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December 15, 2009

Mr. Dale Rundquist
Compliance Project Manager
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814

Re: Panoche Energy Center Project (06-AFC-5C)
Petition to Amend

Dear Mr. Rundquist:

As a follow-up to my November 25, 2009 correspondence, on behalf of Panoche Energy Center, LLC ("PECL"), as owner of the Panoche Energy Center ("PEC"), I have set forth additional information regarding the November 18, 2009 submission to the California Regional Water Quality Control Board, Central Valley Region ("Regional Board").

After receiving and reviewing a Report of Waste Discharge ("ROWD") from PEC, the Regional Board requested PECL to provide additional information. During the compilation of such additional information, PECL determined that the westernmost unlined surface impoundment should be two feet deeper than originally designed to ensure adequate freeboard at all times. In addition, PECL has determined that the best way to meet freeboard requirements is to modify the originally proposed internal earthen center barrier between the two impoundments to sheet piling, concrete, or another durable material.

Specifically, UWSI-1 is designed to have a bottom surface area of 2.94 acres and UWSI-2 is designed to have a bottom surface area of 3.19 acres. The westernmost UWSI will be built to an eight-foot depth and the easternmost UWSI will be built to a six-foot depth. Both UWSI will have the same bottom elevation, and will allow for at least two feet of freeboard throughout the year. To meet the freeboard requirements, the center barrier between the two UWSI will be constructed of sheet piling, concrete or another durable material that will be approximately 6 feet high by 2 feet wide. As previously designed, the UWSI also will have a 20-foot wide surrounding berm. The berm width will allow for maintenance vehicle access. Berm heights will measure six feet from the top of the berm to existing ground elevation. The southern edge of the south berm (the bottom edge of the outer slope) is along the edge of the property boundary. In addition, a temporary warehouse foundation, which is presently within UWSI-1's

proposed footprint, will be removed and replaced with a permanent foundation of the same size and dimensions. Grading activities will require twelve laborers for seven weeks. Previously, grading activities were expected to involve seven laborers for five weeks. Complete construction is expected to last approximately twelve weeks in the Spring of 2010. Previously, construction was expected to last approximately ten weeks in Spring 2010.

Generally, the pond construction refinements will involve:

- Replacement of the temporary warehouse foundation will create approximately 146.2 cubic yards of concrete waste.

- Upon construction completion, approximately 20,000 cubic yards of excess soil will need to be disposed of or utilized offsite. Additional soil exportation will cause only a small amount, up to nine, new truck trips per day with the duration of trips increased from 5 weeks to 9 weeks.

- Grading activities will require twelve laborers for seven weeks. Complete construction is expected to last twelve weeks in the Spring of 2010.

- Excavation activities up to eight feet in depth for UWSI construction.

- Minor increases in anticipated project costs (3.9 mill instead of 3.5 million, and upward adjustments of property taxes, sales tax (local expenditures), construction worker salaries, number of workers (24 instead of 19).

- Excavated material cut will increase to 32,150 cubic yards, excavated material fill will decrease to 12,200 cubic yards, and potential export balance (shown on Table 5.11-2) will increase to 19,950 cubic yards.

- Sixteen (16) truck trips of concrete for the installation of the permanent warehouse foundation and thirty (30) truck trips of concrete will be needed for construction of the proposed UWSI divider, should the divider be constructed using concrete. Trips will be spread over time during the construction period.

The pond construction refinements do no present any new environmental issues and there are no significant additional effects or impacts on the environmental issues analyzed in the PTA associated with these refinements, as set forth in more detail below.

Air Quality

Revised Tables 5.2-3 to 5.2-6 present the estimated worst-case equipment exhaust and fugitive dust emission rates during construction for onsite and offsite activities associated with Wastewater Disposal Changes construction. The maximum emission rates in Tables 5.2-3 to 5.2-6 for construction of the Wastewater Disposal Changes are well below the corresponding maximum emission rates for pollutants that were approved for the substantially larger PEC construction effort. Thus, it is justifiable to assume that the worst-case construction scenario (the phase that creates the most pollutant emissions) remains the site grading activities associated with the approved PEC. Additional dispersion modeling to evaluate the Wastewater Disposal Changes impacts would result in significantly lower predicted impacts than those already found to be acceptable in the previously approved PEC AFC.

Noise

The refinements could require a pile driver if sheet piling is used to construct the center barrier between the two USWI. If sheet piling is used in lieu of concrete, noise levels associated with potential vibratory pile driving of sheet piles are an anticipated to be 65 dbA at the nearest sensitive receptor located 3,300 feet from PEC. Construction traffic activity will consist of soil distribution, material/equipment delivery, and construction worker vehicle trips (which will increase from 38 to 50 trips/day). Material and equipment staging will utilize existing facilities and no new construction staging area will be required. As discussed in the Traffic and Transportation section, *infra*, project-related traffic noise will not be significant.

The refinements do not change the conclusion in the PTA that the Wastewater Disposal Changes will not have an effect on the overall sound levels of the approved PEC and thus no modifications to the PEC conditions of certification are necessary.

Paleontological Resources

UWSI construction will require excavation activities up to eight feet in depth. Previously, excavation was not expected to exceed six feet in depth. As concluded in the PTA, construction of the UWSI will have a very low potential to cause adverse impacts to significant paleontological resources as construction will involve ground disturbance only to the "Patterson alluvium."

Socioeconomics

Minor increases in anticipated project costs (from $3.5 million to $3.9 million) and therefore upward adjustments of property taxes (from $38,500 to $42,900), local expenditures (from $250,000 to $477,300), sales tax revenue (from $22,738 to $42,800), construction worker salary (from $96,000 to $176,000), and the number of workers (from 19 to 24).

The resulting indirect and induced effects of the UWSI construction occurring within Fresno County would be an additional three indirect (previously one) and three induced (previously one) jobs generated by the local construction expenditures and construction payroll; and approximately $133,000 (previously $62,691) and $100,000 (previously $43,308) in indirect and induced income impacts, respectively (based on the total annual local construction expenditure for payroll, materials and supplies). The output for dollars generated for other industries supplying the power generation industry was estimated at $329,029 (previously $155,163) and $300,570 (previously $141,693) for indirect and induced impacts to output, respectively. The dollar estimates are provided in 2009 dollars. The refinements do no present any socioeconomic issues and there are no significant additional effects or impacts on socioeconomics associated with these refinements.

Traffic and Transportation

Excavation will produce approximately 20,000 cubic yards of excess soil to be disposed of or utilized offsite. Previously, the total excess soil was 3,000 cubic yards. Construction of the UWSI divider will require the delivery of concrete or sheet piling to the site. The additional soil exportation will require 665 truck trips and concrete removal will require 15 truck trips. Sixteen (16) truck trips of concrete for the installation of the permanent warehouse foundation and thirty (30) truck trips of concrete will be needed for construction the proposed UWSI divider, should the divider be constructed using concrete. Truck trips will be spread over time during the construction period. Tables 5.11-1 and 5.11-2 depict the increase in daily construction worker and export truck trips associated with the refinements. The refinements do no present any traffic issues and there are no significant additional effects or impacts on traffic and transportation associated with these refinements.

Waste Management

Replacement of the warehouse foundation will create approximately 146.2 cubic yards of concrete waste. Previously, the warehouse foundation was not planned to be replaced. Further, Construction will produce approximately 20,000 cubic yards of excess soil to be disposed of or

utilized offsite. Previously, the total excess soil was 3,000 cubic yards. Additional soil exportation will cause only a small amount, up to nine, new truck trips per day with the duration of trips increased from 5 weeks to 9 weeks.

CONCLUSION

In light of the foregoing, the following figures and tables have been updated to reflect the refinements, copies of which are attached hereto for your convenience: Figure 1.3-1; Figure 3.4-1; Figure 3.4-3; Figure 5.13-2; Table 5.2-1; Table 5.2-2; Table 5.2-3; Table 5.2-4; Table 5.2-5; Table 5.2-6; Table 5.11-1; and Table 5.11-2. In addition, all of the spreadsheets contained in Appendix A – Air Quality contain revisions. Thus, a revised Appendix A is also attached hereto.

The minor refinements set forth herein do not substantially change the character of the changes proposed by the PTA. The proposed Wastewater Disposal Changes remain in compliance with all applicable laws, ordinances, regulations, and standards ("LORS"). The Wastewater Disposal Changes will also continue to not adversely affect PEC's ability to comply with all applicable LORS and no new mitigation measures or conditions of certification not already included in the PTA are needed. Applicant has determined that no material changes to the PTA will be made by the refinements.

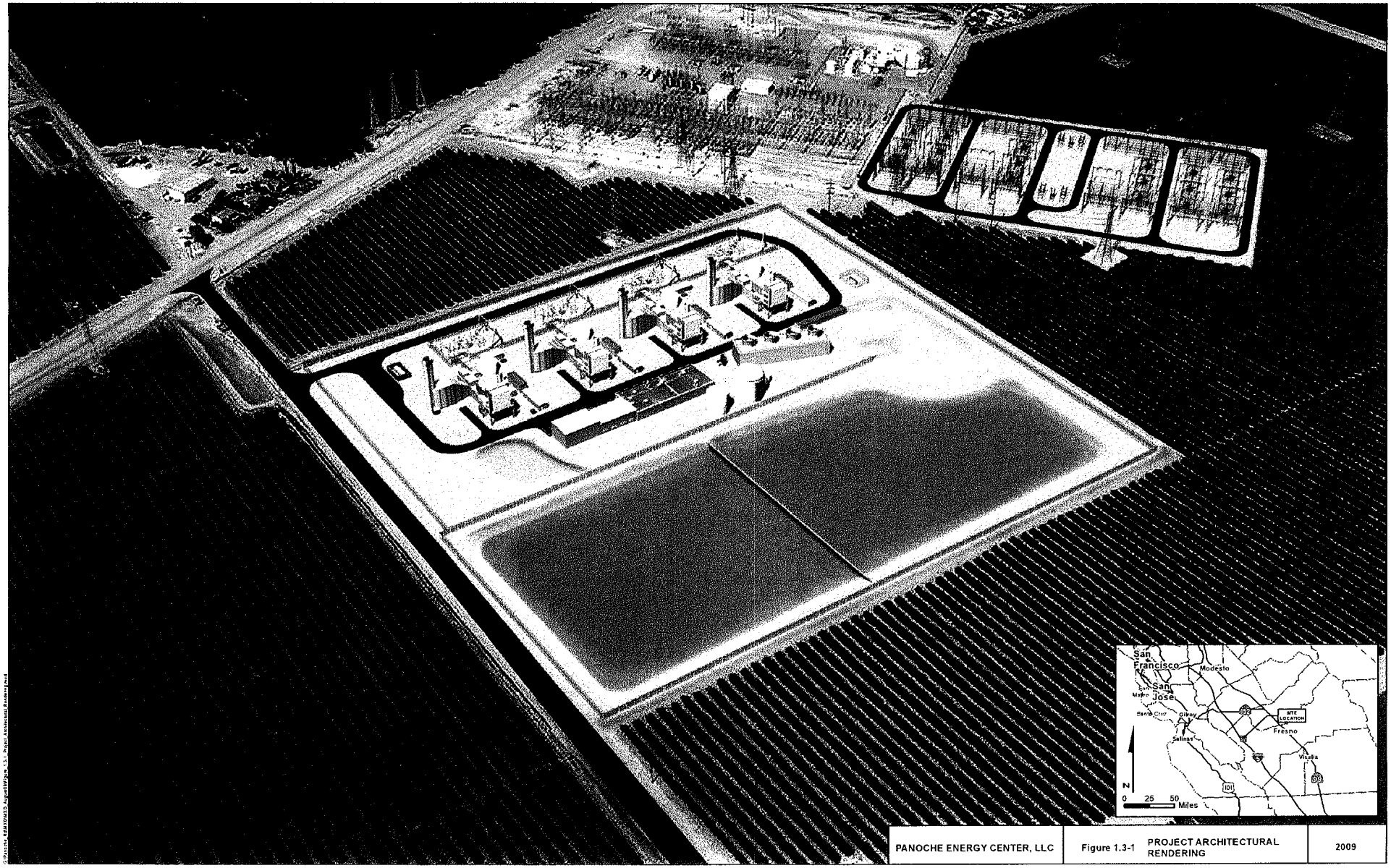
We look forward to Staff's review of and recommendation on the PTA. In the meantime, if you have any questions, please do not hesitate to contact me directly at (916) 447-0700.

Very truly yours,

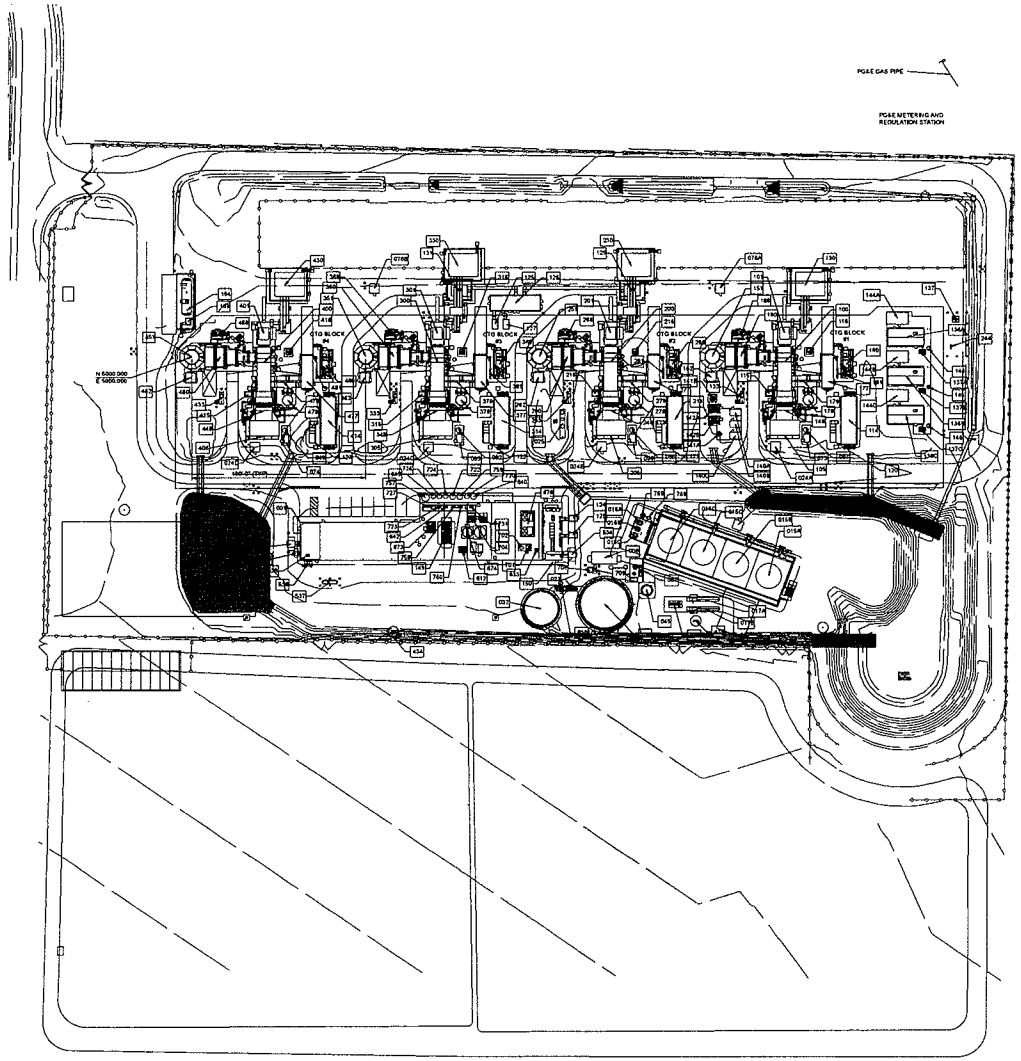
Melissa A. Foster
MAF:jmw

Attachments

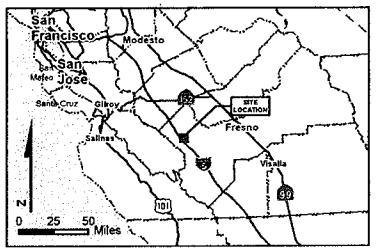
REVISED FIGURES



PANOCHE ENERGY CENTER, LLC	Figure 1.3-1 PROJECT ARCHITECTURAL RENDERING	2009



NO	EQUIPMENT TITLE	NO	EQUIPMENT TITLE	NO	EQUIPMENT TITLE
001	ADMIN / WAREHOUSE / WATER TREATMENT BUILDING	142B	AIR DRYER SKID	406	FILTERHOUSE
		144	SUCTION ACCUMULATOR A	406A	POWER CONTROL MODULE FOR CTG UNIT 101
006	FIRE WATER PUMP ENCLOSURE	144A	RECYCLE GAS COOLER A		
007	WASTEWATER TANK TREATMENT AREA	144B	RECYCLE GAS COOLER B	418	CARBON DIOXIDE BOTTLE RACK
015A	COOLING TOWER CELL A	144C	RECYCLE GAS COOLER C	418	FUEL GAS FILTER/SEPARATOR #4
015B	COOLING TOWER CELL B	148	SUCTION ACCUMULATOR B	430	CTG STEP-UP TRANSFORMER UNIT 4
015C	COOLING TOWER CELL C	148	SUCTION ACCUMULATOR C	433	COMBUSTION TURBINE DRAINS TANK
015D	COOLING TOWER CELL D	148	CT AUXILIARY SKID #1	434	INJECTION WELL 2
016A	CIRCULATING WATER PUMP A	149	RO FIRST AND SECOND PASS SUPER SKID	435	INJECTION WELL 1
016B	CIRCULATING WATER PUMP B	150	EYE WASH STATION WT BLDG SOUTHEAST	436	INJECTION WELL 3
016C	CIRCULATING WATER PUMP C	151	EXHAUST STACK	437	INJECTION WELL 4
017A	WATER INJECTION PUMP	160	SELECTIVE CATALYTIC REDUCTION UNIT	448	CT AUXILIARY SKID #4
017B	WATER INJECTION PUMP	162	CONTINUOUS EMISSIONS MONITORING SYSTEMS EQUIPMENT BUILDING (CEMS)	451	EXHAUST STACK
021	SERVICE WATER PUMP SKID			460	SELECTIVE CATALYTIC REDUCTION UNIT
024A	AUX 2500 FIREWATER VALVE ENCLOSURE #1	164	AMMONIA STORAGE TANK	462	CONTINUOUS EMISSIONS MONITORING SYSTEMS EQUIPMENT BUILDING (CEMS)
024B	AUX 2500 FIREWATER VALVE ENCLOSURE #2	166	AMMONIA FORWARDING PUMP SKID		
024C	AUX 2500 FIREWATER VALVE ENCLOSURE #3	168	AQUEOUS AMMONIA DELIVERY SKID #1	468	AQUEOUS AMMONIA DELIVERY SKID #4
024D	AUX 2500 FIREWATER VALVE ENCLOSURE #4	173	INTERCOOLER #1	472	INTERCOOLER #4
025	OILWATER SEPARATOR	178	VBV STACK	476	VBV STACK
030	DEMINERALIZED WATER PUMP SKID	178	INTERCOOLER #1 INTERCONNECTING PIPING SKID	476	INTERCOOLER #4 INTERCONNECTING PIPING SKID
032	DEMINERALIZED WATER STORAGE TANK				
034	SERVICE/FIRE WATER STORAGE TANK	180	COOLING WATER PUMP SKID 1	480	COOLING WATER PUMP SKID #4
044	WASTE WATER COLLECTION TANK	181	CONDENSATION TANK	481	CONDENSATION TANK
048	WASTEWATER INJECTION CHARGE PUMP SKID	200	LM6100 MAIN UNIT #2	533	CONTROL ROOM/ADMIN HVAC UNIT
069	CONDENSATE RECOVERY TANK	201	GENERATOR	534	ELECTRICAL ROOM HVAC UNIT
073	CONDENSATE RECOVERY PUMP SKID	205	FILTERHOUSE	536	CONTROL ROOM/ADMIN HVAC UNIT
074	CONDENSATE RECOVERY PUMP SKID	214	POWER CONTROL MODULE FOR CTG UNIT 201	538	CONTROL ROOM/ADMIN HVAC UNIT
076A	EAST TRANSFORMER DELUGE ENCLOSURE	215	CARBON DIOXIDE BOTTLE RACK	537	PROPANE TANK
076B	WEST TRANSFORMER DELUGE ENCLOSURE	215	FUEL GAS FILTER/SEPARATOR #2	638	ADM/INCONTROL ROOM DCS PANEL
076C	COOLING TOWER DELUGE ENCLOSURE	230	CTG STEP-UP TRANSFORMER UNIT 2	812	RO FEED PUMP SKID
080	CONDENSATE RECOVERY TANK	233	COMBUSTION TURBINE DRAINS TANK	853	WATER HEATER TANK
083	CONDENSATE RECOVERY PUMP SKID	264	FUEL GAS CHROMATOGRAPH	640	CIRCULATING WATER SULFURIC ACID (98%WT) FEED TOTE
085	CONDENSATE RECOVERY TANK	348	CT AUXILIARY SKID #3		
086	CONDENSATE RECOVERY PUMP SKID	251	EXHAUST STACK	642	CIRCULATING WATER SULFURIC ACID PUMP SKID
087	CONDENSATE RECOVERY TANK	260	SELECTIVE CATALYTIC REDUCTION UNIT		
100	LM5100 MAIN UNIT #1	262	CONTINUOUS EMISSIONS MONITORING SYSTEMS EQUIPMENT BUILDING (CEMS)	645	WATER TREATMENT RO CAUSTIC TOTE
101	GENERATOR			673	RO CLEANING SYSTEM
105	FILTERHOUSE	268	AQUEOUS AMMONIA DELIVERY SKID #2	674	RO PRODUCT WATER STORAGE TANK
114	POWER CONTROL MODULE FOR CTG UNIT 101	277	INTERCOOLER #2	678	MIXED BED POLISHERS
115	CARBON DIOXIDE BOTTLE RACK	278	VBV STACK	701	POTABLE WATER FEED SKID
116	FUEL GAS FILTER/SEPARATOR #1	278	INTERCOOLER #2 INTERCONNECTING PIPING SKID	707	POTABLE WATER FEED TANK
120	PAD MOUNT TRANSFORMER 101			704	RO PRODUCT WATER FORWARDING PUMP SKID
121	PAD MOUNT TRANSFORMER 201	290	COOLING WATER PUMP SKID #2	708	WATER TREATMENT SODIUM HYPOCHLORITE TOTE
122	PAD MOUNT TRANSFORMER 301	291	CONDENSATION TANK		
123	PAD MOUNT TRANSFORMER 401	300	LM6100 MAIN UNIT #3	708	WATER TREATMENT SODIUM HYPOCHLORITE PUMP SKID
124	PAD MOUNT TRANSFORMER 501A	301	GENERATOR		
125	PAD MOUNT TRANSFORMER 501B	305	FILTERHOUSE	722	CIRCULATING WATER SODIUM HYPOCHLORITE (12.5%WT) TOTE
126	SRV ELECTRICAL ENCLOSURE	314	POWER CONTROL MODULE FOR CTG UNIT 301		
127	STATION SERVICE TRANSFORMER 001A	315	CARBON DIOXIDE BOTTLE RACK	723	CIRCULATING WATER SODIUM HYPOCHLORITE PUMP SKID
128	UNIT AUXILIARY SUPPLY TRANSFORMER 001A	316	FUEL GAS FILTER/SEPARATOR #3		
		330	CTG STEP-UP TRANSFORMER UNIT 3	724	WATER TREATMENT ROANTI-SCALANT TOTE
130	CTG STEP-UP TRANSFORMER UNIT 1	331	COMBUSTION TURBINE DRAINS TANK	726	WATER TREATMENT SODIUM BISULFITE TOTE
131	UNIT AUXILIARY SUPPLY TRANSFORMER UNIT 001B	348	CT AUXILIARY SKID #3	727	WATER TREATMENT CHEMICAL PUMP SKID
		351	EXHAUST STACK	730	CIRCULATING WATER BIO-DISPERSANT FEED TOTE
133	COMBUSTION TURBINE DRAINS TANK	360	SELECTIVE CATALYTIC REDUCTION UNIT		
136A	FUEL GAS COMPRESSOR SKID A	363	CONTINUOUS EMISSIONS MONITORING SYSTEMS EQUIPMENT BUILDING (CEMS)	731	CIRCULATING WATER BIO-DISPERSANT PUMP SKID
136B	FUEL GAS COMPRESSOR SKID B				
136C	FUEL GAS COMPRESSOR SKID C	368	AQUEOUS AMMONIA DELIVERY SKID #3	757	CIRCULATING WATER CORROSION INHIBITOR TOTE
137	FUEL GAS KNOCKOUT DRUM	377	INTERCOOLER #3		
137A	GAS COMPRESSOR DRAINS TANK A	378	VBV STACK	764	CIRCULATING WATER CORROSION INHIBITOR PUMP SKID
137B	GAS COMPRESSOR DRAINS TANK B	378	INTERCOOLER #3 INTERCONNECTING PIPING SKID		
137C	GAS COMPRESSOR DRAINS TANK C			758	CIRCULATING WATER MINERAL DISPERSANT TOTE
140A	AIR COMPRESSOR A	380	COOLING WATER PUMP SKID #3		
140B	AIR COMPRESSOR B	381	CONDENSATION TANK	763	CIRCULATING WATER MINERAL DISPERSANT PUMP SKID
140C	AIR COMPRESSOR C	400	LM6100 MAIN UNIT #4		
141A	WET AIR RECEIVER	401	GENERATOR	788	CT YELLOW METAL CORR. INHIBITOR PUMP SKID
141B	DRY AIR RECEIVER			789	COOLING TOWER YELLOW METAL CORR. INHIBITOR
142A	AIR DRYER SKID				



