had standards in existence before federal AAQS were established, and because of unique meteorological problems in the state, there is considerable diversity between state and federal standards currently in effect in California as shown in Table 1. The state standards are in most cases more stringent than the federal standards.

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	0.12 ppm (235 µg/m³)	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	–		0.08 ppm (157 µg/m³)		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		50 µg/m³		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		65 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	15 µg/m³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m³)		35 ppm (40 mg/m³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		–	–	–
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	–	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m³)		–		
Lead	30-Day average	1.5 µg/m³	Atomic Absorption	–	–	–
	Calendar Quarter	–		1.5 µg/m³	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	–	Ultraviolet Fluorescence	0.030 ppm (80 µg/m³)	–	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (365 µg/m³)	–	
	3 Hour	–		–	0.5 ppm (1,300 µg/m³)	
	1 Hour	0.25 ppm (655 µg/m³)		–	–	
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer–visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

AIR QUALITY SETTING

Ambient Air Quality Standards (AAQS)

The Federal Clean Air Act Amendments (CAAA) of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of currently known health effects. EPA was charged with modifying existing standards or promulgating new ones where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter (called "PM-2.5"). New national AAQS were adopted on July 17, 1997.

Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board to recommend adoption of an annual statewide PM-2.5 standard that is more stringent than the federal standard. This standard was adopted on June 20, 2002. The State PM-2.5 standard is more of a goal in that it does not have specific attainment planning requirements like a federal clean air standard.

Planning and enforcement of the federal standards for PM-2.5 and for ozone (8-hour) were put on hold through a decision by the U.S. Court of Appeals. The Appeals Court ruled that EPA did not have discretionary authority to adopt national clean air standards without specific congressional approval. The Court refused the request for a rehearing filed on behalf of EPA by the Department of Justice. The U.S. Supreme Court heard the appeal in late 2000. In a unanimous decision published at the end of February 2001, the court ruled that EPA did not require specific congressional authorization to adopt national clean air standards. The Court also ruled that health-based standards did not require preparation of a cost-benefit analysis. The Court did find, however, that there was some inconsistency between existing and "new" standards in their respective attainment schedules. These attainment planning schedule inconsistencies centered mainly on the 8-hour ozone standard. EPA has recently (November 2002) agreed to downgrade the attainment designation for a large number of communities to "nonattainment" for the 8-hour ozone standard. Because the NCCAB meets both the 1- and 8-hour federal ozone standards, the pending EPA action will not substantially alter the attainment planning process for the region.

Violations of ambient air quality standards are determined through data collected at air quality monitoring stations located throughout the air basin, including a monitoring station located in Carmel Valley. This station only measures regional pollution levels such as dust and photochemical smog (ozone). The closest data resource for nitrogen dioxide (NO_2) and carbon monoxide (CO) and ultra-fine particulate matter (PM-2.5) is in Salinas. Because some pollutants can be affected by local sources, pollution levels in Salinas may not be fully representative of Carmel Valley baseline conditions. Since the project site has a lower population density and is farther removed from any localized emissions sources, Carmel Valley air pollution levels are likely even lower than those monitored in Salinas. In the absence of any monitoring data for several pollutants near the project site, the data from Salinas are presumed to be representative of Carmel Valley even if they are perhaps overstated.

Table 2 shows that only one measurement in the last five years exceeded a state AAQS (for PM-10 in 1999). No federal standards were exceeded in the last five years of published data (final 2002 data have not been released). The one observed violation of the state PM-10 standard was likely associated with the Los Padres National Forest wild fires which is not considered representative of "normal" ambient conditions in the project area. The air quality emphasis in the Carmel Valley is therefore to maintain the generally good air quality currently experienced rather than on control programs to achieve attainment.

Air Quality Planning

The federal 1-hour ozone standard was achieved in 1990 in the NCCAB. Consistent with federal attainment planning guidelines, the APCD prepared a Redesignation Request and Maintenance Plan for the basin. The U.S. EPA redesignated the basin to a "maintenance area" in March 1997, for the 1-hour federal ozone standard. The basin is an attainment or unclassified area for all other national AAQS.

The air basin is classified as a moderate non-attainment air basin for the more stringent 1-hour state ozone standard. The basin is also in non-attainment for the state PM-10 standard. As noted above, these standards are typically met in Carmel Valley. Ozone violations occur mainly at the Pinnacles air monitoring station due to pollution spillover from Santa Clara County. PM-10 violations are more widespread, but occur most frequently at Davenport and Moss Landing.