PANOCHE ENERGY CENTER, LLC	Figure 3.4-1 PROJECT SITE PLAN	2009

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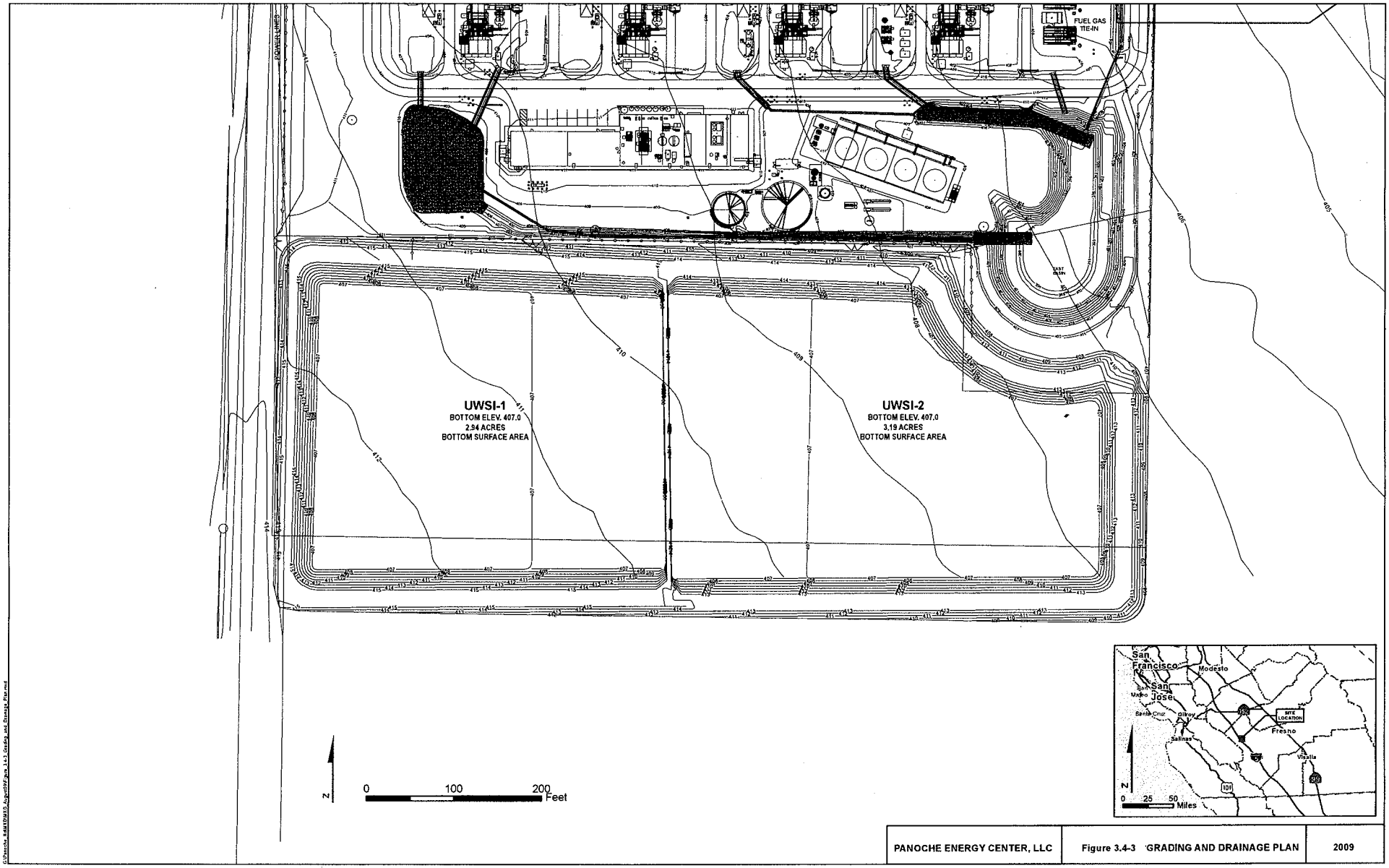
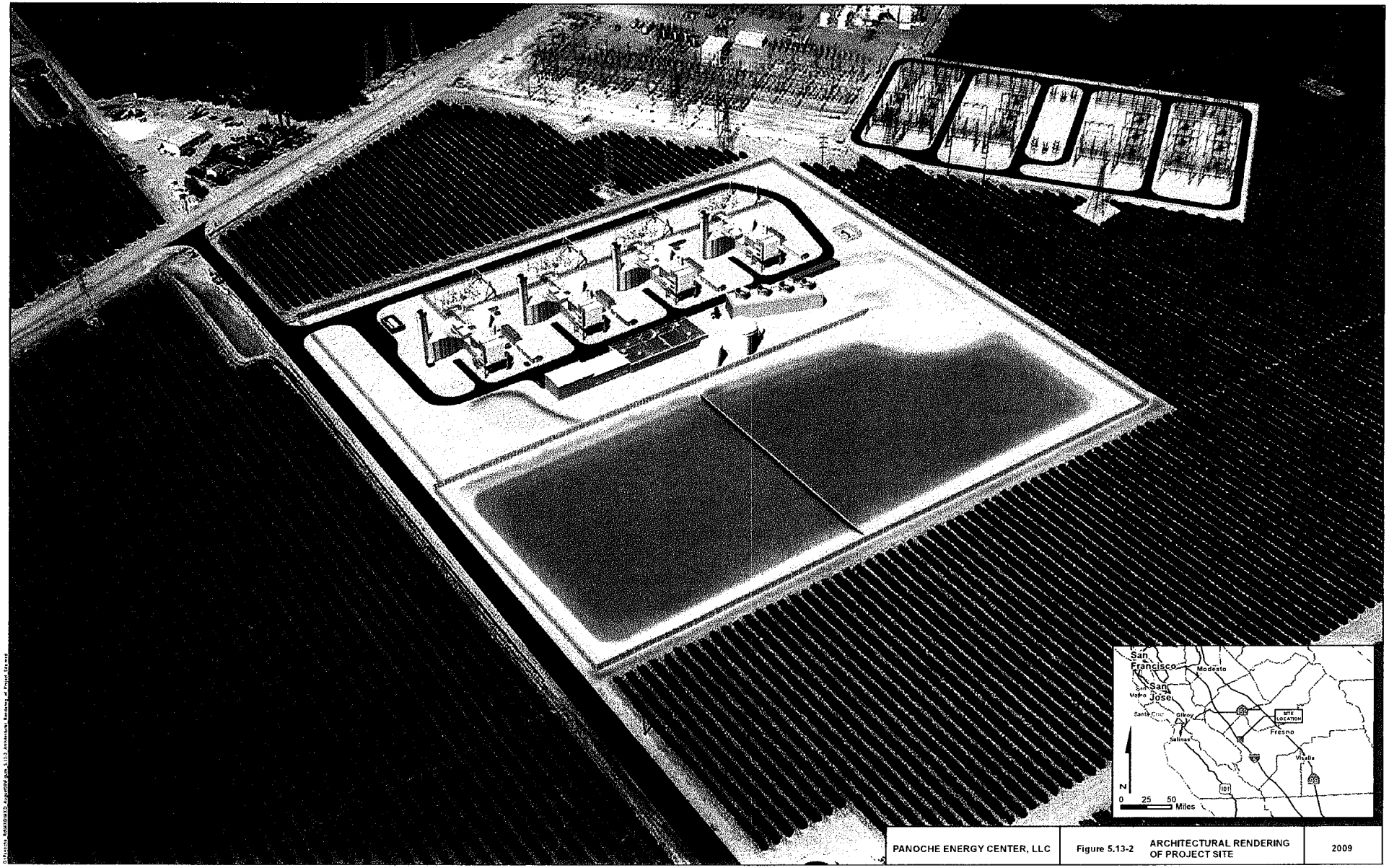


PANOCHE ENERGY CENTER, LLC	Figure 3.4-3 GRADING AND DRAINAGE PLAN	2009



PANOCHE ENERGY CENTER, LLC	Figure 5.13-2	ARCHITECTURAL RENDERING OF PROJECT SITE	2009

TABLES
CLEAN VERSION

SECTION 5.2, AIR QUALITY, REVISED TABLES

Table 5.2.1 Approximate Construction Schedule

Week Nos.	Phase	Activity
1-2	Civil	Warehouse foundation removal
3-7	Civil	Digging the impoundments, constructing perimeter berms, and center concrete divider
6-11	Mechanical	Installation of an underground pipe and tie-in to the existing plant
8-11	Electrical	Installation of an underground conduit and monitoring devices
8-11	Monitoring Wells	Installation, development, water sampling and analysis
12	Start-up & Testing	Per operating and compliance procedures

Table 5.2-2 Equipment Required For Construction

Equipment	Use
Excavator	Concrete foundation removal
Compactors	Compacting soil
Loader	Excavate impoundments
Scrapers	Excavate impoundments
Water truck	Dust and fire control
Dump trucks	Haul cut soils and excavated foundation concrete
Concrete trucks	Import concrete for center divider and new warehouse foundation
Pickup trucks	Transport laborers
Welders	Welding
Fusion machine	Pipe fusing
Well rig	Monitoring well installation

Table 5.2-3 Maximum Equipment Onsite Daily Emission Rates Due to Construction

		Daily Emissions Onsite (lb/day)									
Activity	**Emission Type**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**VOC**	**NOx**	**SOx**	**CO_2**	**N_20**	**CH_4**	**CO_2e**
Wastewater Disposal Changes Construction	Combustion exhaust	5.32	4.89	54.31	13.82	107.41	0.10	10,114	0.004	1.22	10,141
	Fugitive dust	65.59	6.82								
	Total Onsite	**70.92**	**11.71**	**54.31**	**13.82**	**107.41**	**0.10**	**10,114**	**0.004**	**1.22**	**10,141**

Table 5.2-4 Maximum Equipment Onsite Annual Emission Rates Due to Construction

		Annual Emissions Onsite (tons/year)									
Activity	**Emission Type**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**VOC**	**NOx**	**SOx**	**CO_2**	**N_20**	**CH_4**	**CO_2e**
Wastewater Disposal Changes Construction	Combustion exhaust	0.07	0.06	0.78	0.18	1.45	0.00	138.85	0.0001	0.02	139.25
	Fugitive dust	0.97	0.10								
	Total Onsite	**1.04**	**0.17**	**0.78**	**0.18**	**1.45**	**0.00**	**138.85**	**0.0001**	**0.02**	**139.25**

Table 5.2-5 Maximum Equipment Offsite Daily Emission Rates Due to Construction

		Daily Emissions Offsite (lb/day)									
Activity	**Emission Type**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**VOC**	**NOx**	**SOx**	**CO_2**	**N_20**	**CH_4**	**CO_2e**
Wastewater Disposal Changes Construction	Combustion exhaust	15.37	13.80	136.57	59.83	219.88	0.27	28,255	0.28	0.18	28,346
	Fugitive dust	182.59	25.89								
	Total Offsite	**197.96**	**39.68**	**136.57**	**59.83**	**219.88**	**0.27**	**28,255**	**0.28**	**0.18**	**28,346**

Table 5.2-6 Maximum Equipment Offsite Annual Emission Rates Due to Construction

		Annual Emissions Offsite (tons/year)									
Activity	**Emission Type**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**VOC**	**NOx**	**SOx**	**CO_2**	**N_20**	**CH_4**	**CO_2e**
Wastewater Disposal Changes Construction	Combustion exhaust	0.18	0.17	1.83	0.73	2.66	0.003	362.52	0.01	0.003	364.15
	Fugitive dust	2.87	0.41								
	Total Offsite	**3.06**	**0.57**	**1.83**	**0.73**	**2.66**	**0.003**	**362.52**	**0.01**	**0.003**	**364.15**

SECTION 5.11, TRAFFIC AND TRANSPORTATION, REVISED TABLES

Table 5.11-1 Wastewater Disposal Changes Construction Worker Trips

Construction Components	Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips	
		In	Out	In	Out
Civil[1]	26	13	0	0	13
Mechanical	10	5	0	0	5
Electrical	10	5	0	0	5
Supervisory	4	2	0	0	2
Total	50	25	0	0	25

1 – Civil component will increase by 6 workers from 7 to 13 workers which include workers for the structural/civil component and divider construction.

Table 5.11-2 Excavated Material Export Truck Movement Trips

Activity	Export Volume (cubic yards)	Equivalent Truck Loads	Duration	Trucks/ Day	Passenger Car Equivalent[2]
Wastewater Disposal Changes (Excavated Material Export)	19,950	665[1]	9 weeks (54 days)	12	36

[1] – Haul truck capacity of 30 cubic yards. (Assumed 1 cubic yard excavated material = 1 ton equivalent weight)
[2] – Used a PCE factor of 3.

TABLES
TRACK CHANGES

SECTION 5.2, AIR QUALITY, REVISED TABLES

Table 5.2.1 Approximate Construction Schedule

Week Nos.	Phase	Activity
1-2	Civil	Warehouse foundation removal
~~1-5~~ 3-7	Civil	Digging the impoundments, ~~and~~ constructing perimeter berms, and center concrete divider
~~4-9~~ 6-11	Mechanical	Installation of an underground pipe and tie-in to the existing plant
~~6-9~~ 8-11	Electrical	Installation of an underground conduit and monitoring devices
~~6-9~~ 8-11	Monitoring Wells	Installation, development, water sampling and analysis
~~10~~ 12	Start-up & Testing	Per operating and compliance procedures

Table 5.2-2 Equipment Required For Construction

Equipment	Use
Excavator	Concrete foundation removal
Compactors	Compacting soil
Loader	Excavate impoundments
Scrapers	Excavate impoundments
Water truck	Dust and fire control
Dump trucks	Haul cut soils and excavated foundation concrete
Concrete trucks	Import concrete for center divider and new warehouse foundation
Pickup trucks	Transport laborers
Welders	Welding
Fusion machine	Pipe fusing
Well rig	Monitoring well installation

Table 5.2-3 Maximum Equipment Onsite Daily Emission Rates Due to Construction

		Daily Emissions Onsite (lb/day)									
Activity	**Emission Type**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**VOC**	**NOx**	**SOx**	**CO_2**	**N_20**	**CH_4**	**CO_2e**
Wastewater Disposal Changes Construction	Combustion exhaust	~~3.59~~ 5.32	~~3.30~~ 4.89	~~44.79~~ 54.31	~~10.08~~ 13.82	~~84.03~~ 107.41	~~0.08~~ 0.10	~~7,797~~ 10,114	~~0.002~~ 0.004	~~1.07~~ 1.22	~~7,820~~ 10,141
	Fugitive dust	~~25.81~~ 65.59	~~3.74~~ 6.82								
	Total Onsite	~~**33.66**~~ **70.92**	~~**7.47**~~ **11.71**	~~**44.79**~~ **54.31**	~~**10.08**~~ **13.82**	~~**84.03**~~ **107.41**	~~**0.08**~~ **0.10**	~~**7,797**~~ **10,114**	~~**0.002**~~ **0.004**	~~**1.07**~~ **1.22**	~~**7,820**~~ **10,141**

Table 5.2-4 Maximum Equipment Onsite Annual Emission Rates Due to Construction

		Annual Emissions Onsite (tons/year)									
Activity	**Emission Type**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**VOC**	**NOx**	**SOx**	**CO_2**	**N_20**	**CH_4**	**CO_2e**
Wastewater Disposal Changes Construction	Combustion exhaust	~~0.05~~ 0.07	~~0.04~~ 0.06	~~0.61~~ 0.78	~~0.13~~ 0.18	~~1.15~~ 1.45	~~0.001~~ 0.00	~~106.81~~ 138.85	~~4.0E-05~~ 0.0001	~~0.01~~ 0.02	~~107.13~~ 139.25
	Fugitive dust	~~0.50~~ 0.97	~~0.07~~ 0.10								
	Total Onsite	~~**0.54**~~ **1.04**	~~**0.11**~~ **0.17**	~~**0.61**~~ **0.78**	~~**0.13**~~ **0.18**	~~**1.15**~~ **1.45**	~~**0.001**~~ **0.00**	~~**106.81**~~ **138.85**	~~**4.0E-05**~~ **0.0001**	~~**0.01**~~ **0.02**	~~**107.13**~~ **139.25**

Table 5.2-5 Maximum Equipment Offsite Daily Emission Rates Due to Construction

		Daily Emissions Offsite (lb/day)									
Activity	**Emission Type**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**VOC**	**NOx**	**SOx**	**CO_2**	**N_20**	**CH_4**	**CO_2e**
Wastewater Disposal Changes Construction	Combustion exhaust	~~0.86~~ 15.37	~~0.74~~ 13.80	~~26.35~~ 136.57	~~4.29~~ 59.83	~~11.07~~ 219.88	~~0.03~~ 0.27	~~3,733~~ 28,255	~~0.11~~ 0.28	~~0.19~~ 0.18	~~3,769~~ 28,346
	Fugitive dust	~~9.49~~ 182.59	~~1.42~~ 25.89								
	Total Offsite	~~**10.35**~~ **197.96**	~~**2.17**~~ **39.68**	~~**26.35**~~ **136.57**	~~**4.29**~~ **59.83**	~~**11.07**~~ **219.88**	~~**0.03**~~ **0.27**	~~**3,733**~~ **28,255**	~~**0.11**~~ **0.28**	~~**0.19**~~ **0.18**	~~**3,769**~~ **28,346**

Table 5.2-6 Maximum Equipment Offsite Annual Emission Rates Due to Construction

		Annual Emissions Offsite (tons/year)									
Activity	**Emission Type**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**VOC**	**NOx**	**SOx**	**CO_2**	**N_20**	**CH_4**	**CO_2e**
Wastewater Disposal Changes Construction	Combustion exhaust	~~0.01~~ 0.18	~~0.01~~ 0.17	~~0.66~~ 1.83	~~0.08~~ 0.73	~~0.17~~ 2.66	~~0.001~~ 0.003	~~87.28~~ 362.52	~~2.9E-03~~ 0.01	~~0.01~~ 0.003	~~88.29~~ 364.15
	Fugitive dust	~~0.15~~ 2.87	~~0.02~~ 0.41								
	Total Offsite	~~**0.16**~~ **3.06**	~~**0.03**~~ **0.57**	~~**0.66**~~ **1.83**	~~**0.08**~~ **0.73**	~~**0.17**~~ **2.66**	~~**0.001**~~ **0.003**	~~**87.28**~~ **362.52**	~~**2.9E-03**~~ **0.01**	~~**0.01**~~ **0.003**	~~**88.29**~~ **364.15**

SECTION 5.11, TRAFFIC AND TRANSPORTATION, REVISED TABLES

Table 5.11-1 Wastewater Disposal Changes Construction Worker Trips

Construction Components	Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips	
		In	Out	In	Out
Civil[1]	~~14~~ 26	~~7~~ 13	0	0	~~7~~ 13
Mechanical	10	5	0	0	5
Electrical	10	5	0	0	5
Supervisory	4	2	0	0	2
Total	~~38~~ 50	~~19~~ 25	0	0	~~19~~ 25
1 – Civil component will increase by 6 workers from 7 to 13 workers which include workers for the structural/civil component and divider construction.					

Table 5.11-2 Excavated Material Export Truck Movement Trips

Activity	Export Volume (cubic yards)	Equivalent Truck Loads	Duration	Trucks/ Day	Passenger Car Equivalent[2]
Wastewater Disposal Changes (Excavated Material Export)	~~2,796~~ 19,950	~~93~~ 665[1]	~~5~~ 9 weeks (~~30~~ 54 days)	~~3~~ 12	~~9~~ 36

[1] – Haul truck capacity of 30 cubic yards. (Assumed 1 cubic yard excavated material = 1 ton equivalent weight)
[2] – Used a PCE factor of 3.

REVISED APPENDIX A

Appendix A
Air Quality
Panoche Energy Center
Wastewater Surface Impoundments
Construction Emissions

(Revision, December 09, 2009)

Panoche Energy Center
Wastewater Surface Impoundments--Construction Emissions

Summary Table - Construction Maximum Daily Emissions

	Max. Daily Emissions (lb/day)									
Emission Type	**PM_{10}**	**$PM_{2.5}$**	**CO**	**VOC**	**NO_x**	**SO_x**	**CO_2**	**CH_4**	**N_20**	**Total GHG - CO_2e**
Combustion exhaust	5.32	4.89	54.31	13.82	107.41	0.10	10,114	1.22	0.004	10,141
Fugitive dust	65.59	6.82								
Total Onsite	**70.92**	**11.71**	**54.31**	**13.82**	**107.41**	**0.10**	**10,114**	**1.22**	**0.004**	**10,141**
Combustion exhaust	15.37	13.80	136.57	59.83	219.88	0.27	28,255	0.18	0.28	28,346
Fugitive dust	182.59	25.89								
Total Offsite	**197.96**	**39.68**	**136.57**	**59.83**	**219.88**	**0.27**	**28,255**	**0.18**	**0.28**	**28,346**
Total Emissions	**268.88**	**51.39**	**190.88**	**73.66**	**327.29**	**0.37**	**38,368**	**1.40E+00**	**0.29**	**38,487**

Summary Table - Construction Maximum Annual Emissions

	Max. Annual Emissions (tons/year)									
Emission Type	**PM_{10}**	**$PM_{2.5}$**	**CO**	**VOC**	**NO_x**	**SO_x**	**CO_2**	**CH_4**	**N_20**	**Total GHG - CO_2e**
Combustion exhaust	0.07	0.06	0.78	0.18	1.45	0.00	138.85	0.02	0.0001	139.25
Fugitive dust	0.97	0.10								
Total Onsite	**1.04**	**0.17**	**0.78**	**0.18**	**1.45**	**0.00**	**138.85**	**0.02**	**0.0001**	**139.25**
Combustion exhaust	0.18	0.17	1.83	0.73	2.66	0.003	362.52	0.003	0.01	364.15
Fugitive dust	2.87	0.41								
Total Offsite	**3.06**	**0.57**	**1.83**	**0.73**	**2.66**	**0.003**	**362.52**	**0.003**	**0.01**	**364.15**
Total Emissions	**4.09**	**0.74**	**2.61**	**0.91**	**4.11**	**0.00**	**501.37**	**2.11E-02**	**0.01**	**503.40**

Panoche Energy Center - Construction of Wastewater Surface Impoundments
Construction Personnel Projection

	Week After Construction Start (number of personnel per day)												
Discipline	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Highest Per Day Requirement During Project**
Civil Workers	12	12	12	18	18	18	18						18
Mechanical Workers						5	5	5	5	5	5		5
Electrical Workers								5	5	5	5		5
Supervisors	2	2	2	2	2	2	2	2	2	2	2	2	2
Operation staff												4	4
Totals	**14**	**14**	**14**	**20**	**20**	**25**	**25**	**12**	**12**	**12**	**12**	**6**	

Note:

186 total personnel for 12 weeks
16 avg weekly personnel
25 max weekly personnel
Personnel data were provided by the applicant.

Panoche Energy Center - Construction of Wastewater Surface Impoundments
Construction Equipment Projection Table

Construction Equipment Description	HP	D	G	Week After Construction Start (number of equipment per day)											
				1	2	3	4	5	6	7	8	9	10	11	12
Wheeled Loader	500	X		0	0	1	1	1	1	1	0	0	0	0	0
Scrapers	500	X		0	0	3	3	3	3	3	0	0	0	0	0
Forklift	120	X		1	1	1	1	1	1	1	1	1	1	1	0
Welding Machine	50	X		0	0	0	0	0	1	1	1	1	1	1	0
HDPE fusion machine	50	X		0	0	0	0	0	1	1	1	1	1	1	0
Excavator	500	X		1	1	0	1	1	1	1	0	0	0	0	0
Compactor	120	X		0	0	0	4	4	4	4	0	0	0	0	0
Misc. small power tools	15	X		0	0	0	2	2	4	4	4	4	4	4	0
Temporary Field construction trailer	175	X		1	1	1	1	1	1	1	1	1	1	1	0
Vehicles with Onroad Engines for Emissions Estimates															
Water Truck	-	X		0	0	1	1	1	1	1	0	0	0	0	0
Dump Truck	-	X		6	6	6	6	6	6	6	0	0	0	0	0
Concrete Truck	-	X		0	0	0	0	0	10	10	0	0	0	0	0
Pick-up trucks	-	X		2	2	2	2	2	3	3	4	4	4	4	3
Worker Vehicles	-	/	/	11	11	11	16	16	20	20	10	10	10	10	5
Total				22	22	26	38	38	57	57	22	22	22	22	8

Note:

1. abbreviation:
   G=gasoline
   D=diesel
   "/" means a portion
2. It is assumed the numbers of worker passenger vehicles are the numbers of workers divided by 1.25.
3. Data were provide by the applicant.

Wastewater Surface Impoundments Exhaust Emissions (on-site)

Emission Factors For Combustion Exhaust Emissions

Equipment	Horse-power	Vehicle Weight (lbs)	Fuel	Emission Factors (unit: lb/hr for off-road equipment and g/mile for on-road vehicle)								
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
Off-Road Equipment												
Wheeled Loader	500		Diesel	0.09	0.08	0.82	0.23	2.30	0.00	236.80	0.02	-
Scrapers	500		Diesel	0.15	0.13	1.65	0.38	3.61	0.00	321.14	0.03	-
Forklift	120		Diesel	0.00	0.00	1.41	0.01	0.22	-	31.23	0.05	-
Welding Machine	50		Diesel	0.03	0.03	0.30	0.13	0.27	0.00	25.93	0.01	-
HDPE fusion machine	50		Diesel	0.03	0.03	0.30	0.13	0.27	0.00	25.93	0.01	-
Excavator	500		Diesel	0.08	0.07	0.66	0.21	2.06	0.00	233.53	0.02	-
Compactor	120		Diesel	0.07	0.06	0.42	0.13	0.78	0.00	58.94	0.01	-
Misc. small power tools	15		Diesel	0.00	0.00	0.06	0.01	0.07	0.00	10.10	0.00	-
Temporary Field construction trailer	175		Diesel	0.06	0.05	0.59	0.13	1.06	0.00	106.42	0.01	-
On-Road Vehicle or Vehicles with On-road Engines for Emission Estimates												
Water Truck	-	40,000	Diesel	1.95	1.75	13.83	7.41	27.77	0.03	3,165.45	0.01	0.00
Dump Truck	-	40,000	Diesel	1.95	1.75	13.83	7.41	27.77	0.03	3,165.45	0.01	0.00
Concrete Truck	-	15,000	Diesel	1.95	1.75	13.83	7.41	27.77	0.03	3,165.45	0.01	0.00
Pick-up trucks	-	9,000	Diesel	0.11	0.09	2.09	0.38	5.54	0.01	520.59	0.00	0.00
Worker Vehicles	-	4,000	Gasoline	0.06	0.04	7.11	0.55	0.42	0.01	866.82	0.03	0.06

Notes:

1. Equipment list, quantity from the applicant.
2. Horsepower and vehicle weight are estimated; hours of operation are estimated from construction schedule.
3. Off-road equipment emission factors from CARB Off-road Mobile Source Emission Factors (2009 data used).
4. On-road vehicle emission factors from Emfac2007
5. $PM_{2.5}$ emission factors from updated CEIDARS List with $PM_{2.5}$ fractions.
6. Assume the construction schedule = 8 hours per day and 5 days per week.
7. Assume construction begins in 2009 (more conservative than 2010).
8. Assumed some workers will carpool, therefore estimated 1.25 workers per vehicle.
9. Load Factors for each off-road construction equipment are from SCAQMD CEQA Handbook Table A9-8-D.
10. Assume the average on-site and off-site speed are 10 and 50 mph, respectively.
11. Max daily distance per vehicle is from assumptions.
12. Assume the water truck, dump truck, concrete truck, pick-up truck and worker vehicles travel 4, 8, 4, 4, and 1 miles on site per day, respectively.

Week 1 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)								
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
Off-road Equipment												
Wheeled Loader	0			-	-	-	-	-	-	-	-	-
Scrapers	0			-	-	-	-	-	-	-	-	-
Forklift	1			0.01	0.01	3.38	0.01	0.53	-	74.96	0.11	-
Welding Machine	0			-	-	-	-	-	-	-	-	-
HDPE fusion machine	0			-	-	-	-	-	-	-	-	-
Excavator	1			0.35	0.32	3.06	0.96	9.57	0.01	1,083.56	0.09	-
Compactor	0			-	-	-	-	-	-	-	-	-
Misc. small power tools	0			-	-	-	-	-	-	-	-	-
Temporary Field construction trailer	1			0.34	0.32	3.55	0.75	6.38	0.01	638.52	0.07	-
On-road Vehicles or Vehicles with On-road Engines for Emissions Estimates												
Water Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Dump Truck	6	8.0	48.0	0.21	0.19	1.46	0.78	2.94	0.00	334.67	0.00	0.00
Concrete Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	2	4.0	8.0	0.00	0.00	0.04	0.01	0.10	0.00	9.17	0.00	0.00
Worker Vehicles	11	1.0	11.0	0.00	0.00	0.17	0.01	0.01	0.00	21.00	0.00	0.00
Daily Emissions Total (lb/day)				0.91	0.83	11.66	2.53	19.53	0.02	2,161.89	0.27	0.00

Week 2 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)								
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
Off-road Equipment												
Wheeled Loader	0			-	-	-	-	-	-	-	-	-
Scrapers	0			-	-	-	-	-	-	-	-	-
Forklift	1			0.01	0.01	3.38	0.01	0.53	-	74.96	0.11	-
Welding Machine	0			-	-	-	-	-	-	-	-	-
HDPE fusion machine	0			-	-	-	-	-	-	-	-	-
Excavator	1			0.35	0.32	3.06	0.96	9.57	0.01	1,083.56	0.09	-
Compactor	0			-	-	-	-	-	-	-	-	-
Misc. small power tools	0			-	-	-	-	-	-	-	-	-
Temporary Field construction trailer	1			0.34	0.32	3.55	0.75	6.38	0.01	638.52	0.07	-
On-road Vehicles or Vehicles with On-road Engines for Emissions Estimates												
Water Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Dump Truck	6	8.0	48	0.21	0.19	1.46	0.78	2.94	0.00	334.67	0.00	0.00
Concrete Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	2	4.0	8	0.00	0.00	0.04	0.01	0.10	0.00	9.17	0.00	0.00
Worker Vehicles	11	1.0	11	0.00	0.00	0.17	0.01	0.01	0.00	21.00	0.00	0.00
Daily Emissions Total (lb/day)				0.91	0.83	11.66	2.53	19.53	0.02	2,161.89	0.27	0.00

Week 3 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)								
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
Off-road Equipment												
Wheeled Loader	1			0.37	0.34	3.55	0.98	9.94	0.01	1,022.96	0.09	-
Scrapers	3			2.31	2.13	26.17	6.03	57.14	0.05	5,086.86	0.54	-
Forklift	1			0.01	0.01	3.38	0.01	0.53	-	74.96	0.11	-
Welding Machine	0			-	-	-	-	-	-	-	-	-
HDPE fusion machine	0			-	-	-	-	-	-	-	-	-
Excavator	0			-	-	-	-	-	-	-	-	-
Compactor	0			-	-	-	-	-	-	-	-	-
Misc. small power tools	0			-	-	-	-	-	-	-	-	-
Temporary Field construction trailer	1			0.34	0.32	3.55	0.75	6.38	0.01	638.52	0.07	-
On-road Vehicle or Vehicles with On-road Engines for Emissions Estimates												
Water Truck	1	4.0	4	0.02	0.02	0.12	0.07	0.24	0.00	27.89	0.00	0.00
Dump Truck	6	8.0	48	0.21	0.19	1.46	0.78	2.94	0.00	334.67	0.00	0.00
Concrete Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	2	4.0	8	0.00	0.00	0.04	0.01	0.10	0.00	9.17	0.00	0.00
Worker Vehicles	11	1.0	11	0.00	0.00	0.17	0.01	0.01	0.00	21.00	0.00	0.00
Daily Emissions Total (lb/day)				3.27	3.00	38.44	8.65	77.28	0.07	7,216.04	0.82	0.00

Week 4 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)								
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
Off-road Equipment												
Wheeled Loader	1			0.37	0.34	3.55	0.98	9.94	0.01	1,022.96	0.09	-
Scrapers	3			2.31	2.13	26.17	6.03	57.14	0.05	5,086.86	0.54	-
Forklift	1			0.01	0.01	3.38	0.01	0.53	-	74.96	0.11	-
Welding Machine	0			-	-	-	-	-	-	-	-	-
HDPE fusion machine	0			-	-	-	-	-	-	-	-	-
Excavator	1			0.35	0.32	3.06	0.96	9.57	0.01	1,083.56	0.09	-
Compactor	4			1.23	1.14	7.76	2.35	14.31	0.01	1,084.42	0.21	-
Misc. small power tools	2			0.04	0.04	0.74	0.14	0.89	0.00	121.18	0.01	-
Temporary Field construction trailer	1			0.34	0.32	3.55	0.75	6.38	0.01	638.52	0.07	-
On-road Vehicle or Vehicles with On-road Engines for Emissions Estimates												
Water Truck	1	4.0	4	0.02	0.02	0.12	0.07	0.24	0.00	27.89	0.00	0.00
Dump Truck	6	8.0	48	0.21	0.19	1.46	0.78	2.94	0.00	334.67	0.00	0.00
Concrete Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	2	4.0	8	0.00	0.00	0.04	0.01	0.10	0.00	9.17	0.00	0.00
Worker Vehicles	16	1.0	16	0.00	0.00	0.25	0.02	0.01	0.00	30.55	0.00	0.00
Daily Emissions Total (lb/day)				4.89	4.50	50.08	12.11	102.05	0.10	9,514.74	1.13	0.00

Week 5 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)								
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
Off-road Equipment												
Wheeled Loader	1			0.37	0.34	3.55	0.98	9.94	0.01	1,022.96	0.09	-
Scrapers	3			2.31	2.13	26.17	6.03	57.14	0.05	5,086.86	0.54	-
Forklift	1			0.01	0.01	3.38	0.01	0.53	-	74.96	0.11	-
Welding Machine	0			-	-	-	-	-	-	-	-	-
HDPE fusion machine	0			-	-	-	-	-	-	-	-	-
Excavator	1			0.35	0.32	3.06	0.96	9.57	0.01	1,083.56	0.09	-
Compactor	4			1.23	1.14	7.76	2.35	14.31	0.01	1,084.42	0.21	-
Misc. small power tools	2			0.04	0.04	0.74	0.14	0.89	0.00	121.18	0.01	-
Temporary Field construction trailer	1			0.34	0.32	3.55	0.75	6.38	0.01	638.52	0.07	-
On-road Vehicles or Vehicles with On-road Engines for Emissions Estimates												
Water Truck	1	4.0	4	0.02	0.02	0.12	0.07	0.24	0.00	27.89	0.00	0.00
Dump Truck	6	8.0	48	0.21	0.19	1.46	0.78	2.94	0.00	334.67	0.00	0.00
Concrete Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	2	4.0	8	0.00	0.00	0.04	0.01	0.10	0.00	9.17	0.00	0.00
Worker Vehicles	16	1.0	16	0.00	0.00	0.25	0.02	0.01	0.00	30.55	0.00	0.00
Daily Emissions Total (lb/day)				4.89	4.50	50.08	12.11	102.05	0.10	9,514.74	1.13	0.00

Week 6 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)								
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
Off-road Equipment												
Wheeled Loader	1			0.37	0.34	3.55	0.98	9.94	0.01	1,022.96	0.09	-
Scrapers	3			2.31	2.13	26.17	6.03	57.14	0.05	5,086.86	0.54	-
Forklift	1			0.01	0.01	3.38	0.01	0.53	-	74.96	0.11	-
Welding Machine	1			0.11	0.10	1.10	0.45	0.99	0.00	93.37	0.04	-
HDPE fusion machine	1			0.11	0.10	1.10	0.45	0.99	0.00	93.37	0.04	-
Excavator	1			0.35	0.32	3.06	0.96	9.57	0.01	1,083.56	0.09	-
Compactor	4			1.23	1.14	7.76	2.35	14.31	0.01	1,084.42	0.21	-
Misc. small power tools	4			0.09	0.08	1.48	0.28	1.77	0.00	242.36	0.03	-
Temporary Field construction trailer	1			0.34	0.32	3.55	0.75	6.38	0.01	638.52	0.07	-
On-road Vehicles or Vehicles with On-road Engines for Emissions Estimates												
Water Truck	1	4.0	4	0.02	0.02	0.12	0.07	0.24	0.00	27.89	0.00	0.00
Dump Truck	6	8.0	48	0.21	0.19	1.46	0.78	2.94	0.00	334.67	0.00	0.00
Concrete Truck	10	4.0	40	0.17	0.15	1.22	0.65	2.45	0.00	278.89	0.00	0.00
Pick-up trucks	3	4.0	12	0.00	0.00	0.06	0.01	0.15	0.00	13.76	0.00	0.00
Worker Vehicles	20	1.0	20	0.00	0.00	0.31	0.02	0.02	0.00	38.19	0.00	0.00
Daily Emissions Total (lb/day)				5.32	4.89	54.31	13.82	107.41	0.10	10,113.77	1.22	0.00

Week 7 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)								
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
Off-road Equipment												
Wheeled Loader	1			0.37	0.34	3.55	0.98	9.94	0.01	1,022.96	0.09	-
Scrapers	3			2.31	2.13	26.17	6.03	57.14	0.05	5,086.86	0.54	-
Forklift	1			0.01	0.01	3.38	0.01	0.53	-	74.96	0.11	-
Welding Machine	1			0.11	0.10	1.10	0.45	0.99	0.00	93.37	0.04	-
HDPE fusion machine	1			0.11	0.10	1.10	0.45	0.99	0.00	93.37	0.04	-
Excavator	1			0.35	0.32	3.06	0.96	9.57	0.01	1,083.56	0.09	-
Compactor	4			1.23	1.14	7.76	2.35	14.31	0.01	1,084.42	0.21	-
Misc. small power tools	4			0.09	0.08	1.48	0.28	1.77	0.00	242.36	0.03	-
Temporary Field construction trailer	1			0.34	0.32	3.55	0.75	6.38	0.01	638.52	0.07	-
On-road Vehicles or Vehicles with On-road Engines for Emissions Estimates												
Water Truck	1	4.0	4	0.02	0.02	0.12	0.07	0.24	0.00	27.89	0.00	0.00
Dump Truck	6	8.0	48	0.21	0.19	1.46	0.78	2.94	0.00	334.67	0.00	0.00
Concrete Truck	10	4.0	40	0.17	0.15	1.22	0.65	2.45	0.00	278.89	0.00	0.00
Pick-up trucks	3	4.0	12	0.00	0.00	0.06	0.01	0.15	0.00	13.76	0.00	0.00
Worker Vehicles	20	1.0	20	0.00	0.00	0.31	0.02	0.02	0.00	38.19	0.00	0.00
Daily Emissions Total (lb/day)				5.32	4.89	54.31	13.82	107.41	0.10	10,113.77	1.22	0.00