Planning for attainment of state standards is embodied in the 1991 AQMP. The 1997 update demonstrates that the 20 percent reduction target in ozone precursor emissions from the 1987 baseline has been met and that no new control measures (contingency measures) are needed beyond those already in the plan. The 2000 AQMP update for state standards concluded that the NCCAB will remain on the borderline between attainment and non-attainment of the state 1-hour ozone standard. A combination of meteorological variability, pollution transport from outside the air basin and local sources will all contribute to a continuing small, but non-zero, number of violations.

Planning for PM-10 attainment is conducted separately from ozone planning. Reports by the MBUAPCD indicate that basin-wide attainment of the PM-10 standard due to in-basin sources was likely within this decade. The effects of local contamination, and "natural" sources such as sea salt or smoke from wildfires may maintain isolated PM-10 "hot spots" beyond 2010.

A general development project such as September Ranch relates to the air quality planning process through consistency with growth projection for the region. If the project represents an increment of growth that has been forecast by the Association of Monterey Bay Area Governments (AMBAG), then the project will not interfere with regional attainment of state air quality standards and maintenance of federal standards. Consistency with growth projection is therefore one threshold of significance that must be evaluated during the CEQA process.

Table 2
Project Area Air Quality Summary
(Days Standards Were Exceeded and Maximum Concentrations)
(Items Shown as Ratios = Number Exceeding/Number of Samples)

Pollutant/Standard	1997	1998	1999	2000	2001
Ozone					
1-Hour > 0.09 ppm	0	0	0	0	0
1-Hour > 0.12 ppm	0	0	0	0	0
1-Hour ≥ 0.20 ppm	0	0	0	0	0
8-Hour > 0.09 ppm	52	57	22	29	34
Max. 1-Hour Conc. (ppm)	0.08	0.08	0.08	0.09	0.08
Carbon Monoxide					
1-Hour > 20. Ppm	0	0	0	0	0
8-Hour > 9. ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	4.4	3.8	3.8	3.5	3.3
Max. 8-Hour Conc. (ppm)	1.8	2.2	1.8	1.4	1.6
Nitrogen Dioxide					
1-Hour > 0.25 ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.06	0.08	0.05	0.07	0.04
Inhalable Particulates (PM-10)					
24-Hour > 50 $\mu g/m^3$	0/60	0/62	1/60	0/59	0/61
24-Hour > 150 $\mu g/m^3$	0/60	0/62	0/60	0/59	0/61
Max. 24-Hour Conc. ($\mu g/m^3$)	31.	28.	57.	27.	30.
Ultra-Fine Particulates (PM-2.5)					
24-Hour > 65 $\mu g/m^3$	-	-	0/102	0/73	0/58
Max. 24-Hour Conc.	-	-	30.8	26.4	25.6

- = Missing data or no measurements.

Notes: Salinas station CO and NO_2 relocated from high school to Natividad Road in 2000, PM-2.5 relocated from Natividad Road to high school at the same time.

Source: MBUAPCD, Carmel Valley and Salinas Air Quality Monitoring Stations.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

The Environmental Checklist Form (Appendix G of the CEQA Guidelines) provides the following guidance for determining a project's impact on air quality:

> Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations: Would the project:
>
> 1. Conflict with or obstruct implementation of the applicable air quality plan?
>
> 2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
>
> 3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?
>
> 4. Expose sensitive receptors to substantial pollutant concentrations?
>
> 5. Create objectionable odors affecting a substantial number of people?

Many pollutants require additional chemical transformation upon release before they reach their most unhealthful from. This process may require several hours, or even days. The impact from any individual project will be diluted to undetectable levels at the completion of this process. There is no analysis mechanism to directly assess the regional impact of any single project. The MBUAPCD has therefore developed emission levels as surrogate standards even though their impact to air quality cannot be directly evaluated. The matrix of emission levels responsive to the CEQA Guidelines questions above are shown in Table 3.