Week 8 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)								
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
Off-road Equipment												
Wheeled Loader	0			-	-	-	-	-	-	-	-	-
Scrapers	0			-	-	-	-	-	-	-	-	-
Forklift	1			0.01	0.01	3.38	0.01	0.53	-	74.96	0.11	-
Welding Machine	1			0.11	0.10	1.10	0.45	0.99	0.00	93.37	0.04	-
HDPE fusion machine	1			0.11	0.10	1.10	0.45	0.99	0.00	93.37	0.04	-
Excavator	0			-	-	-	-	-	-	-	-	-
Compactor	0			-	-	-	-	-	-	-	-	-
Misc. small power tools	4			0.09	0.08	1.48	0.28	1.77	0.00	242.36	0.03	-
Temporary Field construction trailer	1			0.34	0.32	3.55	0.75	6.38	0.01	638.52	0.07	-
On-road Vehicles or Vehicles with On-road Engines for Emissions Estimates												
Water Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Dump Truck	0	8.0	-	-	-	-	-	-	-	-	-	-
Concrete Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	4	4.0	16	0.00	0.00	0.07	0.01	0.20	0.00	18.35	0.00	0.00
Worker Vehicles	10	1.0	10	0.00	0.00	0.16	0.01	0.01	0.00	19.09	0.00	0.00
Daily Emissions Total (lb/day)				0.66	0.60	10.83	1.98	10.87	0.01	1,180.01	0.29	0.00

Week 9 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)								
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
Off-Road Equipment												
Wheeled Loader	0			-	-	-	-	-	-	-	-	-
Scrapers	0			-	-	-	-	-	-	-	-	-
Forklift	1			0.01	0.01	3.38	0.01	0.53	-	74.96	0.11	-
Welding Machine	1			0.11	0.10	1.10	0.45	0.99	0.00	93.37	0.04	-
HDPE fusion machine	1			0.11	0.10	1.10	0.45	0.99	0.00	93.37	0.04	-
Excavator	0			-	-	-	-	-	-	-	-	-
Compactor	0			-	-	-	-	-	-	-	-	-
Misc. small power tools	4			0.09	0.08	1.48	0.28	1.77	0.00	242.36	0.03	-
Temporary Field construction trailer	1			0.34	0.32	3.55	0.75	6.38	0.01	638.52	0.07	-
On-Road Vehicle or Vehicles with On-Road Engines for Emissions Estimates												
Water Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Dump Truck	0	8.0	-	-	-	-	-	-	-	-	-	-
Concrete Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	4	4.0	16	0.00	0.00	0.07	0.01	0.20	0.00	18.35	0.00	0.00
Worker Vehicles	10	1.0	10	0.00	0.00	0.16	0.01	0.01	0.00	19.09	0.00	0.00
Daily Emissions Total (lb/day)				0.66	0.60	10.83	1.98	10.87	0.01	1,180.01	0.29	0.00

Week 10 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)								
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
Off-Road Equipment												
Wheeled Loader	0			-	-	-	-	-	-	-	-	-
Scrapers	0			-	-	-	-	-	-	-	-	-
Forklift	1			0.01	0.01	3.38	0.01	0.53	-	74.96	0.11	-
Welding Machine	1			0.11	0.10	1.10	0.45	0.99	0.00	93.37	0.04	-
HDPE fusion machine	1			0.11	0.10	1.10	0.45	0.99	0.00	93.37	0.04	-
Excavator	0			-	-	-	-	-	-	-	-	-
Compactor	0			-	-	-	-	-	-	-	-	-
Misc. small power tools	4			0.09	0.08	1.48	0.28	1.77	0.00	242.36	0.03	-
Temporary Field construction trailer	1			0.34	0.32	3.55	0.75	6.38	0.01	638.52	0.07	-
On-Road Vehicle or Vehicles with On-Road Engines for Emissions Estimates												
Water Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Dump Truck	0	8.0	-	-	-	-	-	-	-	-	-	-
Concrete Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	4	4.0	16	0.00	0.00	0.07	0.01	0.20	0.00	18.35	0.00	0.00
Worker Vehicles	10	1.0	10	0.00	0.00	0.16	0.01	0.01	0.00	19.09	0.00	0.00
Daily Emissions Total (lb/day)				0.66	0.60	10.83	1.98	10.87	0.01	1,180.01	0.29	0.00

Week 11 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)								
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
Off-road Equipment												
Wheeled Loader	0			-	-	-	-	-	-	-	-	-
Scrapers	0			-	-	-	-	-	-	-	-	-
Forklift	1			0.01	0.01	3.38	0.01	0.53	-	74.96	0.11	-
Welding Machine	1			0.11	0.10	1.10	0.45	0.99	0.00	93.37	0.04	-
HDPE fusion machine	1			0.11	0.10	1.10	0.45	0.99	0.00	93.37	0.04	-
Excavator	0			-	-	-	-	-	-	-	-	-
Compactor	0			-	-	-	-	-	-	-	-	-
Misc. small power tools	4			0.09	0.08	1.48	0.28	1.77	0.00	242.36	0.03	-
Temporary Field construction trailer	1			0.34	0.32	3.55	0.75	6.38	0.01	638.52	0.07	-
On-road Vehicle or Vehicles with On-road Engines for Emissions Estimates												
Water Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Dump Truck	0	8.0	-	-	-	-	-	-	-	-	-	-
Concrete Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	4	4.0	16	0.00	0.00	0.07	0.01	0.20	0.00	18.35	0.00	0.00
Worker Vehicles	10	1.0	10	0.00	0.00	0.16	0.01	0.01	0.00	19.09	0.00	0.00
Daily Emissions Total (lb/day)				0.66	0.60	10.83	1.98	10.87	0.01	1,180.01	0.29	0.00

Week 12 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)								
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
Off-road Equipment												
Wheeled Loader	0			-	-	-	-	-	-	-	-	-
Scrapers	0			-	-	-	-	-	-	-	-	-
Forklift	0			-	-	-	-	-	-	-	-	-
Welding Machine	0			-	-	-	-	-	-	-	-	-
HDPE fusion machine	0			-	-	-	-	-	-	-	-	-
Excavator	0			-	-	-	-	-	-	-	-	-
Compactor	0			-	-	-	-	-	-	-	-	-
Misc. small power tools	0			-	-	-	-	-	-	-	-	-
Temporary Field construction trailer	0			-	-	-	-	-	-	-	-	-
On-road Vehicle or Vehicles with On-road Engines for Emissions Estimates												
Water Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Dump Truck	0	8.0	-	-	-	-	-	-	-	-	-	-
Concrete Truck	0	4.0	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	3	4.0	12	0.00	0.00	0.06	0.01	0.15	0.00	13.76	0.00	0.00
Worker Vehicles	5	1.0	5	0.00	0.00	0.08	0.01	0.00	0.00	9.55	0.00	0.00
Daily Emissions Total (lb/day)				0.00	0.00	0.13	0.02	0.15	0.00	23.31	0.00	0.00

Summary Table for Weekly Emissions (both "on-site and off-site" exhausted combined)

Weekly Emission Comparison	Weekly Emissions (lb/week)								
	PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
Week 1 Emissions	46.51	41.82	432.05	176.00	699.12	0.84	88,112.34	1.84	0.79
Week 2 Emissions	46.51	41.82	432.05	176.00	699.12	0.84	88,112.34	1.84	0.79
Week 3 Emissions	58.30	52.66	565.98	206.62	987.88	1.08	113,383.07	4.57	0.79
Week 4 Emissions	66.73	60.35	659.44	226.65	1,113.84	1.25	129,172.50	6.30	1.10
Week 5 Emissions	66.73	60.35	659.44	226.65	1,113.84	1.25	129,172.50	6.30	1.10
Week 6 Emissions	**103.49**	**93.43**	**954.41**	**368.28**	**1,636.45**	**1.85**	**191,841.82**	**7.01**	**1.44**
Week 7 Emissions	**103.49**	**93.43**	**954.41**	**368.28**	**1,636.45**	**1.85**	**191,841.82**	**7.01**	**1.44**
Week 8 Emissions	4.24	3.74	131.99	16.75	78.05	0.17	16,326.56	1.80	0.63
Week 9 Emissions	4.24	3.74	131.99	16.75	78.05	0.17	16,326.56	1.80	0.63
Week 10 Emissions	4.24	3.74	131.99	16.75	78.05	0.17	16,326.56	1.80	0.63
Week 11 Emissions	4.24	3.74	131.99	16.75	78.05	0.17	16,326.56	1.80	0.63
Week 12 Emissions	0.60	0.46	41.44	3.83	17.50	0.05	5,788.44	0.18	0.32

From the summary table above, week 6 (or 7) has the highest daily on-site and off-site combined emissions for all the pollutants. Therefore, max. daily and hourly emissions are based on week 6

Max. Hourly Emissions For On-site Combustion Exhaust Emissions (Maximum daily construction on-site exhausted emissions occurs in months 6 (or 7).)

Equipment	Max. Operating Hours / Day	Load Factor	Load Factor * Max. Operating Hours / Day	Hourly Emissions (lb/hour)								
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
On-road Equipment												
Wheeled Loader	8	54%	4.3	0.09	0.08	0.82	0.23	2.30	0.00	236.80	0.02	-
Scrapers	8	66%	5.3	0.44	0.40	4.96	1.14	10.82	0.01	963.42	0.10	-
Forklift	8	30%	2.4	0.00	0.00	1.41	0.01	0.22	-	31.23	0.05	-
Welding Machine	8	45%	3.6	0.03	0.03	0.30	0.13	0.27	0.00	25.93	0.01	-
HDPE fusion machine	8	45%	3.6	0.03	0.03	0.30	0.13	0.27	0.00	25.93	0.01	-
Excavator	8	58%	4.6	0.08	0.07	0.66	0.21	2.06	0.00	233.53	0.02	-
Compactor	8	58%	4.6	0.27	0.25	1.69	0.51	3.11	0.00	235.74	0.05	-
Misc. small power tools	8	75%	6.0	0.01	0.01	0.25	0.05	0.30	0.00	40.39	0.00	-
Temporary Field construction trailer	8	75%	6.0	0.06	0.05	0.59	0.13	1.06	0.00	106.42	0.01	-
Off-road Equipment (Vehicles with Onroad Engines for Emission Estimates)												
Water Truck	8	100%	8.0	0.00	0.00	0.02	0.01	0.03	0.00	3.49	0.00	0.00
Dump Truck	8	100%	8.0	0.03	0.02	0.18	0.10	0.37	0.00	41.83	0.00	0.00
Concrete Truck	8	100%	8.0	0.02	0.02	0.15	0.08	0.31	0.00	34.86	0.00	0.00
Pick-up trucks	8	100%	8.0	0.00	0.00	0.01	0.00	0.02	0.00	1.72	0.00	0.00
Worker Vehicles	8	100%	8.0	0.00	0.00	0.04	0.00	0.00	0.00	4.77	0.00	0.00
Hourly Emissions Total (lb/hour)				**1.05**	**0.97**	**11.38**	**2.71**	**21.15**	**0.02**	**1,986.08**	**0.27**	**0.00**

Yearly Emissions For On-site Combustion Exhaust Emissions

Equipment		Annual Emissions (ton/year)								
		PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20
On-road Equipment										
Wheeled Loader		0.00468	0.00431	0.04443	0.01229	0.12431	0.00013	12.78696	0.00111	-
Scrapers		0.02893	0.02662	0.32714	0.07543	0.71420	0.00062	63.58573	0.00681	-
Forklift		0.00018	0.00017	0.09289	0.00037	0.01458	-	2.06150	0.00313	-
Welding Machine		0.00158	0.00146	0.01644	0.00682	0.01482	0.00002	1.40048	0.00062	-
HDPE fusion machine		0.00158	0.00146	0.01644	0.00682	0.01482	0.00002	1.40048	0.00062	-
Excavator		0.00525	0.00483	0.04593	0.01441	0.14361	0.00016	16.25337	0.00130	-
Compactor		0.01234	0.01136	0.07760	0.02350	0.14306	0.00013	10.84419	0.00212	-
Misc. small power tools		0.00156	0.00144	0.02590	0.00485	0.03103	0.00007	4.24127	0.00045	-
Temporary Field construction trailer		0.00943	0.00868	0.09750	0.02069	0.17549	0.00020	17.55933	0.00187	-
Off-road Equipment (Vehicles with Onroad Engines for Emission Estimates)										
Water Truck		0.00021	0.00019	0.00152	0.00082	0.00306	0.00000	0.34862	0.00000	0.00000
Dump Truck		0.00360	0.00324	0.02560	0.01371	0.05137	0.00006	5.85677	0.00001	0.00001
Concrete Truck		0.00086	0.00077	0.00609	0.00326	0.01223	0.00001	1.39447	0.00000	0.00000
Pick-up trucks		0.00009	0.00007	0.00161	0.00029	0.00427	0.00000	0.40133	0.00000	0.00000
Worker Vehicles		0.00005	0.00003	0.00588	0.00046	0.00035	0.00001	0.71599	0.00003	0.00005
Annual Emissions Total (ton/year)		**0.07036**	**0.06462**	**0.78496**	**0.18382**	**1.44720**	**0.00142**	**138.85048**	**0.01805**	**0.00006**

Wastewater Surface Impoundments Construction -Fugitive Dust Emissions
ONSITE (week 6 (or 7) is selected here for the peak week)

Travel on unpaved surfaces

$E = k * (s/12)^a * (W/3)^b * [(365 - P)/365]$ EPA AP-42 Section 13.2.2 Unpaved Roads Equations 1a and 2

E = size-specific emission factor (lb/VMT)

k, a, b = empirical constants

8.5 s = surface material silt content (%) Construction sites - Scraper routes

W = mean vehicle weight (tons)

constants

	$PM_{2.5}$	PM_{10}	Industrial Roads
k	0.15	1.5	
a	0.9	0.9	
b	0.45	0.45	

98 P = Mean number of days per with at least 0.01 inches of precipitation (from Panoche Junction COOP weather station Western Regional Climate Center))

Vehicle Type	Number of Vehicles per day (week 6)	Max Daily Distance per Vehicle (mile/day)	Assumed distance percentage to drive on unpaved roads	Max Daily Distance per Vehicle to drive on unpaved roads (mile/day)	Max Daily VMT (all vehicles)	Mean Vehicle Weight (tons)	Max. Operating Hours / Day	Number of Vehicles per year (week 1-12)	Max Annual VMT (all vehicles)	$PM_{2.5}$ EF (lbs/VMT)	PM_{10} EF (lbs/VMT)
Off-road Equipment											
Wheeled Loader	1	0.0	100%	0.0	0.0	10.0	4.3	5	0	0.138	1.383
Scrapers	3	0.0	100%	0.0	0.0	15.0	5.3	15	0	0.166	1.660
Forklift	1	2.0	100%	2.0	2.0	5.0	2.4	11	110	0.101	1.012
Welding Machine	1	1.0	100%	1.0	1.0	1.0	3.6	6	30	0.049	0.491
HDPE fusion machine	1	1.0	100%	1.0	1.0	1.0	3.6	6	30	0.049	0.491
Excavator	1	0.0	100%	0.0	0.0	10.0	4.6	6	0	0.138	1.383
Compactor	4	0.0	100%	0.0	0.0	10.0	4.6	16	0	0.138	1.383
Misc. small power tools	4	1.0	100%	1.0	4.0	1.0	6.0	28	140	0.049	0.491
Temporary Field construction trailer	1	1.0	100%	1.0	1.0	5.0	6.0	11	55	0.101	1.012
On-road Vehicles or Vehicles with Onroad Engines for Emissions Estimates											
Water Truck	1	4.0	100%	4.0	4.0	20.0	8.0	5	100	0.189	1.889
Dump Truck	6	8.0	100%	8.0	48.0	20.0	8.0	42	1680	0.189	1.889
Concrete Truck	10	4.0	100%	4.0	40.0	7.5	8.0	20	400	0.122	1.215
Pick-up trucks	3	4.0	100%	4.0	12.0	4.5	8.0	35	700	0.097	0.966
Worker Vehicles	20	1.0	100%	1.0	20.0	2.0	8.0	150	750	0.067	0.670

Vehicle Type	Watering Control Efficiency		PM_{10} Emissions (lb/hr)		PM_{10} Emissions (lb/day)		% of daily emissions	PM_{10} Emissions (tons/year)		$PM_{2.5}$ Emissions (lb/hr)		$PM_{2.5}$ Emissions (lb/day)		$PM_{2.5}$ Emissions (tons/year)	
	Unmitigated	Mitigated	Unmitigated	Mitigated	Unmitigated	Mitigated		Unmitigated	Mitigated	Unmitigated	Mitigated	Unmitigated	Mitigated	Unmitigated	Mitigated
Off-road Equipment															
Wheeled Loader	0%	68%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0%	68%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift	0%	68%	0.84	0.27	2.02	0.65	1.14%	0.06	0.02	0.08	0.03	0.20	0.06	0.01	0.00
Welding Machine	0%	68%	0.14	0.04	0.49	0.16	0.28%	0.01	0.00	0.01	0.00	0.05	0.02	0.00	0.00
HDPE fusion machine	0%	68%	0.14	0.04	0.49	0.16	0.28%	0.01	0.00	0.01	0.00	0.05	0.02	0.00	0.00
Excavator	0%	68%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compactor	0%	68%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Misc. small power tools	0%	68%	0.33	0.10	1.96	0.63	1.10%	0.03	0.01	0.03	0.01	0.20	0.06	0.00	0.00
Temporary Field construction trailer	0%	68%	0.17	0.05	1.01	0.32	0.57%	0.03	0.01	0.02	0.01	0.10	0.03	0.00	0.00
On-road Vehicles or Vehicles with Onroad Engines for Emissions Estimates															
Water Truck	0%	68%	0.94	0.30	7.56	2.42	4.25%	0.09	0.03	0.09	0.03	0.76	0.24	0.01	0.00
Dump Truck	0%	68%	11.34	3.63	90.68	29.02	51.00%	1.59	0.51	1.13	0.36	9.07	2.90	0.16	0.05
Concrete Truck	0%	68%	6.08	1.94	48.60	15.55	27.33%	0.24	0.08	0.61	0.19	4.86	1.56	0.02	0.01
Pick-up trucks	0%	68%	1.45	0.46	11.59	3.71	6.52%	0.34	0.11	0.14	0.05	1.16	0.37	0.03	0.01
Worker Vehicles	0%	68%	1.68	0.54	13.41	4.29	7.54%	0.25	0.08	0.17	0.05	1.34	0.43	0.03	0.01
TOTAL Fugitive emissions for vehicles traveled on unpaved surfaces			**23.09**	**7.39**	**177.82**	**56.90**		**2.65**	**0.85**	**2.31**	**0.74**	**17.78**	**5.69**	**0.26**	**0.08**

Notes:
1. The distances traveled on-site were estimated from plot plan.
2. Water efficiency from CEQA Table 11-4 maximum value for watering active sites 2 times daily

Grading — EPA AP-42 Section 11.9

$E = p * 0.051 * S^{2.0}$ — PM10 Emissions from grading (lb/VMT) — Table 11.9-1 EMISSION FACTOR EQUATIONS FOR UNCONTROLLED OPEN DUST SOURCES AT WESTERN SURFACE COAL MINES (Overburden)

0.6 p = particle size multiplier for PM10
7.1 S = mean vehicle speed (mph) (from Table 11.9-3 for grader)
1.54 lb/VMT of PM10

$E = p * 0.040 * S^{2.5}$ — PM2.5 Emissions from grading (lb/VMT) — Table 11.9-1 EMISSION FACTOR EQUATIONS FOR UNCONTROLLED OPEN DUST SOURCES AT WESTERN SURFACE COAL MINES (Overburden)

0.031 p = particle size multiplier for PM2.5
7.1 S = mean vehicle speed (mph) (from Table 11.9-3 for grader)
0.17 lb/VMT of PM2.5

Equipment	Quantity/ day (week 6)	Hours/ Day	VMT/day/ vehicle	Watering Control Efficiency	PM10 Emissions (lb/day)	PM2.5 Emissions (lb/day)	Number of Vehicles per year (week 1-12)	VMT/year/ vehicle	PM10 Emissions (ton/yr)	PM2.5 Emissions (ton/yr)
Scrapers	3	5	2	68%	2.96	0.32	15	150	0.037	0.004
Compactor	4	5	2	68%	3.95	0.43	16	160	0.039	0.004
				Grading Total	6.91	0.75			0.08	0.01

Notes: Water efficiency from CEQA Table 11-4 maximum value for watering active sites 2 times daily

Dirt Piling or Material Handling — PM10 Emissions from Material Handling (lb/ton) from EPA AP-42 Chapter 13.2.4 Eq. 1

$E = k * 0.0032 * (U/5)^{1.3} / (M/2)^{1.4}$

E = Emission factor (lb/ton material handled)
6 U = Mean Wind speed (mph) from Fresno metr station
12 M = Moisture content of surface material (%) (from Table 13.2.4-1 for cover at landfill, closest surface material available)