Overview

A residential subdivision such as the proposed September Ranch will impact air quality primarily through increased automotive emissions. These emissions will be widely dispersed in space and time by the mobility of the source. While individual projects do not generally, in themselves, result in exceedances of the ozone standards, they can result in exceedances of ambient standards for localized pollutants (i.e., PM-10 and CO). Secondary emissions during construction and from increased fossil-fueled energy utilization will be generated, but these are usually much smaller in both duration and volume than the mobile source emissions generated by project operations. Finally, on-site wastewater treatment may be a source of nuisance odors if the system is operated or maintained improperly.

Table 3

Checklist for Significance of Air Quality Impacts

Would the project:

1. Conflict with or obstruct implementation of the applicable air quality plan?

    a. Emit 137 lb/day or more of VOC or NOx?
    b. Be inconsistent with the AQMP?

2. Violate any air quality standard or contribute substantially to an existing or project air quality violation?

    a. Emit 137 lb/day or more of VOC or NOx?
    b. Directly emit 550 lb/day or more of CO?
    c. Generate traffic that significantly effects roadway levels of service?
    d. Directly emit 82 lb/day or more of PM-10 onsite during operation or construction?
    e. Generate traffic on unpaved roads that creates 82 lb/day or more of PM-10?
    f. Directly emit 150 lb/day or more of SOx?

3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

    a. Be inconsistent with the AQMP for projects above *de minimus* levels?

4. Expose sensitive receptors to substantial pollutant concentrations?

    a. Cause a violation of any CO, PM-10 or toxic air contaminant standards at an existing or reasonably foreseeable sensitive receptor?

5. Create or expose a substantial number of people to objectionable odors?

Source: MBUAPCD, "CEQA Air Quality Guidelines" (Rev. September 2002).

Construction Impacts

Development of roads, driveways, building pads and structures will create temporary emissions of fugitive dust from soil disturbance and combustion emissions from on-site construction equipment and from off-site trucks moving dirt, delivering construction materials, and from worker travel to and from the site during construction. The MBUAPCD, in its "CEQA Air Quality Guidelines," states that construction equipment emissions have been incorporated and are accounted for in the AQMP as a specific source category. The only recommended analysis element for construction in the air district's guidelines is for dust created by soil disturbance and off-road equipment travel.

The air district recommends use of a detailed evaluation of PM-10 emissions during construction that breaks down various activities into miles of travel on paved or unpaved surfaces, and amount of material handled, stockpiled or transported on any given day. This breakdown involves information on soil silt content, vehicle speed, equipment weight, wind speed, drop heights and other details that vary from minute-to-minute and day-by-day. There is not enough project-specific information on proposed site development that would allow for such a detailed assessment without a great deal of speculation. "Default" assumptions on dust generation have therefore been used to assess construction-related PM-10 emissions.

MBUAPCD Guidelines distinguish between projects with major earthworks versus those with minimal required grading. September Ranch is a "major grading" project. The daily PM-10 emissions from an earthmoving project are estimated to be 38 pounds per day, per acre disturbed. A disturbance area exceeding 2.2 acres may cause the daily PM-10 significance threshold of 82 pounds per day to be exceeded. The disturbance area threshold is based upon the use of routine watering as the only dust mitigation measure. With the use of best available control measures (BACM), a somewhat larger area could be under daily disturbance while maintaining PM-10 emissions at less than 82 pounds per day. With the use of BACMs, California Air Resources Board (ARB) emissions estimates (www.arb.ca.gov/emisinv/areasrc) suggest that the major earthmoving emission factor of 38 pounds per day could be reduced to the "minimal earthmoving" factor of 10 pounds per day. The ARB uses the 10-pound per day estimate for all construction projects in the NCCAB assuming that use of BACMs is a standard requirement. Project-related construction grading PM-10 impacts could be maintained at less-than-significant levels if:

1. The monthly maximum disturbance area is maintained at 8.1 acres or less.

2. Use of BACMs is standard requirement for all grading operations. A menu of control measures comprising BACMs is identified in the mitigation summary.

In addition to smaller particles that will remain suspended in the air semi-indefinitely, construction dust comprises large diameter inert silicates that are chemically non-reactive and are further readily-filtered out by human breathing passages. They settle out again soon after they are released into the air. These fugitive dust particles are, therefore, more of a potential soiling nuisance as they settle out on parked cars, landscape foliage or outdoor furniture rather than any adverse health hazard.