	$PM_{2.5}$	PM_{10}
k	0.053	0.35

0.00003 lb/ton of PM2.5
0.00017 lb/ton of PM10

Equipment	Quantity/ day (week 6)	Hours/ Day	Material Handled per Day (ton/day)	Watering Control Efficiency	PM10 Emissions (lb/day)	PM2.5 Emissions (lb/day)	Number of Vehicles per year (week 1-12)	Material Handled per year (ton)	PM10 Emissions (ton/yr)	PM2.5 Emissions (ton/yr)
Wheeled Loader	1	4	927	68%	0.0491	0.0074	5	25,501	0.0007	0.0001
Excavator	1	5	927	68%	0.0491	0.0074	6	25,501	0.0007	0.0001
Dump Truck	6	8	660	68%	0.0349	0.0053	42	23,111	0.0006	0.0001
				Total	0.13	0.02			0.0020	0.0003

Notes:
1. Water efficiency from CEQA Table 11-4 maximum value for watering active sites 2 times daily
2. Assume 50% soil movement from loaders and 50% from excavator
3. The calculation for the amount of material handled and the dump truck are listed as follows:

Assume each dump truck carries = 25 yd3, = 28.75 tons

32,150 cubic yards cut
12,200 cubic yards filled from cut
44,350 cubic yds of soil will be cut and filled
146.2 cubic yards of temporary warehouse foundation removal
20,096.2 cubic yards taken offsite, therefore it is about 804 total offsite dump truck loads 4 round trips/day for dump trucks
2300 density of soil (lb/yd3) (USDA NRCS Physical Soil Properties from Fresno County Western Part for Panoche Clay Loam soil)
35 day construction schedule for entire civil work

Material handled aoumt for loader & excavator = 44,350 yd3/project = 51,003 tons/project
1267 yd3/day (average) = 1457 ton/day (average)
1613 yd3/day (in peak week) = 1855 ton/day (in peak week)

Material handled aoumt for dump truck = 20,096 yd3/project = 23,111 tons/project
574 yd3/day (in peak week) = 660 ton/day (in peak week)

Cover Storage Pile

$E = 1.7 * G/1.5 * (365-H)/235 * I/15 * J$ — SCAQMD Table A9-9-E

PM10 Emission factor from wind erosion of storage piles per day per acre

15 G = Silt content (%) (from CEQA Table A9-9-E-1 for blended dirt)
98 H = Number of days with >= 0.01 inches of precipitation per year (from Panoche Junction COOP weather station WRCC)
8 I = Percentage of time that the unobstructed wind speed exceeds 12 mph at mean pile height
0.5 J = Fraction of TSP that is PM10 = 0.5
5.151 lb/acre/day

wind speed percentage based on 1984-92 (9 yrs) of wind speed data (actual hours > 10 knots) as recorded at Fresno Air Terminal data from EPA SCRAM website

Source	Quantity	Size of Pile (acre)	Hours/Day	Days/Year per Pile	Watering Control Efficiency	PM10 Emissions (lb/day)	PM2.5 Emissions (lb/day)	PM10 Emissions (tons/yr)	PM2.5 Emissions (tons/yr)
Cover Storage Pile	1	1	24	49	68%	1.65	0.37	0.04	0.01

Notes:
1. Water efficiency from CEQA Table 11-4 maximum value for watering active sites 2 times daily
2. pile size assumed
3. piles present only for 7 months (civil work).

Wastewater Surface Impoundments Exhaust Emissions (off-site)

Emission Factors For Combustion Exhaust Emissions

Equipment	Horse-power	Vehicle Weight (lbs)	Fuel	Emission Factors (unit: lb/hr for off-road equipment and g/mile for on-road vehicle)									
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Off-road Equipment:													
Wheeled Loader	500		Diesel										
Scrapers	500		Diesel										
Forklift	120		Diesel										
Welding Machine	50		Diesel										
HDPE fusion machine	50		Diesel										
Excavator	500		Diesel										
Compactor	120		Diesel										
Misc. small power tools	15		Diesel										
Temporary Field construction trailer	175		Diesel										
On-road Vehicle or vehicles with on-road engine for Fresno one trip/day:													
Water Truck	-	40,000	Diesel										
Dump Truck	-	40,000	Diesel	1.95	1.75	13.83	7.41	27.77	0.03	3,165.45	0.01	0.00	3,167.04
Concrete Truck	-	15,000	Diesel	1.95	1.75	13.83	7.41	27.77	0.03	3,165.45	0.01	0.00	3,167.04
Pick-up trucks	-	9,000	Diesel	0.11	0.09	2.09	0.38	5.54	0.01	520.59	0.00	0.00	521.07
Worker Vehicles	-	4,000	Gasoline	0.06	0.04	7.11	0.55	0.42	0.01	866.82	0.03	0.06	886.80

Notes:

1. Equipment list, quantity from the applicant.
2. Horsepower and vehicle weight are estimated; hours of operation are estimated from construction schedule.
3. Off-road equipment emission factors from CARB Off-road Mobile Source Emission Factors (2009 data used).
4. On-road vehicle emission factors from Emfac2007
5. $PM_{2.5}$ emission factors from updated CEIDARS List with $PM_{2.5}$ fractions.
6. Assume the construction schedule = 8 hours per day and 5 days per week.
7. Assume construction begins in 2009 (more conservative than 2010).
8. Assumed some workers will carpool, therefore estimated 1.25 workers per vehicle.
9. Load Factors for each off-road construction equipment are from SCAQMD CEQA Handbook Table A9-8-D.
10. Assume the average on-site and off-site speed are 10 and 50 mph, respectively.
11. Assume worker vehicles come from Fresno (45 miles one trip) and travel a round trip per day
12. Assume the dump truck, concrete truck, and pick-up truck all travel 40 miles for one way trip.
13. Assume the pick-up truck travel one round-trip per day and concrete truck travel two round trip per day. The numbers of trips for dump trucks were calculated.
14. Assume the water truck will get the water on site therefore it will not travel off-site.

Week 1 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)									
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Off-road Equipment													
Wheeled Loader	0												
Scrapers	0												
Forklift	1												
Welding Machine	0												
HDPE fusion machine	0												
Excavator	1												
Compactor	0												
Misc. small power tools	0												
Temporary Field construction trailer	1												
On-road Vehicles or Vehicles with On-road Engines for Emissions Estimates													
Water Truck	0												
Dump Truck	6	320.0	1,920.0	8.23	7.41	58.51	31.33	117.42	0.13	13,386.91	0.02	0.02	13,393.65
Concrete Truck	0	160.0	-	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	2	80.0	160.0	0.04	0.03	0.74	0.13	1.95	0.00	183.47	0.00	0.00	183.64
Worker Vehicles	11	90.0	990.0	0.12	0.09	15.51	1.21	0.92	0.02	1,890.20	0.08	0.14	1,933.77
Daily Emissions Total (lb/day)				8.39	7.53	74.75	32.67	120.30	0.15	15,460.58	0.10	0.16	15,511.06

Week 2 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)									
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Off-road Equipment													
Wheeled Loader	0												
Scrapers	0												
Forklift	1												
Welding Machine	0												
HDPE fusion machine	0												
Excavator	1												
Compactor	0												
Misc. small power tools	0												
Temporary Field construction trailer	1												
On-road Vehicles or Vehicles with On-road Engines for Emissions Estimates													
Water Truck	0												
Dump Truck	6	320.0	1,920	8.23	7.41	58.51	31.33	117.42	0.13	13,386.91	0.02	0.02	13,393.65
Concrete Truck	0	160.0	-	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	2	80.0	160	0.04	0.03	0.74	0.13	1.95	0.00	183.47	0.00	0.00	183.64
Worker Vehicles	11	90.0	990	0.12	0.09	15.51	1.21	0.92	0.02	1,890.20	0.08	0.14	1,933.77
Daily Emissions Total (lb/day)				8.39	7.53	74.75	32.67	120.30	0.15	15,460.58	0.10	0.16	15,511.06

Week 3 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)									
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Offroad Equipment													
Wheeled Loader	1												
Scrapers	3												
Forklift	1												
Welding Machine	0												
HDPE fusion machine	0												
Excavator	0												
Compactor	0												
Misc. small power tools	0												
Temporary Field construction trailer	1												
Onroad Vehicle or Vehicles with Onroad Engines for Emissions Estimates													
Water Truck	1												
Dump Truck	6	320.0	1,920	8.23	7.41	58.51	31.33	117.42	0.13	13,386.91	0.02	0.02	13,393.65
Concrete Truck	0	160.0	-	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	2	80.0	160	0.04	0.03	0.74	0.13	1.95	0.00	183.47	0.00	0.00	183.64
Worker Vehicles	11	90.0	990	0.12	0.09	15.51	1.21	0.92	0.02	1,890.20	0.08	0.14	1,933.77
Daily Emissions Total (lb/day)				8.39	7.53	74.75	32.67	120.30	0.15	15,460.58	0.10	0.16	15,511.06

Week 4 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)									
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Offroad Equipment													
Wheeled Loader	1												
Scrapers	3												
Forklift	1												
Welding Machine	0												
HDPE fusion machine	0												
Excavator	1												
Compactor	4												
Misc. small power tools	2												
Temporary Field construction trailer	1												
Onroad Vehicle or Vehicles with Onroad Engines for Emissions Estimates													
Water Truck	1												
Dump Truck	6	320.0	1,920	8.23	7.41	58.51	31.33	117.42	0.13	13,386.91	0.02	0.02	13,393.65
Concrete Truck	0	160.0	-	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	2	80.0	160	0.04	0.03	0.74	0.13	1.95	0.00	183.47	0.00	0.00	183.64
Worker Vehicles	16	90.0	1,440	0.18	0.13	22.56	1.76	1.34	0.03	2,749.39	0.11	0.20	2,812.75
Daily Emissions Total (lb/day)				8.45	7.57	81.80	33.22	120.72	0.15	16,319.76	0.13	0.22	16,390.04

Week 5 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)									
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Off-road Equipment													
Wheeled Loader	1												
Scrapers	3												
Forklift	1												
Welding Machine	0												
HDPE fusion machine	0												
Excavator	1												
Compactor	4												
Misc. small power tools	2												
Temporary Field construction trailer	1												
On-road Vehicle or Vehicles with Onboard Engines for Emissions Estimates													
Water Truck	1												
Dump Truck	6	320.0	1,920	8.23	7.41	58.51	31.33	117.42	0.13	13,386.91	0.02	0.02	13,393.65
Concrete Truck	0	160.0	-	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	2	80.0	160	0.04	0.03	0.74	0.13	1.95	0.00	183.47	0.00	0.00	183.64
Worker Vehicles	16	90.0	1,440	0.18	0.13	22.56	1.76	1.34	0.03	2,749.39	0.11	0.20	2,812.75
Daily Emissions Total (lb/day)				8.45	7.57	81.80	33.22	120.72	0.15	16,319.76	0.13	0.22	16,390.04

Week 6 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)									
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Off-road Equipment													
Wheeled Loader	1												
Scrapers	3												
Forklift	1												
Welding Machine	1												
HDPE fusion machine	1												
Excavator	1												
Compactor	4												
Misc. small power tools	4												
Temporary Field construction trailer	1												
On-road Vehicle or Vehicles with Onboard Engines for Emissions Estimates													
Water Truck	1												
Dump Truck	6	320.0	1,920	8.23	7.41	58.51	31.33	117.42	0.13	13,386.91	0.02	0.02	13,393.65
Concrete Truck	10	160.0	1,600	6.86	6.18	48.75	26.11	97.85	0.11	11,155.76	0.02	0.02	11,161.38
Pick-up trucks	3	80.0	240	0.06	0.05	1.10	0.20	2.93	0.00	275.20	0.00	0.00	275.46
Worker Vehicles	20	90.0	1,800	0.23	0.16	28.21	2.20	1.68	0.03	3,436.73	0.14	0.25	3,515.94
Daily Emissions Total (lb/day)				15.37	13.80	136.57	59.83	219.88	0.27	28,254.60	0.18	0.28	28,346.43

Week 7 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)									
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Off-road Equipment													
Wheeled Loader	1												
Scrapers	3												
Forklift	1												
Welding Machine	1												
HDPE fusion machine	1												
Excavator	1												
Compactor	4												
Misc. small power tools	4												
Temporary Field construction trailer	1												
On-road Vehicle or Vehicles with Onroad Engines for Emissions Estimates													
Water Truck	1												
Dump Truck	6	320.0	1,920	8.23	7.41	58.51	31.33	117.42	0.13	13,386.91	0.02	0.02	13,393.65
Concrete Truck	10	160.0	1,600	6.86	6.18	48.75	26.11	97.85	0.11	11,155.76	0.02	0.02	11,161.38
Pick-up trucks	3	80.0	240	0.06	0.05	1.10	0.20	2.93	0.00	275.20	0.00	0.00	275.46
Worker Vehicles	20	90.0	1,800	0.23	0.16	28.21	2.20	1.68	0.03	3,436.73	0.14	0.25	3,515.94
Daily Emissions Total (lb/day)				15.37	13.80	136.57	59.83	219.88	0.27	28,254.60	0.18	0.28	28,346.43

Week 8 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)									
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Off-road Equipment													
Wheeled Loader	0												
Scrapers	0												
Forklift	1												
Welding Machine	1												
HDPE fusion machine	1												
Excavator	0												
Compactor	0												
Misc. small power tools	4												
Temporary Field construction trailer	1												
On-road Vehicle or Vehicles with Onroad Engines for Emissions Estimates													
Water Truck	0												
Dump Truck	0	320.0	-	-	-	-	-	-	-	-	-	-	-
Concrete Truck	0	160.0	-	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	4	80.0	320	0.08	0.06	1.47	0.27	3.91	0.00	366.93	0.00	0.00	367.28
Worker Vehicles	10	90.0	900	0.11	0.08	14.10	1.10	0.84	0.02	1,718.37	0.07	0.12	1,757.97
Daily Emissions Total (lb/day)				0.19	0.14	15.57	1.37	4.74	0.02	2,085.30	0.07	0.12	2,125.24

Week 9 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)									
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Off-road Equipment													
Wheeled Loader	0												
Scrapers	0												
Forklift	1												
Welding Machine	1												
HDPE fusion machine	1												
Excavator	0												
Compactor	0												
Misc. small power tools	4												
Temporary Field construction trailer	1												
On-road Vehicle or Vehicles with On-road Engines for Emissions Estimates													
Water Truck	0												
Dump Truck	0	320.0	-	-	-	-	-	-	-	-	-	-	-
Concrete Truck	0	160.0	-	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	4	80.0	320	0.08	0.06	1.47	0.27	3.91	0.00	366.93	0.00	0.00	367.28
Worker Vehicles	10	90.0	900	0.11	0.08	14.10	1.10	0.84	0.02	1,718.37	0.07	0.12	1,757.97
Daily Emissions Total (lb/day)				0.19	0.14	15.57	1.37	4.74	0.02	2,085.30	0.07	0.12	2,125.24

Week 10 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)									
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Off-road Equipment													
Wheeled Loader	0												
Scrapers	0												
Forklift	1												
Welding Machine	1												
HDPE fusion machine	1												
Excavator	0												
Compactor	0												
Misc. small power tools	4												
Temporary Field construction trailer	1												
On-road Vehicle or Vehicles with On-road Engines for Emissions Estimates													
Water Truck	0												
Dump Truck	0	320.0	-	-	-	-	-	-	-	-	-	-	-
Concrete Truck	0	160.0	-	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	4	80.0	320	0.08	0.06	1.47	0.27	3.91	0.00	366.93	0.00	0.00	367.28
Worker Vehicles	10	90.0	900	0.11	0.08	14.10	1.10	0.84	0.02	1,718.37	0.07	0.12	1,757.97
Daily Emissions Total (lb/day)				0.19	0.14	15.57	1.37	4.74	0.02	2,085.30	0.07	0.12	2,125.24

Week 11 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)									
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Off-road Equipment													
Wheeled Loader	0												
Scrapers	0												
Forklift	1												
Welding Machine	1												
HDPE fusion machine	1												
Excavator	0												
Compactor	0												
Misc. small power tools	4												
Temporary Field construction trailer	1												
On-road Vehicle or Vehicles with On-road Engines for Emissions Estimates													
Water Truck	0												
Dump Truck	0	320.0	-	-	-	-	-	-	-	-	-	-	-
Concrete Truck	0	160.0	-	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	4	80.0	320	0.08	0.06	1.47	0.27	3.91	0.00	366.93	0.00	0.00	367.28
Worker Vehicles	10	90.0	900	0.11	0.08	14.10	1.10	0.84	0.02	1,718.37	0.07	0.12	1,757.97
Daily Emissions Total (lb/day)				0.19	0.14	15.57	1.37	4.74	0.02	2,085.30	0.07	0.12	2,125.24

Week 12 - Daily Emissions For Combustion Exhaust Emissions

Equipment	No. Of Units	Max Daily Distance per Vehicle (mile/day)	Max Daily VMT (all units)	Daily Emissions (lb/day)									
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Off-road Equipment													
Wheeled Loader	0												
Scrapers	0												
Forklift	0												
Welding Machine	0												
HDPE fusion machine	0												
Excavator	0												
Compactor	0												
Misc. small power tools	0												
Temporary Field construction trailer	0												
On-road Vehicle or Vehicles with On-road Engines for Emissions Estimates													
Water Truck	0												
Dump Truck	0	320.0	-	-	-	-	-	-	-	-	-	-	-
Concrete Truck	0	160.0	-	-	-	-	-	-	-	-	-	-	-
Pick-up trucks	3	80.0	240	0.06	0.05	1.10	0.20	2.93	0.00	275.20	0.00	0.00	275.46
Worker Vehicles	5	90.0	450	0.06	0.04	7.05	0.55	0.42	0.01	859.18	0.03	0.06	878.98
Daily Emissions Total (lb/day)				0.12	0.09	8.15	0.75	3.35	0.01	1,134.38	0.03	0.06	1,154.44

Summary Table for Weekly Emissions (off-site exhausted only)

Weekly Emission Comparison	Weekly Emissions (lb/week)									
	PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Week 1 Emissions	41.97	37.66	373.77	163.35	601.48	0.73	77,302.88	0.49	0.78	77,555.29
Week 2 Emissions	41.97	37.66	373.77	163.35	601.48	0.73	77,302.88	0.49	0.78	77,555.29
Week 3 Emissions	41.97	37.66	373.77	163.35	601.48	0.73	77,302.88	0.49	0.78	77,555.29
Week 4 Emissions	42.25	37.86	409.02	166.10	603.58	0.77	81,598.80	0.66	1.09	81,950.21
Week 5 Emissions	42.25	37.86	409.02	166.10	603.58	0.77	81,598.80	0.66	1.09	81,950.21
Week 6 Emissions	76.87	68.99	682.84	299.17	1,099.39	1.33	141,272.98	0.89	1.42	141,732.13
Week 7 Emissions	76.87	68.99	682.84	299.17	1,099.39	1.33	141,272.98	0.89	1.42	141,732.13
Week 8 Emissions	0.97	0.72	77.87	6.83	23.72	0.10	10,426.49	0.35	0.62	10,626.22
Week 9 Emissions	0.97	0.72	77.87	6.83	23.72	0.10	10,426.49	0.35	0.62	10,626.22
Week 10 Emissions	0.97	0.72	77.87	6.83	23.72	0.10	10,426.49	0.35	0.62	10,626.22
Week 11 Emissions	0.97	0.72	77.87	6.83	23.72	0.10	10,426.49	0.35	0.62	10,626.22
Week 12 Emissions	0.58	0.44	40.77	3.75	16.74	0.05	5,671.91	0.17	0.31	5,772.20

Max. Hourly Emissions For Off-site Combustion Exhaust Emissions (Maximum daily construction off-site exhausted emissions occurs in months 6 (or 7).)

Equipment	Max. Operating Hours / Day	Load Factor	Load Factor * Max. Operating Hours / Day	Hourly Emissions (lb/hour)									
				PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Off-road Equipment													
Wheeled Loader													
Scrapers													
Forklift													
Welding Machine													
HDPE fusion machine													
Excavator													
Compactor													
Misc. small power tools													
Temporary Field construction trailer													
On-road Vehicles or Vehicles with On-road Engines for Emissions Estimates													
Water Truck													
Dump Truck	6.40	100%	6.4	1.29	1.16	9.14	4.90	18.35	0.02	2091.70	0.00	0.00	2092.76
Concrete Truck	3.20	100%	3.2	2.14	1.93	15.24	8.16	30.58	0.03	3486.17	0.01	0.01	3487.93
Pick-up trucks	1.60	100%	1.6	0.04	0.03	0.69	0.13	1.83	0.00	172.00	0.00	0.00	172.16
Worker Vehicles	1.80	100%	1.8	0.13	0.09	15.67	1.22	0.93	0.02	1909.30	0.08	0.14	1953.30
Hourly Emissions Total (lb/hour)				**3.59**	**3.21**	**40.74**	**14.40**	**51.69**	**0.07**	**7,659.17**	**0.09**	**0.15**	**7,706.15**

Yearly Emissions For Off-site Combustion Exhaust Emissions

Equipment		Annual Emissions (ton/year)									
		PM_{10}	$PM_{2.5}$	CO	VOC	NO_x	SO_x	CO_2	CH_4	N_20	Total GHG - CO_2e
Off-road Equipment											
Wheeled Loader											
Scrapers											
Forklift											
Welding Machine											
HDPE fusion machine											
Excavator											
Compactor											
Misc. small power tools											
Temporary Field construction trailer											
On-road Vehicles or Vehicles with On-road Engines for Emissions Estimates											
Water Truck											
Dump Truck		0.14402	0.12970	1.02384	0.54826	2.05485	0.00222	234.27089	0.00038	0.00036	234.38894
Concrete Truck		0.03429	0.03088	0.24377	0.13054	0.48925	0.00053	55.77878	0.00009	0.00008	55.80689
Pick-up trucks		0.00176	0.00139	0.03218	0.00586	0.08545	0.00008	8.02666	0.00002	0.00002	8.03415
Worker Vehicles		0.00424	0.00304	0.52885	0.04118	0.03145	0.00059	64.43871	0.00257	0.00462	65.92383
Annual Emissions Total (ton/year)		**0.18431**	**0.16501**	**1.82864**	**0.72584**	**2.66100**	**0.00342**	**362.51505**	**0.00305**	**0.00508**	**364.15382**

Wastewater Surface Impoundments Construction -Fugitive Dust Emissions
OFF-SITE (week 6 (or 7) is selected here for the peak week)

Travel on paved surfaces

$E = [k * (sL/2)^{0.65} * (W/3)^{1.5} - C] (1 - P/4N)$

EPA AP-42 Section 13.2.1 Paved Roads Equation 2
E = particulate emission factor (lb/VMT),
k = particle size multiplier for particle size range and units of interest
0.32 sL = road surface silt loading (grams per square meter) (g/m^2), Local Streets (emission inventory code: 640-641-5400-0000), June 2006
W = average weight (tons) of the vehicles traveling the road, and
C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear.

constants

	$PM_{2.5}$	PM_{10}
k	0.0024	0.016
C	0.00036	0.00047

98 P = Mean number of days per with at least 0.01 inches of precipitation (from Panoche Junction COOP weather station Western Regional Climate Center))
365 N = number of days in the year (averaging period)

Vehicle Type	Number of Vehicles per day (week 6)	Max Daily Distance per Vehicle (mile/day)	Assumed distance percentage to drive on paved roads	Max Daily Distance per Vehicle to drive on paved roads (mile/day)	Max Daily VMT (all vehicles)	Mean Vehicle Weight (tons)	Max. Operating Hours / Day	Number of Vehicles per year (week 1-12)	Max Annual VMT (all vehicles)	$PM_{2.5}$ EF (lbs/VMT)	PM_{10} EF (lbs/VMT)
Off-road Equipment											
Wheeled Loader	1	0.0	0%	0.0	0.0	10.0	4.3	5	0	0.004	0.027
Scrapers	3	0.0	0%	0.0	0.0	15.0	5.3	15	0	0.007	0.050
Forklift	1	0.0	0%	0.0	0.0	5.0	2.4	11	0	0.001	0.009
Welding Machine	1	0.0	0%	0.0	0.0	1.0	3.6	6	0	0.000	0.000
HDPE fusion machine	1	0.0	0%	0.0	0.0	1.0	3.6	6	0	0.000	0.000
Excavator	1	0.0	0%	0.0	0.0	10.0	4.6	6	0	0.004	0.027
Compactor	4	0.0	0%	0.0	0.0	10.0	4.6	16	0	0.004	0.027
Misc. small power tools	4	0.0	0%	0.0	0.0	1.0	6.0	28	0	0.000	0.000
Temporary Field construction trailer	1	0.0	0%	0.0	0.0	5.0	6.0	11	0	0.001	0.009
On-road Vehicle or Vehicles with On-road Engines for Emissions Estimates											
Water Truck	1	0.0	0%	0.0	0.0	20.0	8.0	5	0	0.011	0.078
Dump Truck	6	320.0	100%	320.0	1920.0	20.0	8.0	42	67200	0.011	0.078
Concrete Truck	10	160.0	100%	160.0	1600.0	7.5	8.0	20	16000	0.002	0.017
Pick-up trucks	3	80.0	100%	80.0	240.0	4.5	8.0	35	14000	0.001	0.008
Worker Vehicles	20	90.0	100%	90.0	1800.0	2.0	8.0	150	67500	0.000	0.002

Vehicle Type	Watering Control Efficiency		PM_{10} Emissions (lb/hr)		PM_{10} Emissions (lb/day)		% of daily emissions	PM_{10} Emissions (tons/year)		$PM_{2.5}$ Emissions (lb/hr)		$PM_{2.5}$ Emissions (lb/day)		$PM_{2.5}$ Emissions (tons/year)	
	Unmitigated	Mitigated	Unmitigated	Mitigated	Unmitigated	Mitigated		Unmitigated	Mitigated	Unmitigated	Mitigated	Unmitigated	Mitigated	Unmitigated	Mitigated
Off-road Equipment															
Wheeled Loader	0%	0%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0%	0%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift	0%	0%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welding Machine	0%	0%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDPE fusion machine	0%	0%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavator	0%	0%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compactor	0%	0%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Misc. small power tools	0%	0%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Temporary Field construction trailer	0%	0%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Vehicle or Vehicles with On-road Engines for Emissions Estimates															
Water Truck	0%	0%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dump Truck	0%	0%	18.63	18.63	149.05	149.05	81.63%	2.61	2.61	2.73	2.73	21.84	21.84	0.38	0.38
Concrete Truck	0%	0%	3.50	3.50	27.98	27.98	15.33%	0.14	0.14	0.47	0.47	3.77	3.77	0.02	0.02
Pick-up trucks	0%	0%	0.24	0.24	1.89	1.89	1.04%	0.06	0.06	0.03	0.03	0.22	0.22	0.01	0.01
Worker Vehicles	0%	0%	0.46	0.46	3.65	3.65	2.00%	0.07	0.07	0.01	0.01	0.06	0.06	0.00	0.00
TOTAL Fugitive emissions for vehicles traveled on paved surfaces			**22.82**	**22.82**	**182.59**	**182.59**		**2.87**	**2.87**	**3.24**	**3.24**	**25.89**	**25.89**	**0.41**	**0.41**

Notes:
1. Water efficiency from CEQA Table 11-4 maximum value for watering active sites 2 times daily

OFFROAD2007 Output CARB Emissions Inventory Model for Mobile Offroad Sources and Calculations for Tons/hr

CY	Season	AvgDays	Code	Equipment	Fuel	MaxHP	Class	OR	Pe	Hand	Fuel	County	Air Basin	Air Dist	Population	Activity (hr/day) total population	Activity (hr/day) Consumption	ROG Exhaust (tons/day)	CO Exhaust (tons/day)	NOX Exhaust (tons/day)	CO2 Exhaust (tons/day)	SO2 Exhaust (tons/day)	PM Exhaust (tons/day)	CH4 Exhaust (tons/day)	N2O Exhaust (tons/day)	PM Exhaust/Activity (tons/hr)	CO Exhaust/Activity (tons/hr)	ROG Exhaust/Activity (tons/hr)	NOX Exhaust/Activity (tons/hr)	SO2 Exhaust/Activity (tons/hr)	CO2 Exhaust/Activity (tons/hr)	CH4 Exhaust/Activity (tons/hr)	N2O Exhaust/ Activity (tons/hr)
2009	Annual	Mon-Sun	2.26E+09	Other Construction Equipment	Gl	175	Construction and Mining Equipment	U	P	NHH	NP	San Benito	NCC	MBU	8.38E-02	9.50E-02	4.69E-01	1.10E-06	1.54E-04	1.96E-05	4.52E-03	4.24E-06	3.40E-07	1.61E-07	5.84E-07								
2009	Annual	Mon-Sun	2.27E+09	Other Construction Equipment	D	15	Construction and Mining Equipment	U	P	NHH	NP	San Benito	NCC	MBU	4.62E-01	8.75E-01	4.04E-01	5.15E-06	2.70E-05	3.23E-05	4.42E-03	6.88E-08	1.63E-06	4.65E-07	0.00E+00								
2009	Annual	Mon-Sun	2.27E+09	Other Construction Equipment	D	25	Construction and Mining Equipment	U	P	NHH	NP	San Benito	NCC	MBU	7.92E-02	1.48E-01	8.91E-02	1.23E-06	4.06E-06	7.91E-06	9.78E-04	1.24E-08	4.19E-07	1.11E-07	0.00E+00								
2009	Annual	Mon-Sun	2.27E+09	Other Construction Equipment	D	50	Construction and Mining Equipment	U	P	NHH	NP	San Benito	NCC	MBU	1.26E-01	2.52E-01	1.92E-01	1.32E-05	3.52E-05	3.29E-05	3.23E-03	4.26E-08	3.27E-06	1.19E-06	0.00E+00								
2009	Annual	Mon-Sun	2.27E+09	Other Construction Equipment	D	120	Construction and Mining Equipment	U	P	NHH	NP	San Benito	NCC	MBU	1.09E-01	1.83E-01	1.42E+00	2.75E-05	1.05E-04	1.77E-04	1.55E-02	1.92E-07	1.51E-05	2.48E-06	0.00E+00								
2009	Annual	Mon-Sun	2.27E+09	Other Construction Equipment	D	175	Construction and Mining Equipment	U	P	NHH	NP	San Benito	NCC	MBU	2.74E-01	5.29E-01	2.57E+00	3.32E-05	1.56E-04	2.81E-04	2.92E-02	3.17E-07	1.51E-05	2.99E-06	0.00E+00								
2009	Annual	Mon-Sun	2.27E+09	Other Construction Equipment	D	500	Construction and Mining Equipment	U	N	NHH	NP	San Benito	NCC	MBU	6.34E-01	1.23E+00	1.41E+01	1.11E-04	4.01E-04	1.30E-03	1.54E-01	1.53E-06	4.43E-05	1.01E-05	0.00E+00								

Title : Panoche_EvapPond
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/07/15 14:53:39
Scen Year: 2009 -- All model years in the range 1965 to 2009 selected
Season : Annual
Area : San Benito
****
Year: 2009 -- Model Years 1965 to 2009 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average San Benito County Average

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: Total Organic Gases Temperature: 90F Relative Humidity: 10%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	20.891	0.626	0.164	0.816	20.139	0.96	0.336	1.137	20.487	0.745	0.35	0.871	25.976	0.787	0.397	0.892
10	14.881	0.419	0.267	0.554	14.487	0.655	0.165	0.785	14.534	0.534	0.306	0.596	18.501	0.526	0.355	0.602
15	11.092	0.294	0.231	0.396	10.799	0.469	0.149	0.569	10.835	0.364	0.266	0.426	13.79	0.37	0.134	0.427
20	8.651	0.218	0.189	0.297	8.423	0.352	0.122	0.411	8.452	0.27	0.202	0.319	10.756	0.273	0.102	0.318
25	7.041	0.169	0.159	0.234	6.876	0.277	0.102	0.341	6.899	0.21	0.169	0.25	8.779	0.212	0.084	0.249
30	6.011	0.137	0.136	0.193	5.873	0.228	0.085	0.285	5.893	0.172	0.165	0.206	7.494	0.171	0.073	0.204
35	5.391	0.117	0.119	0.167	5.249	0.196	0.077	0.247	5.267	0.147	0.137	0.177	6.702	0.147	0.064	0.176
40	5.043	0.105	0.107	0.151	4.909	0.176	0.069	0.225	4.926	0.131	0.114	0.16	6.264	0.132	0.058	0.158
45	4.915	0.098	0.098	0.144	4.804	0.166	0.063	0.224	4.82	0.123	0.104	0.151	6.133	0.124	0.053	0.15
50	5.053	0.097	0.092	0.143	4.919	0.165	0.059	0.222	4.936	0.121	0.098	0.15	6.29	0.122	0.049	0.149
55	5.413	0.1	0.088	0.15	5.27	0.168	0.054	0.221	5.288	0.125	0.093	0.156	6.739	0.124	0.047	0.154
60	6.049	0.108	0.086	0.164	5.908	0.181	0.055	0.24	5.929	0.135	0.091	0.169	7.314	0.137	0.046	0.169
65	7.119	0.121	0.086	0.189	6.931	0.205	0.055	0.274	6.954	0.153	0.091	0.191	8.85	0.156	0.046	0.193

Speed MPH	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL	OBUS NCAT	OBUS CAT	OBUS DSL	OBUS ALL
0	21.669	22.938	3.612	18.517	21.669	24.904	3.612	12.459	21.777	24.346	3.612	4.2	0	0	35.431	19.281	0	34.53	3.612	16.601
5	19.735	0.496	0.404	0.535	19.734	1.913	0.485	1.138	29.701	6.137	0.916	1.851	102.956	14.18	13.275	13.354	0	5.173	0.774	2.271
10	12.922	0.335	0.38	0.372	12.921	1.367	0.517	0.818	19.465	4.035	0.715	1.32	67.465	9.331	7.406	7.432	0	3.191	0.607	1.536
15	8.829	0.232	0.303	0.269	8.829	0.866	0.431	0.671	14.298	2.76	0.59	0.973	44.093	4.37	3.568	3.597	0	2.32	0.487	1.151
20	6.289	0.158	0.25	0.201	6.289	0.617	0.354	0.505	9.471	1.967	0.484	0.791	32.812	4.518	1.887	1.917	0	1.654	0.4	0.827
25	4.67	0.118	0.21	0.158	4.67	0.459	0.297	0.394	7.011	1.461	0.406	0.6	24.353	3.37	1.319	1.358	0	1.229	0.333	0.64
30	3.615	0.091	0.18	0.128	3.615	0.355	0.251	0.32	5.432	1.132	0.349	0.494	18.841	2.609	1.228	1.242	0	0.951	0.287	0.534
35	2.937	0.074	0.159	0.108	2.937	0.287	0.223	0.268	4.39	0.914	0.305	0.42	15.185	2.105	1.014	1.025	0	0.77	0.253	0.439
40	2.454	0.062	0.141	0.094	2.453	0.241	0.2	0.217	3.692	0.769	0.273	0.362	12.773	1.77	0.877	0.936	0	0.648	0.226	0.37
45	2.151	0.051	0.139	0.084	2.151	0.212	0.183	0.208	3.236	0.674	0.25	0.332	11.197	1.552	0.816	0.833	0	0.568	0.207	0.33
50	1.965	0.05	0.121	0.078	1.965	0.194	0.171	0.193	2.956	0.616	0.234	0.308	10.222	1.418	0.811	0.836	0	0.519	0.193	0.305
55	1.873	0.047	0.114	0.074	1.873	0.184	0.164	0.184	2.814	0.587	0.224	0.294	9.731	1.35	0.924	0.929	0	0.493	0.183	0.293
60	1.857	0.047	0.113	0.073	1.857	0.182	0.16	0.181	2.793	0.582	0.219	0.289	9.656	1.34	1.093	1.096	0	0.491	0.181	0.287
65	1.92	0.048	0.111	0.074	1.92	0.189	0.16	0.184	2.888	0.602	0.219	0.292	9.987	1.385	1.339	1.34	0	0.509	0.181	0.292

Speed MPH	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
0	0	0	0	0	0	0	0	0	23.668	24.121	3.612	6.741	0	0	0	0	0.421	0.727	12.929	1.514
5	35.816	9.993	1.364	6.571	6.008	4.261	0	5.414	29.565	13.744	1.121	3.393	19.499	2.344	0.335	2.379	11.841	0.836	10.979	3.929
10	23.477	6.511	0.929	3.649	4.748	3.197	0	4.216	19.376	10.119	0.83	2.67	19.464	1.472	0.263	1.699	8.678	0.564	6.093	1.979
15	16.019	4.449	0.741	2.801	3.924	2.535	0	3.473	13.218	7.051	0.704	1.918	13.298	1.067	0.211	1.167	6.674	0.4	2.941	1.102
20	11.423	3.169	0.578	2.78	3.197	2.1	0	2.977	9.418	5.021	0.579	1.427	9.47	0.718	0.173	0.815	5.391	0.297	1.587	0.687
25	8.479	2.354	0.466	2.076	3.075	1.658	0	2.675	6.999	3.73	0.616	1.107	7.011	0.531	0.145	0.623	4.57	0.232	1.28	0.551
30	6.562	1.932	0.389	1.616	2.513	1.691	0	2.518	5.417	2.887	0.617	0.891	5.441	0.413	0.114	0.485	4.047	0.19	1.017	0.456
35	5.293	1.471	0.334	1.311	2.097	1.61	0	2.394	4.37	2.33	0.165	0.715	4.39	0.334	0.109	0.393	3.8	0.164	0.858	0.39
40	4.451	1.237	0.301	1.109	2.093	1.67	0	2.566	3.675	1.96	0.327	0.642	3.691	0.281	0.098	0.332	3.726	0.147	0.741	0.35
45	3.901	1.085	0.279	0.971	3.148	1.789	0	2.796	3.221	1.718	0.3	0.574	3.235	0.246	0.089	0.295	3.815	0.139	0.691	0.338
50	3.563	0.991	0.267	0.887	3.687	2.014	0	3.146	2.942	1.569	0.28	0.53	2.956	0.225	0.081	0.267	4.344	0.138	0.702	0.342
55	3.393	0.944	0.264	0.857	4.379	2.383	0	3.734	2.802	1.494	0.268	0.506	2.814	0.214	0.08	0.254	4.7	0.144	0.776	0.373
60	3.366	0.936	0.274	0.854	5.444	2.964	0	4.643	2.78	1.483	0.262	0.499	2.792	0.213	0.078	0.253	5.374	0.158	0.912	0.431
65	3.482	0.968	0.292	0.886	7.081	3.88	0	6.046	2.875	1.534	0.262	0.509	2.888	0.22	0.078	0.26	6.988	0.193	1.111	0.521

Pollutant Name: Carbon Monoxide Temperature: 90F Relative Humidity: 10%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	206.848	4.527	1.518	6.391	196.324	12.01	2.188	13.511	194.753	4.782	2.794	9.875	373.72	7.625	3.019	9.184
10	150.254	5.749	1.723	7.114	147.094	16.253	1.502	11.204	141.949	5.787	1.945	8.49	273.192	4.735	1.406	7.814
15	115.112	5.157	1.251	6.179	109.816	8.921	1.089	9.561	108.937	6.852	1.338	7.444	209.082	5.989	1.015	6.834
20	93.218	4.653	0.945	5.472	88.785	7.097	0.832	8.355	88.075	6.159	1.016	6.631	169.011	5.398	0.766	6.071
25	79.163	4.232	0.747	4.926	75.581	7.098	0.65	7.151	74.976	5.539	0.803	5.987	143.975	4.908	0.606	5.473
30	71.148	3.879	0.618	4.5	67.758	6.468	0.537	6.775	67.216	5.117	0.664	5.472	128.981	4.499	0.501	5.085
35	67.172	3.582	0.535	4.148	65.978	5.974	0.463	6.231	65.459	4.734	0.575	5.06	121.774	4.156	0.434	4.685
40	68.786	3.321	0.484	3.917	63.401	5.598	0.422	5.914	63.094	4.399	0.521	4.736	121.074	3.87	0.391	4.351
45	69.928	3.127	0.459	3.741	64.396	5.315	0.4	5.691	64.063	4.191	0.494	4.491	126.772	3.615	0.371	4.144
50	77.168	2.951	0.456	3.642	73.434	5.118	0.397	5.61	72.846	3.924	0.49	4.325	139.789	3.448	0.37	4.018
55	89.541	2.812	0.471	3.63	85.274	5.069	0.412	5.688	84.591	3.772	0.509	4.345	162.326	3.31	0.384	3.992
60	109.5	2.712	0.514	3.729	100.282	5.171	0.448	5.972	103.448	3.685	0.553	4.37	198.511	3.226	0.417	4.061
65	141.012	2.691	0.585	3.998	134.702	5.169	0.509	6.549	133.227	3.67	0.629	4.436	255.455	3.21	0.471	4.3

Speed MPH	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL	OBUS NCAT	OBUS CAT	OBUS DSL	OBUS ALL
0	128.673	148.177	26.3	106.14	128.673	212.428	26.3	72.891	199.833	140.913	26.3	40.616	0	0	54.638	54.18	0	110.368	26.3	65.106
5	181.37	4.171	3.026	4.61	182.162	18.908	3.486	12.366	575.025	60.618	9.024	21.931	3745.58	185.624	18.416	20.788	0	57.601	9.104	25.613
10	254.395	2.775	2.087	3.104	254.39	12.334	2.401	8.276	393.57	40.461	6.776	14.799	1824.664	123.198	11.834	15.001	0	38.321	4.279	17.199
15	178.832	1.95	1.506	2.194	178.828	8.656	1.719	5.843	268.92	28.441	4.988	10.514	1284.016	86.83	10.157	10.978	0	26.918	4.531	12.147
20	132.846	1.449	1.137	1.637	132.883	6.428	1.31	4.352	199.719	21.124	3.692	7.862	953.601	64.472	7.711	8.136	0	20.006	3.422	9.074
25	104.208	1.137	0.959	1.286	104.206	5.044	1.035	3.419	156.712	16.575	2.918	6.187	748.258	50.589	6.51	7	0	15.695	2.765	7.111
30	86.391	0.942	0.743	1.066	86.39	4.182	0.857	2.831	129.919	13.741	2.414	5.125	620.328	41.919	5.315	5.902	0	13.034	2.237	5.93
35	75.671	0.825	0.644	0.931	75.669	3.661	0.741	2.477	113.797	12.036	2.09	4.467	543.387	36.715	4.68	5.022	0	11.399	1.917	5.161
40	70.028	0.764	0.593	0.857	70.026	3.39	0.672	2.294	105.38	11.138	1.891	4.099	502.829	33.995	4.031	4.35	0	10.549	1.754	4.752
45	68.47	0.747	0.551	0.833	68.468	3.314	0.697	2.222	103.967	10.89	1.795	3.958	491.641	33.219	3.566	3.881	0	10.314	1.664	4.611
50	70.731	0.771	0.549	0.853	70.73	3.424	0.632	2.28	106.349	11.25	1.781	4.025	507.891	34.337	3.385	3.614	0	10.651	1.651	4.719
55	77.199	0.842	0.57	0.931	77.198	3.737	0.656	2.465	116.096	12.279	1.849	4.311	554.332	37.477	3.188	3.55	0	11.629	1.714	5.093
60	89.021	0.971	0.619	1.049	89.021	4.309	0.717	2.833	133.876	14.16	2.01	4.863	639.33	43.217	3.275	3.696	0	13.431	1.863	5.798
65	108.441	1.183	0.704	1.265	108.439	5.25	0.811	3.406	163.108	17.251	2.284	5.783	778.795	52.653	3.546	4.063	0	16.339	2.115	4.941