Operational Impacts

The primary source of long-term emissions associated with the proposed project are motor vehicle trips to and from the project site. Generally, vehicle trips associated with the project are home-work trips, home-shopping trips, home-school trips and visitors and deliveries. The number of trips associated with proposed land uses on the site have been documented in the project traffic study as 1,053 daily trips. The emissions associated with this level of trip-making, and the associated "area source" emissions, were calculated using the ARB's URBEMIS2002 computer model. The results are summarized in Table 4.

Table 4

Project Operational Source Emissions (2005)

	Emissions (pounds per day)				
Source	**ROG**	**CO**	**NOx**	**PM-10**	**SOx**
Mobile	12.9	140.2	15.0	11.1	0.1
Area Sources	5.6	1.9	1.4	0.0	0.0
TOTAL	**18.5**	**142.1**	**16.4**	**11.1**	**0.1**
MBUAPCD Threshold	137	550	137	82	150

Source: URBEMIS2002 model run, output in appendix.

Emissions for each of the five pollutants analyzed are well below the MBUAPCD CEQA-significance threshold. Project-related mobile plus area sources range from less than 1 percent of the threshold for SOx to a maximum of 26 percent of the CO threshold. The proposed project is not large enough to have a significant air quality impact on a regional scale.

Locally, project implementation could cause violations of air quality standards around points of traffic congestion (called "hot spots"). A hot spot analysis is generally required if daily project-related CO emissions exceed 550 pounds per day, or if they cause intersections levels of service to substantially worsen at intersections that already operate at a degraded level of service. Neither criterion is met for the proposed project. CO emissions will be 26 percent of the 550 lb/day threshold. Any level of service degradation will be small (<5 seconds change in intersection delay) except along Carmel Valley Road close to the project site. Installation of a traffic signal would mitigate these congestion impacts. No CO hot spot analysis is therefore required because no significance thresholds are exceeded that would trigger the requirement for such an analysis.

AQMP Consistency Analysis

Determination of project consistency with the 2000 Air Quality Management Plan is necessary to identify project impacts on air quality, and to meet CEQA requirements. The AQMP incorporates population forecasts that are based on vacant land, General Plan land use designations, development potential and expected annual rates of growth. For a proposed residential project, consistency with the AQMP is determined by comparing the project population with the population forecasts for the applicable jurisdiction and year of project completion. A proposed project is consistent with the AQMP if the population increase resulting from the project will not cause the estimated cumulative population to be exceeded for the year of project completion.

AMBAG's population forecasts for the North Central Coast Air Basin for the unincorporated portion of Monterey County is as follows:

Year 2000-2005	+ 4,468 residents
Year 2005-2010	+ 7,185 residents
Year 2010-1015	+ 6,809 residents
Year 2015-2020	+ 7,909 residents
Year 2000-2020	+ 26,371 residents
Yearly average	+ 1,319/year

Source: MBUAPCD CEQA Air Quality Guidelines, Table 5-6.

The proposed development of 110 homes and perhaps 350 residents, when spread over several years, is readily consistent with overall growth projections. The proposed project will result in a population increase that is within the growth that is accommodated by the AQMP between 2000 and 2020. Therefore, the September Ranch project is consistent with the 2000 AQMP.

Other Pollutants and Odors

Projects that emit other criteria pollutants could have a significant impact if total emissions which cause or substantially contribute to the violation of state or federal AAQS. Projects which have the potential to emit toxic air contaminants could also result in significant air quality impacts.

Projects that could emit pollutants associated with objectionable odors in substantial concentrations could also result in significant impacts if odors would cause injury, nuisance, or annoyance to considerable numbers of people, or would endanger the health or safety of the public. Because people have varying reactions to odors, the nuisance level of an odor can be difficult to identify.

If the project constructs an on-site wastewater treatment facility, such a facility could be a source of potential nuisance odors. Spare equipment and system redundancies are normally included in modern treatment plant designs to assure continuous operations.

The treatment system would be a fully-enclosed "package" system in which all gases generated during the treatment process will be confined below the floor deck and deodorized prior to discharge. A plant control system will monitor the status and performance of the treatment process at all times. These measures will insure that odor from the on-site wastewater treatment plant will be a less-than-significant impact.

The on-site equestrian facility would continue to operate. Odor characteristics of the facility would not change from existing conditions except that proximity of some future project homes may promote even more intensive housekeeping facilities with associated enhanced odor control. Off-site odor impacts are not anticipated to be significant.

MITIGATION

Maintaining a less-than-significant PM-10 impact during construction grading requires use of best available control measures (BACMs). BACMs for this project include:

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.
- Sweep streets daily (with water sweepers), if visible soil materials is carried onto adjacent public streets.
- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more).
- Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.).
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.
- Limit the area subject to excavation, grading and other construction activity at any one time to no more than eight (8) acres on any given day.

APPENDIX

URBEMIS2002

Model Input/Output

URBEMIS 2002 For Windows 7.4.2

File Name: <Not Saved>
Project Name: September Ranch
Project Location: North Central Coast (Monterey area)
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES

*** 2003 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	0.64	0.35	7.52	0.00	0.07	0.00	0.07

*** 2004 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	450.65	0.50	11.86	0.00	0.14	0.00	0.14

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	5.64	1.40	1.93	0.04	0.01

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	12.92	14.97	140.25	0.13	11.13

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	18.56	16.37	142.17	0.17	11.13

URBEMIS 2002 For Windows 7.4.2

File Name: <Not Saved>
Project Name: September Ranch
Project Location: North Central Coast (Monterey area)
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

Construction Start Month and Year: June, 2003
Construction Duration: 12
Total Land Use Area to be Developed: 0 acres
Maximum Acreage Disturbed Per Day: 0 acres
Single Family Units: 110 Multi-Family Units: 0
Retail/Office/Institutional/Industrial Square Footage: 0

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2003***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Bldg Const Worker Trips	0.64	0.35	7.52	0.00	0.07	0.00	0.07
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.64	0.35	7.52	0.00	0.07	0.00	0.07
Max lbs/day all phases	0.64	0.35	7.52	0.00	0.07	0.00	0.07
*** 2004***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Bldg Const Worker Trips	0.59	0.32	6.92	0.00	0.07	0.00	0.07
Arch Coatings Off-Gas	449.55	-	-	-	-	-	-
Arch Coatings Worker Trips	0.55	0.25	5.93	0.00	0.07	0.00	0.07
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	450.65	0.50	11.86	0.00	0.14	0.00	0.14
Max lbs/day all phases	450.65	0.50	11.86	0.00	0.14	0.00	0.14

Phase 1 - Demolition Assumptions: Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jun '03
Phase 2 Duration: 1.2 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Jul '03
Phase 3 Duration: 10.2 months
Start Month/Year for SubPhase Building: Jul '03
SubPhase Building Duration: 10.2 months
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day

Start Month/Year for SubPhase Architectural Coatings: May '04
SubPhase Architectural Coatings Duration: 1 months
Start Month/Year for SubPhase Asphalt: May '04
SubPhase Asphalt Duration: 0.5 months
Acres to be Paved: 0
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.11	1.38	0.59	-	0.00
Wood Stoves - No summer emissions					
Fireplaces - No summer emissions					
Landscaping	0.15	0.02	1.34	0.04	0.00
Consumer Prdcts	5.38	-	-	-	-
TOTALS(lbs/day,unmitigated)	5.64	1.40	1.93	0.04	0.01

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	12.92	14.97	140.25	0.13	11.13
TOTAL EMISSIONS (lbs/day)	12.92	14.97	140.25	0.13	11.13

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2005 Temperature (F): 75 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing	9.57 trips / dwelling units	110.00	1,052.70

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	56.10	2.30	97.10	0.60
Light Truck < 3,750 lbs	15.10	4.00	93.40	2.60
Light Truck 3,751- 5,750	15.50	1.90	96.80	1.30
Med Truck 5,751- 8,500	6.80	1.50	95.60	2.90
Lite-Heavy 8,501-10,000	1.00	0.00	80.00	20.00
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	10.00	20.00	70.00
Heavy-Heavy 33,001-60,000	0.80	0.00	12.50	87.50
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.10	0.00	0.00	100.00
Motorcycle	1.60	87.50	12.50	0.00
School Bus	0.30	0.00	0.00	100.00
Motor Home	1.40	14.30	78.60	7.10

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.0	5.0	6.5	9.6	9.6	9.6
Rural Trip Length (miles)	10.0	5.0	6.5	9.6	9.6	9.6
Trip Speeds (mph)	30.0	20.0	25.0	30.0	30.0	30.0
% of Trips - Residential	22.6	27.4	50.0			

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Construction

Changes made to the default values for Area

Changes made to the default values for Operations

The operational emission year changed from 2004 to 2005.