Speed MPH	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
0	0	0	0	0	0	0	0	0	158.672	160.173	26.3	41.708	0	0	0	0	2.466	4.123	47.482	14.013
5	642.018	109.571	3.81	104.736	46.956	18.979	0	37.912	573.544	153.125	12.599	49.871	575.004	41.406	1.724	49.453	119.751	9.108	14.069	12.814
10	437.349	72.872	3.669	69.615	38.51	14.303	0	33.331	381.585	102.089	8.349	33.434	382.557	28.871	2.568	32.937	88.835	7.798	11.888	10.239
15	309.255	51.234	2.452	48.884	33.263	14.472	0	27.188	268.227	71.705	6.169	23.697	268.91	20.299	1.851	23.146	69.743	6.777	8.739	8.191
20	231.991	38.045	1.74	36.266	30.254	15.246	0	24.756	199.205	53.253	4.659	17.62	199.712	15.075	1.399	17.194	57.942	6.001	6.637	7.111
25	174.975	29.951	1.311	28.455	28.98	12.493	0	23.651	156.709	41.796	3.681	13.848	156.707	11.929	1.106	13.493	50.935	5.397	5.531	6.285
30	145.058	24.747	1.049	21.578	29.234	12.141	0	23.715	129.585	34.642	3.046	11.475	129.915	9.807	0.915	11.186	47.311	4.938	4.708	5.659
35	127.037	21.476	0.891	20.643	31.056	12.23	0	21.977	113.584	30.348	2.667	10.025	113.79	8.59	0.792	9.796	46.633	4.518	4.001	5.197
40	117.551	20.06	0.804	19.097	34.745	13.81	0	27.66	105.019	28.08	2.389	9.334	105.307	7.949	0.717	9.063	47.353	4.239	3.455	4.981
45	114.966	19.613	0.777	18.667	40.976	14.03	0	32.214	102.702	27.453	2.265	8.961	102.961	7.772	0.68	8.858	53.478	4.034	3.049	4.717
50	118.761	20.161	0.723	19.28	50.791	16.189	0	39.686	106.095	28.362	2.248	9.186	106.365	8.029	0.673	9.144	62.103	3.841	2.839	4.713
55	129.421	22.114	0.846	21.06	66.367	19.744	0	51.196	115.797	30.956	2.334	9.926	116.091	8.763	0.701	9.976	76.765	3.787	2.748	4.999
60	149.476	25.501	0.97	24.261	91.325	25.601	0	70.08	133.511	35.697	2.517	11.415	133.871	10.105	0.762	11.496	100.021	3.808	2.854	5.177
65	182.324	31.069	1.182	29.558	132.344	33.384	0	101.001	162.488	43.491	2.885	13.911	163.182	12.312	0.867	13.996	137.794	1.94	3.102	4.25

Pollutant Name: Oxides of Nitrogen Temperature: 90F Relative Humidity: 10%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	3.091	0.456	1.901	0.485	2.953	0.515	2.604	0.931	2.944	0.905	1.939	0.931	4.914	0.907	1.011	0.939
10	3.252	0.391	1.644	0.423	3.073	0.691	1.461	0.789	3.096	0.775	1.601	0.792	5.167	0.777	1.696	0.807
15	3.415	0.315	1.413	0.378	3.227	0.605	1.43	0.693	3.251	0.679	1.376	0.697	5.426	0.68	1.449	0.71
20	3.591	0.31	1.259	0.344	3.394	0.541	1.273	0.626	3.409	0.607	1.226	0.627	5.69	0.609	1.291	0.639
25	3.75	0.284	1.162	0.32	3.544	0.495	1.175	0.579	3.57	0.555	1.131	0.576	5.959	0.554	1.191	0.598
30	3.912	0.265	1.111	0.303	3.706	0.464	1.124	0.548	3.734	0.518	1.082	0.54	6.233	0.519	1.139	0.552
35	4.096	0.253	1.1	0.293	3.873	0.446	1.114	0.531	3.9	0.493	1.072	0.516	6.509	0.494	1.128	0.528
40	4.272	0.246	1.11	0.287	4.038	0.434	1.147	0.527	4.067	0.479	1.1	0.505	6.789	0.48	1.158	0.516
45	4.45	0.243	1.203	0.287	4.206	0.434	1.216	0.533	4.237	0.473	1.17	0.5	7.073	0.476	1.232	0.531
50	4.619	0.245	1.324	0.292	4.375	0.441	1.34	0.553	4.407	0.481	1.28	0.508	7.353	0.482	1.358	0.523
55	4.805	0.252	1.512	0.3	4.544	0.463	1.55	0.586	4.578	0.497	1.473	0.525	7.631	0.498	1.551	0.542
60	4.921	0.265	1.79	0.314	4.726	0.494	1.81	0.637	4.749	0.521	1.743	0.553	7.924	0.526	1.833	0.573
65	5.168	0.284	2.194	0.338	4.931	0.541	2.22	0.71	4.93	0.567	2.137	0.599	8.212	0.569	2.25	0.621

Speed MPH	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL	OBUS NCAT	OBUS CAT	OBUS DSL	OBUS ALL
0	1.48	1.621	75.051	16.012	1.48	1.55	75.051	41.607	1.487	1.522	75.051	65.893	0	0	106.736	105.04	0	1.502	75.051	49.988
5	1.509	0.314	4.679	2.164	1.509	0.732	8.58	5.018	2.373	2.425	15.079	13.494	16.596	6.139	40.461	40.173	0	1.948	12.648	9.35
10	1.585	0.229	5.542	1.994	1.585	0.759	6.818	4.201	2.188	2.542	12.51	11.262	17.427	6.451	27.765	27.587	0	1.097	10.504	7.98
15	1.641	0.236	4.764	1.741	1.662	0.796	5.97	3.768	2.501	2.671	10.754	9.741	18.267	6.762	20.81	19.9	0	1.246	9.03	7.039
20	1.718	0.246	4.243	1.577	1.728	0.832	5.224	3.356	2.619	2.794	9.579	8.728	19.108	7.073	17.347	17.064	0	1.396	8.041	6.459
25	1.815	0.257	3.916	1.474	1.815	0.849	4.835	3.141	2.731	2.917	8.84	8.097	19.949	7.384	16.445	16.37	0	1.545	7.422	6.101
30	1.891	0.268	3.744	1.436	1.891	0.906	4.614	3.016	2.849	3.04	8.454	7.74	20.79	7.696	15.892	15.826	0	1.695	7.098	5.938
35	1.948	0.279	3.71	1.422	1.969	0.942	4.571	3.028	2.965	3.161	8.375	7.721	21.631	8.007	15.49	15.41	0	1.844	7.033	5.946
40	2.044	0.29	3.809	1.463	2.044	0.979	4.693	3.111	3.08	3.284	8.598	7.931	22.471	8.318	15.239	15.183	0	1.993	7.219	6.12
45	2.121	0.301	4.031	1.551	2.121	1.015	4.992	3.3	3.195	3.409	9.166	8.426	23.312	8.629	15.137	15.084	0	2.143	7.679	6.474
50	2.197	0.311	4.465	1.695	2.197	1.052	5.503	3.604	3.31	3.531	10.08	9.258	24.153	8.94	15.185	15.135	0	2.292	8.463	7.041
55	2.274	0.322	5.099	1.913	2.274	1.089	6.283	4.072	3.426	3.654	11.511	10.526	24.993	9.252	15.369	15.314	0	2.442	9.663	7.885
60	2.35	0.333	6.031	2.231	2.35	1.125	7.434	4.747	3.541	3.777	13.42	12.384	25.834	9.563	15.732	15.681	0	2.591	11.436	9.303
65	2.426	0.344	7.397	2.691	2.426	1.162	9.111	5.715	3.656	3.9	16.491	15.093	26.675	9.874	16.331	16.18	0	2.74	16.01	10.858

Speed MPH	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
0	0	0	0	0	0	0	0	0	1.48	1.385	75.051	61.771	0	0	0	0	0.426	0.841	95.615	21.912
5	2.717	6.732	13.391	8.595	0.874	1.047	0	0.93	2.163	3.261	20.247	17.605	2.273	1.076	12.737	3.103	1.699	0.708	34.38	8.429
10	2.875	7.073	10.89	7.814	0.916	1.002	0	0.944	2.278	3.423	16.798	14.701	2.387	1.13	11.414	2.943	1.785	0.615	23.317	5.945
15	3.014	7.414	9.113	7.603	0.959	0.972	0	0.963	2.392	3.591	14.44	12.733	2.504	1.185	9.883	2.646	1.872	0.547	17.347	4.415
20	3.153	7.755	6.859	7.223	1.001	0.954	0	0.987	2.507	3.759	12.862	11.422	2.619	1.239	8.739	2.513	1.961	0.497	14.903	3.82
25	3.292	8.097	6.095	7.2	1.047	0.947	0	1.015	2.722	3.924	11.97	10.606	2.734	1.294	8.065	2.449	2.051	0.462	14.315	3.646
30	3.43	8.438	5.694	7.294	1.093	0.95	0	1.046	2.837	4.089	11.35	10.19	2.849	1.348	7.712	2.437	2.143	0.437	13.767	3.518
35	3.569	8.779	5.591	7.192	1.137	0.963	0	1.08	2.951	4.255	11.246	10.125	2.964	1.403	7.641	2.472	2.236	0.421	13.433	3.432
40	3.708	9.12	5.775	7.762	1.182	0.979	0	1.116	3.066	4.42	11.545	10.401	3.08	1.457	7.844	2.553	2.329	0.414	13.253	3.394
45	3.847	9.461	6.268	8.141	1.227	1.004	0	1.156	3.181	4.586	12.2	11.047	3.195	1.512	8.441	2.682	2.424	0.414	13.227	3.392
50	3.985	9.803	7.159	8.649	1.273	1.041	0	1.198	3.295	4.751	12.933	12.133	3.31	1.566	9.196	2.871	2.517	0.421	13.364	3.431
55	4.124	10.144	8.531	9.323	1.318	1.083	0	1.243	3.41	4.916	15.456	13.793	3.425	1.621	10.392	3.134	2.612	0.435	13.678	3.505
60	4.263	10.485	10.821	10.241	1.363	1.119	0	1.291	3.525	5.082	18.298	16.304	3.541	1.675	12.424	3.499	2.707	0.459	14.151	3.64
65	4.401	10.826	13.334	11.61	1.408	1.206	0	1.349	3.64	5.247	22.421	19.727	3.656	1.73	15.234	4.011	2.801	0.491	14.911	3.834

Pollutant Name: Carbon Dioxide Temperature: 90F Relative Humidity: 10%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1103.587	1149.327	352.034	1168.345	1167.668	1431.218	346.485	1154.218	1366.795	1447.431	350.353	1442.797	1672.464	1955.832	345.721	1964.599
10	1049.202	847.176	352.034	866.82	1027.076	1062.547	346.485	1011.801	1026.442	1071.96	350.353	1070.878	1255.484	1472.434	345.721	1458.442
15	822.929	673.727	352.034	672.938	965.499	835.971	346.485	793.629	805.002	851.596	350.353	832.547	984.553	1184.27	345.721	1154.128
20	673.443	546.639	352.034	547.011	656.738	670.294	346.485	647.176	616.128	677.213	350.353	675.874	802.838	918.464	345.721	931.065
25	569.657	462.351	352.034	462.938	558.056	566.908	346.485	551.184	555.734	572.784	350.353	571.831	679.891	785.19	345.721	779.461
30	501.613	407.168	352.034	407.816	488.792	499.122	346.485	485.273	488.491	504.141	350.353	503.471	597.728	691.123	345.721	697.848
35	458.07	372.948	352.034	374.468	445.899	457.088	346.485	449.11	445.407	461.895	350.353	461.766	543.361	631.351	345.721	639.584
40	434.509	354.801	352.034	355.631	422.08	434.697	346.485	428.848	421.779	439.437	350.353	438.994	516.283	602.614	345.721	599.215
45	427.15	350.306	352.034	351.039	414.411	428.937	346.485	422.971	414.161	433.696	350.353	433.357	507.023	594.795	345.721	591.483
50	435.851	358.082	352.034	358.794	422.215	438.358	346.485	431.709	421.83	442.272	350.353	442.788	516.445	607.962	345.721	604.478
55	459.91	378.328	352.034	378.993	445.881	461.155	346.485	454.747	445.378	468.331	350.353	467.742	545.537	642.339	345.721	638.428
60	503.567	413.488	352.034	413.102	498.408	505.161	346.485	493.793	488.079	510.499	350.353	509.911	597.326	700.395	345.721	695.771
65	571.251	463.728	352.034	464.291	554.763	568.3	346.485	552.55	554.394	574.328	350.353	573.342	678.625	787.334	345.721	781.864

Speed MPH	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL	OBUS NCAT	OBUS CAT	OBUS DSL	OBUS ALL
0	4776.899	4776.9	4098	4551.181	4776.9	4776.9	4098.001	4388.068	4776.9	4774.981	4098.001	4182.924	0	0	4166.255	4412.424	0	4776.9	4098	4319.368
5	2513.51	2513.51	520.586	1851.501	2513.51	2513.51	531.733	1378.469	2513.51	2513.51	1505	1631.154	2513.51	2513.51	4845.361	4834.183	0	2513.51	1505	1848.7
10	1672.267	1672.267	520.586	1289.702	1672.267	1672.267	531.733	1019.039	1672.267	1672.267	1505	1525.924	1672.267	1672.267	3165.444	3154.934	0	1672.267	1505	1562.005
15	1175.484	1175.484	520.586	957.93	1175.484	1175.485	531.733	906.795	1175.484	1175.485	1505	1461.781	1175.434	1175.484	2593.958	2584.036	0	1175.485	1505	1392.701
20	873	873	520.586	755.935	873	873	531.733	677.543	873	873	1505	1423.944	873	873	2183.16	2172.164	0	873	1505	1289.635
25	685.012	685.012	520.586	610.393	685.012	685.012	531.733	597.033	685.012	685.012	1505	1401.428	685.012	685.012	2002.683	2011.29	0	685.012	1505	1335.549
30	567.895	567.895	520.586	552.18	567.895	567.895	531.733	547.184	567.895	567.895	1505	1387.778	567.895	567.895	1924.224	1912.85	0	567.895	1505	1185.635
35	497.421	497.421	520.586	505.116	497.421	497.421	531.733	517.077	497.421	497.421	1505	1378.961	497.421	497.421	1827.906	1824.612	0	497.421	1505	1161.618
40	460.326	460.326	520.586	480.343	460.326	460.326	531.733	501.224	460.326	460.326	1505	1374.333	460.326	460.326	1753.407	1742.554	0	460.326	1505	1148.976
45	450.085	450.085	520.586	473.504	450.085	450.085	531.733	496.848	450.085	450.085	1505	1373.042	450.085	450.085	1703.031	1690.932	0	450.085	1505	1145.686
50	464.953	464.953	520.586	483.433	464.953	464.953	531.733	503.201	464.953	464.953	1505	1374.903	464.953	464.953	1670.679	1660.56	0	464.953	1505	1150.353
55	507.469	507.469	520.586	511.876	507.469	507.469	531.733	521.364	507.469	507.469	1505	1380.219	507.469	507.469	1663.352	1652.459	0	507.469	1505	1165.042
60	585.19	585.19	520.586	563.73	585.19	585.19	531.733	554.571	585.19	585.19	1505	1389.942	585.19	585.19	1676.035	1666.294	0	585.19	1505	1191.529
65	712.968	712.968	520.586	649.042	712.968	712.968	531.733	609.144	712.968	712.968	1505	1405.925	712.968	712.968	1718.772	1703.389	0	712.968	1505	1235.976

Speed MPH	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
0	0	0	0	0	0	0	0	0	4776.9	4774.899	4098	4202.119	0	0	0	0	84.851	115.937	5719.266	1416.779
5	2513.51	2513.51	2394.362	2475.403	234.739	242.734	0	237.008	2513.51	2513.51	1505	1659.67	2513.51	2513.51	1505	2346.573	691.218	1413.068	3272.616	1825.047
10	1672.267	1672.267	2394.362	1903.217	192.235	219.031	0	200.911	1672.267	1672.267	1505	1538.653	1672.267	1672.267	1505	1644.58	527.152	1041.733	2721.558	1416.447
15	1175.484	1175.484	2394.362	1545.333	167.043	188.137	0	173.942	1175.485	1175.484	1505	1454.464	1175.491	1175.484	1505	1230.025	419.911	805.359	2259.991	1120.982
20	873	873	2394.362	1359.583	147.396	166.461	0	155.559	873	873	1505	1406.073	873	873	1505	977.614	347.19	650.651	1935.421	916.417
25	685.012	685.012	2394.362	1231.759	133.085	151.721	0	138.432	685.012	685.012	1505	1379.243	685.012	685.012	1505	810.742	297.32	548.597	1811.567	811.774
30	567.895	567.895	2394.362	1152.06	120.209	142.507	0	127.417	567.895	567.895	1505	1341.281	567.995	567.895	1505	721.012	261.048	483.924	1725.167	759.98
35	497.421	497.421	2394.362	1104.316	111.302	138.031	0	119.808	497.421	497.421	1505	1330.475	497.421	497.421	1505	664.201	240.415	448.514	1637.41	710.597
40	460.326	460.326	2394.362	1078.896	104.283	128.011	0	115.187	460.326	460.326	1505	1344.784	460.326	460.326	1505	633.249	226.813	438.765	1577.168	680.131
45	450.085	450.085	2394.362	1071.93	99.43	142.685	0	113.373	450.085	450.085	1505	1343.213	450.085	450.085	1505	624.791	220.879	432.348	1544.658	666.13
50	464.953	464.953	2394.362	1082.042	96.338	152.192	0	114.423	464.953	464.953	1505	1345.493	464.953	464.953	1505	637.11	222.041	432.581	1518.058	667.567
55	507.469	507.469	2394.362	1110.961	94.618	169	0	118.643	507.469	507.469	1505	1352.034	507.469	507.469	1505	672.588	230.569	447.027	1503.309	684.419
60	585.19	585.19	2394.362	1163.834	94.474	191.395	0	126.775	585.19	585.19	1505	1363.932	585.19	585.19	1505	747.444	247.551	488.652	1514.311	718.824
65	712.968	712.968	2394.362	1250.734	95.799	232.399	0	139.955	712.968	712.968	1505	1383.33	712.968	712.968	1505	844.075	275.159	551.565	1549.163	773.397

Pollutant Name: Sulfur Dioxide Temperature: 90F Relative Humidity: 10%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0.017	0.011	0.003	0.011	0.017	0.014	0.003	0.013	0.017	0.014	0.003	0.014	0.022	0.019	0.003	0.019
10	0.013	0.008	0.003	0.008	0.012	0.01	0.003	0.01	0.011	0.01	0.003	0.01	0.017	0.012	0.003	0.014
15	0.01	0.007	0.003	0.007	0.01	0.008	0.003	0.008	0.01	0.008	0.003	0.008	0.013	0.011	0.003	0.011
20	0.008	0.005	0.003	0.005	0.008	0.007	0.003	0.006	0.008	0.007	0.003	0.007	0.011	0.009	0.003	0.009
25	0.007	0.005	0.003	0.005	0.007	0.006	0.003	0.005	0.007	0.006	0.003	0.006	0.009	0.008	0.003	0.008
30	0.006	0.004	0.003	0.004	0.006	0.005	0.003	0.005	0.006	0.005	0.003	0.005	0.008	0.007	0.003	0.007
35	0.006	0.004	0.003	0.004	0.005	0.004	0.003	0.004	0.005	0.005	0.003	0.005	0.007	0.006	0.003	0.006
40	0.005	0.003	0.003	0.003	0.005	0.004	0.003	0.004	0.005	0.004	0.003	0.004	0.007	0.006	0.003	0.006
45	0.005	0.003	0.003	0.003	0.005	0.004	0.003	0.004	0.005	0.004	0.003	0.004	0.007	0.006	0.003	0.006
50	0.005	0.003	0.003	0.003	0.005	0.004	0.003	0.004	0.005	0.004	0.003	0.004	0.007	0.006	0.003	0.006
55	0.006	0.003	0.003	0.004	0.006	0.005	0.003	0.004	0.006	0.005	0.003	0.005	0.008	0.006	0.003	0.006
60	0.007	0.004	0.003	0.004	0.006	0.005	0.003	0.005	0.006	0.005	0.003	0.005	0.009	0.007	0.003	0.007
65	0.008	0.004	0.003	0.005	0.007	0.006	0.003	0.006	0.008	0.006	0.003	0.006	0.011	0.009	0.003	0.009

Speed MPH	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL	OBUS NCAT	OBUS CAT	OBUS DSL	OBUS ALL
0	0.049	0.049	0.039	0.046	0.049	0.049	0.039	0.043	0.049	0.049	0.039	0.04	0	0	0.042	0.041	0	0.049	0.039	0.042
5	0.026	0.026	0.005	0.018	0.026	0.026	0.005	0.013	0.026	0.025	0.014	0.016	0.026	0.027	0.037	0.037	0	0.025	0.014	0.018
10	0.02	0.016	0.005	0.012	0.02	0.016	0.005	0.01	0.022	0.017	0.014	0.015	0.016	0.018	0.03	0.03	0	0.017	0.014	0.015
15	0.014	0.011	0.005	0.009	0.014	0.011	0.005	0.008	0.016	0.012	0.014	0.014	0.011	0.013	0.025	0.025	0	0.012	0.014	0.013
20	0.011	0.008	0.005	0.007	0.011	0.008	0.005	0.007	0.012	0.009	0.014	0.014	0.024	0.009	0.021	0.021	0	0.009	0.014	0.012
25	0.008	0.007	0.005	0.004	0.009	0.007	0.005	0.006	0.009	0.007	0.014	0.013	0.019	0.007	0.02	0.019	0	0.007	0.014	0.012
30	0.007	0.005	0.005	0.005	0.007	0.006	0.005	0.005	0.008	0.006	0.014	0.013	0.015	0.006	0.018	0.018	0	0.006	0.014	0.011
35	0.006	0.005	0.005	0.005	0.006	0.005	0.005	0.005	0.007	0.005	0.014	0.013	0.013	0.005	0.017	0.017	0	0.005	0.014	0.011
40	0.006	0.004	0.005	0.005	0.006	0.004	0.005	0.005	0.006	0.005	0.014	0.013	0.012	0.005	0.017	0.017	0	0.005	0.014	0.011
45	0.005	0.004	0.005	0.005	0.005	0.004	0.005	0.005	0.006	0.005	0.014	0.013	0.012	0.005	0.016	0.016	0	0.004	0.014	0.011
50	0.006	0.004	0.005	0.005	0.006	0.005	0.005	0.005	0.006	0.005	0.014	0.013	0.012	0.005	0.016	0.016	0	0.005	0.014	0.011
55	0.006	0.005	0.005	0.005	0.006	0.005	0.005	0.005	0.007	0.005	0.014	0.013	0.014	0.005	0.016	0.016	0	0.005	0.014	0.011
60	0.007	0.006	0.005	0.005	0.007	0.006	0.005	0.005	0.008	0.006	0.014	0.013	0.016	0.006	0.016	0.016	0	0.006	0.014	0.011
65	0.009	0.007	0.005	0.006	0.009	0.007	0.005	0.006	0.009	0.007	0.014	0.013	0.019	0.008	0.016	0.016	0	0.007	0.014	0.011

Speed MPH	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
0	0	0	0	0	0	0	0	0	0.049	0.049	0.039	0.041	0	0	0	0	0.001	0.001	0.055	0.014
5	0.025	0.026	0.023	0.025	0.003	0.001	0	0.003	0.034	0.027	0.014	0.017	0.034	0.025	0.014	0.023	0.009	0.014	0.051	0.018
10	0.021	0.017	0.023	0.019	0.002	0.001	0	0.002	0.022	0.018	0.014	0.016	0.021	0.017	0.014	0.016	0.007	0.01	0.026	0.014
15	0.016	0.012	0.023	0.016	0.001	0.001	0	0.001	0.016	0.012	0.014	0.014	0.016	0.012	0.014	0.012	0.005	0.008	0.022	0.011
20	0.012	0.009	0.023	0.014	0.002	0.001	0	0.002	0.012	0.009	0.014	0.014	0.013	0.009	0.014	0.01	0.004	0.006	0.018	0.009
25	0.009	0.007	0.023	0.012	0.002	0.001	0	0.002	0.009	0.007	0.014	0.014	0.009	0.007	0.014	0.008	0.004	0.005	0.017	0.008
30	0.008	0.006	0.023	0.011	0.001	0.001	0	0.001	0.008	0.006	0.014	0.013	0.008	0.006	0.014	0.007	0.003	0.005	0.016	0.007
35	0.007	0.005	0.023	0.011	0.001	0.001	0	0.001	0.007	0.005	0.014	0.013	0.007	0.005	0.014	0.007	0.003	0.004	0.016	0.007
40	0.006	0.005	0.023	0.011	0.001	0.001	0	0.001	0.006	0.005	0.014	0.013	0.006	0.005	0.014	0.006	0.003	0.004	0.015	0.007
45	0.006	0.005	0.023	0.011	0.001	0.001	0	0.001	0.006	0.005	0.014	0.013	0.006	0.004	0.014	0.006	0.003	0.004	0.015	0.006
50	0.006	0.005	0.023	0.011	0.001	0.001	0	0.001	0.006	0.005	0.014	0.013	0.006	0.005	0.014	0.006	0.003	0.004	0.015	0.006
55	0.007	0.005	0.023	0.011	0.001	0.001	0	0.001	0.007	0.005	0.014	0.013	0.007	0.005	0.014	0.007	0.003	0.004	0.015	0.007
60	0.008	0.006	0.023	0.012	0.001	0.001	0	0.001	0.008	0.006	0.014	0.013	0.008	0.006	0.014	0.007	0.004	0.005	0.014	0.007
65	0.01	0.007	0.023	0.012	0.001	0.001	0	0.001	0.009	0.007	0.014	0.013	0.009	0.007	0.014	0.008	0.005	0.005	0.015	0.007

Pollutant Name: PM10 Temperature: 90F Relative Humidity: 30%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL	OBUS NCAT	OBUS CAT	OBUS DSL	OBUS ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9092	0.562	0	0.1389	0.996	0	0	3.121	3.305	0	0	1.394	0.955	0	0	0.256	0.665	0	0	0	0	0	0	0	0	0	0	0	0	1.815	0.422
5	0.101	0.057	0.232	0.076	0.101	0.071	0.133	0.074	0.105	0.136	0.235	0.116	0.106	0.109	0.108	0.109	0.101	0.064	0.166	0.101	0.101	0.068	0.168	0.078	0.101	0.066	2.773	2.753	0	0.047	0.006	0.62	0.181	0.097	0.52	0.148	0.08	0.065	0	0.052	0.101	0.065	1.188	1.206	0.101	0.068	0.51	0.181	0.069	0.052	2.528	0.596
10	0.074	0.016	0.182	0.036	0.072	0.047	0.105	0.051	0.075	0.089	0.184	0.089	0.075	0.071	0.085	0.071	0.064	0.016	0.089	0.06	0.044	0.029	0.133	0.059	0.064	0.044	0.764	0.637	0.044	0.026	0.044	0.044	0.102	0.119	0.043	0.061	0.044	0.032	0.4	0.077	0.065	0.053	1.199	0.635
15	0.055	0.024	0.136	0.025	0.054	0.043	0.084	0.036	0.066	0.068	0.148	0.069	0.056	0.048	0.069	0.049	0.045	0.011	0.074	0.045	0.045	0.02	0.102	0.041	0.047	0.03	0.595	0.526	0.045	0.018	0.045	0.045	0.084	0.106	0.045	0.045	0.045	0.023	0.332	0.045	0.045	0.045	0.932	0.517	0.045	0.045	0.332	0.045	0.045	0.045	1.965	0.468
20	0.043	0.018	0.12	0.018	0.043	0.036	0.069	0.027	0.042	0.066	0.131	0.065	0.044	0.035	0.056	0.036	0.033	0.008	0.059	0.035	0.035	0.015	0.078	0.031	0.035	0.023	0.458	0.405	0.035	0.014	0.035	0.035	0.066	0.083	0.035	0.035	0.035	0.018	0.256	0.035	0.035	0.035	0.718	0.423	0.035	0.035	0.256	0.035	0.035	0.035	1.736	0.389
25	0.035	0.015	0.101	0.015	0.035	0.029	0.058	0.023	0.035	0.056	0.112	0.056	0.036	0.029	0.047	0.029	0.027	0.006	0.049	0.03	0.03	0.013	0.067	0.026	0.03	0.019	0.393	0.347	0.03	0.012	0.03	0.03	0.056	0.071	0.03	0.03	0.03	0.015	0.219	0.03	0.03	0.03	0.615	0.362	0.03	0.03	0.219	0.03	0.03	0.03	1.487	0.333
30	0.03	0.013	0.087	0.013	0.03	0.025	0.05	0.02	0.03	0.048	0.096	0.048	0.031	0.025	0.04	0.025	0.023	0.005	0.042	0.026	0.026	0.011	0.057	0.022	0.026	0.016	0.337	0.298	0.026	0.01	0.026	0.026	0.048	0.061	0.026	0.026	0.026	0.013	0.188	0.026	0.026	0.026	0.528	0.311	0.026	0.026	0.188	0.026	0.026	0.026	1.277	0.286
35	0.026	0.011	0.075	0.011	0.026	0.021	0.043	0.017	0.025	0.041	0.083	0.041	0.027	0.021	0.034	0.021	0.02	0.004	0.036	0.022	0.022	0.009	0.049	0.019	0.022	0.014	0.289	0.256	0.022	0.009	0.022	0.022	0.041	0.052	0.022	0.022	0.022	0.011	0.162	0.022	0.022	0.022	0.453	0.267	0.022	0.022	0.162	0.022	0.022	0.022	1.097	0.246
40	0.023	0.009	0.065	0.009	0.023	0.018	0.037	0.015	0.022	0.036	0.072	0.036	0.024	0.018	0.03	0.018	0.017	0.003	0.031	0.019	0.019	0.008	0.043	0.017	0.019	0.012	0.252	0.223	0.019	0.008	0.019	0.019	0.036	0.045	0.019	0.019	0.019	0.009	0.141	0.019	0.019	0.019	0.396	0.233	0.019	0.019	0.141	0.019	0.019	0.019	0.959	0.215
45	0.021	0.008	0.059	0.008	0.021	0.016	0.033	0.013	0.02	0.032	0.064	0.032	0.022	0.016	0.026	0.016	0.015	0.003	0.028	0.017	0.017	0.007	0.038	0.015	0.017	0.011	0.224	0.198	0.017	0.007	0.017	0.017	0.032	0.04	0.017	0.017	0.017	0.008	0.125	0.017	0.017	0.017	0.352	0.207	0.017	0.017	0.125	0.017	0.017	0.017	0.852	0.191
50	0.019	0.008	0.053	0.008	0.019	0.015	0.03	0.012	0.018	0.029	0.058	0.029	0.02	0.015	0.024	0.015	0.014	0.003	0.025	0.016	0.016	0.006	0.035	0.014	0.016	0.01	0.202	0.179	0.016	0.006	0.016	0.016	0.029	0.036	0.016	0.016	0.016	0.008	0.113	0.016	0.016	0.016	0.317	0.186	0.016	0.016	0.113	0.016	0.016	0.016	0.767	0.172
55	0.017	0.007	0.048	0.007	0.017	0.014	0.027	0.011	0.016	0.026	0.053	0.026	0.018	0.014	0.022	0.014	0.013	0.003	0.023	0.015	0.015	0.006	0.032	0.013	0.015	0.009	0.184	0.163	0.015	0.006	0.015	0.015	0.026	0.033	0.015	0.015	0.015	0.007	0.103	0.015	0.015	0.015	0.289	0.17	0.015	0.015	0.103	0.015	0.015	0.015	0.7	0.157
60	0.01	0.005	0.034	0.005	0.01	0.008	0.015	0.006	0.009	0.015	0.03	0.015	0.01	0.008	0.012	0.008	0.007	0.002	0.013	0.009	0.009	0.004	0.018	0.007	0.009	0.005	0.104	0.092	0.009	0.003	0.009	0.009	0.015	0.019	0.009	0.009	0.009	0.004	0.058	0.009	0.009	0.009	0.163	0.096	0.009	0.009	0.058	0.009	0.009	0.009	0.396	0.089
65	0.035	0.01	0.054	0.01	0.034	0.015	0.031	0.015	0.034	0.025	0.055	0.025	0.034	0.02	0.033	0.02	0.01	0.005	0.037	0.01	0.01	0.004	0.034	0.021	0.01	0.007	0.123	0.195	0.01	0.008	0.037	0.01	0.006	0.232	0.142	0.01	0.009	0.005	0.028	0.01	0.009	0.008	0.039	0.023	0.006	0.01	0.028	0.01	0.009	0.008	0.039	0.021

Pollutant Name: PM10 - Tire Wear Temperature: 90F Relative Humidity: 30%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL	OBUS NCAT	OBUS CAT	OBUS DSL	OBUS ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.012	0.011	0.013	0.012	0.012	0.011	0.013	0.012	0.012	0.011	0.013	0.012	0.034	0.034	0	0.012	0.013	0.021	0.012	0.012	0.009	0.011	0.009	0.011	0	0.009	0.011	0.009	0.011	0.009	0.011	0.009	0.011	0.009	0.011	0.009	0.011	0.009	0.011	0.009	0.011	0.009	0.011	0.009	0.011	0.009	0.011
10	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.013	0.012	0.013	0.013	0.013	0.012	0.013	0.013	0.013	0.012	0.013	0.013	0.034	0.034	0	0.013	0.013	0.021	0.013	0.013	0.011	0.012	0.011	0.012	0	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012
15	0.007	0.006	0.006	0.006	0.007	0.006	0.006	0.006	0.007	0.006	0.006	0.006	0.007	0.006	0.006	0.006	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.034	0.034	0	0.012	0.012	0.021	0.012	0.012	0.011	0.012	0.011	0.012	0	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012
20	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.034	0.034	0	0.012	0.012	0.021	0.012	0.012	0.011	0.012	0.011	0.012	0	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012
25	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.034	0.034	0	0.012	0.012	0.021	0.012	0.012	0.011	0.012	0.011	0.012	0	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012
30	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.034	0.034	0	0.012	0.012	0.021	0.012	0.012	0.011	0.012	0.011	0.012	0	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012
35	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.034	0.034	0	0.012	0.012	0.021	0.012	0.012	0.011	0.012	0.011	0.012	0	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012
40	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.034	0.034	0	0.012	0.012	0.021	0.012	0.012	0.011	0.012	0.011	0.012	0	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012
45	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.034	0.034	0	0.012	0.012	0.021	0.012	0.012	0.011	0.012	0.011	0.012	0	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012
50	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.034	0.034	0	0.012	0.012	0.021	0.012	0.012	0.011	0.012	0.011	0.012	0	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012
55	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.034	0.034	0	0.012	0.012	0.021	0.012	0.012	0.011	0.012	0.011	0.012	0	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012
60	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.034	0.034	0	0.012	0.012	0.021	0.012	0.012	0.011	0.012	0.011	0.012	0	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012
65	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.012	0.011	0.012	0.012	0.034	0.034	0	0.012	0.012	0.021	0.012	0.012	0.011	0.012	0.011	0.012	0	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012	0.011	0.012

Pollutant Name: PM10 - Brake Wear Temperature: 90F Relative Humidity: 30%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL	OBUS NCAT	OBUS CAT	OBUS DSL	OBUS ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028	0	0.013	0.013	0.013	0.014	0.011	0.013	0.013	0.004	0.006	0	0.004	0.011	0.013	0.013	0.004	0.006	0.004	0.011	0.013	0.013	0.004	0.006	0.023	0.014	0.025	0.015
10	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028	0	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.004	0.006	0	0.004	0.013	0.013	0.013	0.004	0.006	0.004	0.013	0.013	0.013	0.004	0.006	0.023	0.013	0.025	0.015
15	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028	0	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.004	0.006	0	0.004	0.013	0.013	0.013	0.004	0.006	0.004	0.013	0.013	0.013	0.004	0.006	0.023	0.013	0.025	0.015
20	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028	0	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.004	0.006	0	0.004	0.013	0.013	0.013	0.004	0.006	0.004	0.013	0.013	0.013	0.004	0.006	0.023	0.013	0.025	0.015
25	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028	0	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.004	0.006	0	0.004	0.013	0.013	0.013	0.004	0.006	0.004	0.013	0.013	0.013	0.004	0.006	0.023	0.013	0.025	0.015
30	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028	0	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.004	0.006	0	0.004	0.013	0.013	0.013	0.004	0.006	0.004	0.013	0.013	0.013	0.004	0.006	0.023	0.013	0.025	0.015
35	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028	0	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.004	0.006	0	0.004	0.013	0.013	0.013	0.004	0.006	0.004	0.013	0.013	0.013	0.004	0.006	0.023	0.013	0.025	0.015
40	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028	0	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.004	0.006	0	0.004	0.013	0.013	0.013	0.004	0.006	0.004	0.013	0.013	0.013	0.004	0.006	0.023	0.013	0.025	0.015
45	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028	0	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.004	0.006	0	0.004	0.013	0.013	0.013	0.004	0.006	0.004	0.013	0.013	0.013	0.004	0.006	0.023	0.013	0.025	0.015
50	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028	0	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.004	0.006	0	0.004	0.013	0.013	0.013	0.004	0.006	0.004	0.013	0.013	0.013	0.004	0.006	0.023	0.013	0.025	0.015
55	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028	0	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.004	0.006	0	0.004	0.013	0.013	0.013	0.004	0.006	0.004	0.013	0.013	0.013	0.004	0.006	0.023	0.013	0.025	0.015
60	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028	0	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.004	0.006	0	0.004	0.013	0.013	0.013	0.004	0.006	0.004	0.013	0.013	0.013	0.004	0.006	0.023	0.013	0.025	0.015
65	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028	0	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.004	0.006	0	0.004	0.013	0.013	0.013	0.004	0.006	0.004	0.013	0.013	0.013	0.004	0.006	0.023	0.013	0.025	0.015

Pollutant Name: Gasoline - exhaust Temperature: 90F Relative Humidity: 30%

| Speed MPH | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT

GHG Reference source 1: Table C.4, California Climate Action Registry General Reporting Protocol Version 3.1, January 2009

Table C.4 Methane and Nitrous Oxide Emission Factors for Highway Vehicles by Model Year

Vehicle Types/Model Years	N_2O (g/mile)	CH_4 (g/mile)
Gasoline Passenger Cars		
Model Years 1984-1993	0.0647	0.0704
Model Year 1994	0.0560	0.0531
Model Year 1995	0.0473	0.0358
Model Year 1996	0.0426	0.0272
Model Year 1997	0.0422	0.0268
Model Year 1998	0.0393	0.0249
Model Year 1999	0.0337	0.0216
Model Year 2000	0.0273	0.0178
Model Year 2001	0.0158	0.0110
Model Year 2002	0.0158	0.0107
Model Year 2003	0.0135	0.0114
Model Year 2004	0.0083	0.0145
Model Year 2005 - Present	0.0079	0.0147
Gasoline Light Trucks (Vans, Pickup Trucks, SUVs)		
Model Years 1987-1993	0.1035	0.0813
Model Year 1994	0.0982	0.0646
Model Year 1995	0.0908	0.0517
Model Year 1996	0.0871	0.0452
Model Year 1997	0.0871	0.0452
Model Year 1998	0.0728	0.0391
Model Year 1999	0.0564	0.0321
Model Year 2000	0.0621	0.0346
Model Year 2001	0.0164	0.0151
Model Year 2002	0.0228	0.0178
Model Year 2003	0.0114	0.0155
Model Year 2004	0.0132	0.0152
Model Year 2005 - Present	0.0101	0.0157

Table C.4 Methane and Nitrous Oxide Emission Factors for Highway Vehicles by Model Year (continued)

Vehicle Types/Model Years	N_2O (g/mile)	CH_4 (g/mile)
Gasoline Heavy-Duty Vehicles		
Model Years 1985-1986	0.0515	0.4090
Model Year 1987	0.0549	0.3675
Model Years 1988-1989	0.0933	0.3492
Model Years 1990-1995	0.1142	0.3246
Model Year 1996	0.1680	0.1278
Model Year 1997	0.1726	0.0924
Model Year 1998	0.1693	0.0641
Model Year 1999	0.1435	0.0578
Model Year 2000	0.1092	0.0493
Model Year 2001	0.1235	0.0528
Model Year 2002	0.1307	0.0546
Model Year 2003	0.1240	0.0533
Model Year 2004	0.0285	0.0341
Model Year 2005 - Present	0.0177	0.0326
Diesel Passenger Cars		
Model Years 1960-1982	0.0012	0.0006
Model Years 1983 - Present	0.0010	0.0005
Diesel Light Trucks		
Model Years 1960-1982	0.0017	0.0011
Model Years 1983-1995	0.0014	0.0009
Model Years 1996 - Present	0.0015	0.0010
Diesel Heavy-Duty Vehicles		
All Model Years	0.0048	0.0051

Source: Gasoline vehicle factors from EPA Climate Leaders, Mobile Combustion Guidance, (2009) based on U.S. EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005 (2007). Diesel vehicle factors based on U.S. EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005 (2007), Annex 3.2, Table A-98.

Reference source 2:

Greenhouse Gas Global Warming Potential (GWP) - Intergovernmental Panel on Climate Change, Second Assessment Report (1996)

CO_2 GWP (SAR, 1996) = 1

CH_4 GWP (SAR, 1996) = 21

N_2O GWP (SAR, 1996) = 310