Appendix H
Air Quality and Greenhouse Gas Calculations

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Table 1

Peak Daily Construction Emissions						
Scenario[1]	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
1	46.17	165.20	412.89	0.60	33.61	16.70
2	68.05	218.56	576.70	0.84	51.92	24.58
3	68.63	259.65	566.20	0.71	33.92	22.97
4	71.26	290.59	573.29	0.73	38.79	23.36
5	80.03	309.47	562.69	0.84	34.85	33.43
6	42.10	123.31	330.49	0.49	16.87	21.95
7	7.00	0.24	1.68	1.29	0.10	0.07
Peak Daily	**80.03**	**309.47**	**576.70**	**1.29**	**51.92**	**33.43**

[1] Emissions were calculated for six scenarios, listed below. Each scenario includes a combination of construction activities that could occur at the same time.

Scenario 1 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Guard House and Office Trailer Relocation	20.36	71.18	173.94	0.19	10.78	7.21
Substation Survey	0.15	0.18	0.19	0.15	0.23	0.15
Marshalling Yard	1.73	7.06	13.99	0.02	0.75	0.61
ROW Clearing	11.48	39.90	107.75	0.12	9.30	4.12
Subtransmission Line Survey	0.15	1.36	0.19	0.00	0.10	0.01
Subtransmission Line Roadway	12.13	44.40	115.59	0.12	12.37	4.56
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**46.17**	**165.20**	**412.89**	**0.60**	**33.61**	**16.70**

Scenario 2 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Survey	0.09	0.17	0.18	0.07	0.12	0.08
Substation Grading	5.84	22.15	50.17	0.06	19.45	4.81
Subtransmission Line Survey	0.15	1.36	0.19	0.00	0.10	0.01
Subtransmission Line Roadway	12.13	44.40	115.59	0.12	12.37	4.56
Subtransmission Pole Framing and Setting	12.04	42.07	107.82	0.13	4.74	4.24
Subtransmission Line TSP Footing Installation	16.59	59.88	154.64	0.18	6.46	5.60
Subtransmission Line Assembly	13.22	39.69	122.44	0.14	5.06	4.50
Subtransmission Line Restoration	7.99	8.85	25.69	0.13	3.62	0.80
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**68.05**	**218.56**	**576.70**	**0.84**	**51.92**	**24.58**

Table 1
Scenario 3 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Site Clearing	6.89	34.91	40.48	0.06	7.73	2.15
Compressor Station Site Preparation	6.59	35.11	41.48	0.06	4.74	2.30
Substation Civil	3.28	13.13	12.29	0.02	1.39	0.99
Substation Fencing	0.82	3.54	2.60	0.00	0.30	0.19
Subtransmission Guard Structure Installation	9.05	29.98	84.26	0.10	3.39	3.00
Subtransmission Line Survey	0.15	1.36	0.19	0.00	0.10	0.01
Subtransmission Pole Framing and Setting	12.04	42.07	107.82	0.13	4.74	4.24
Subtransmission Line TSP Footing Installation	16.59	59.88	154.64	0.18	6.46	5.60
Subtransmission Line Assembly	13.22	39.69	122.44	0.14	5.06	4.50
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**68.63**	**259.65**	**566.20**	**0.71**	**33.92**	**22.97**

Scenario 4 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Civil	11.44	71.91	47.54	0.11	7.27	2.85
Substation MEER	0.18	1.44	0.53	0.00	0.12	0.02
Substation Electrical	1.69	7.44	5.75	0.01	0.70	0.42
Substation Wiring	0.27	1.88	0.59	0.00	0.15	0.04
Substation Transformer	1.54	6.78	7.45	0.01	0.75	0.52
Substation Testing	0.12	1.03	0.49	0.00	0.07	0.02
Substation Maintenance	0.18	1.37	1.27	0.00	0.10	0.04
Substation Paving	1.33	8.84	7.63	0.01	0.69	0.47
Substation Landscaping	0.38	2.51	1.39	0.00	0.21	0.07
Subtransmission Line Survey	0.15	1.36	0.19	0.00	0.10	0.01
Subtransmission Line Roadway	12.13	44.40	115.59	0.12	12.37	4.56
Subtransmission Pole Framing and Setting	12.04	42.07	107.82	0.13	4.74	4.24
Subtransmission Line TSP Footing Installation	16.59	59.88	154.64	0.18	6.46	5.60
Subtransmission Line Assembly	13.22	39.69	122.44	0.14	5.06	4.50
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**71.26**	**290.59**	**573.29**	**0.73**	**38.79**	**23.36**

Table 1
Scenario 5 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Mechanical	12.74	75.88	49.34	0.11	7.00	3.20
Compressor Station Electrical	8.06	37.58	55.64	0.08	3.59	2.22
Substation MEER	0.18	1.44	0.53	0.00	0.12	0.02
Substation Electrical	1.69	7.44	5.75	0.01	0.70	0.42
Substation Wiring	0.27	1.88	0.59	0.00	0.15	0.04
Substation Transformer	1.54	6.78	7.45	0.01	0.75	0.52
Substation Testing	0.12	1.03	0.49	0.00	0.07	0.02
Substation Maintenance	0.18	1.37	1.27	0.00	0.10	0.04
Substation Paving	3.79	16.48	23.80	0.03	1.64	1.37
Substation Landscaping	1.32	6.65	5.83	0.01	0.68	10.39
Subtransmission Line Survey	0.15	1.36	0.19	0.00	0.10	0.01
Subtransmission Pole Framing and Setting	12.04	42.07	107.82	0.13	4.74	4.24
Subtransmission Line TSP Footing Installation	16.59	59.88	154.64	0.18	6.46	5.60
Subtransmission Line Assembly	13.22	39.69	122.44	0.14	5.06	4.50
Subtransmission Line Restoration	7.99	8.85	25.69	0.13	3.62	0.80
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**80.03**	**309.47**	**562.69**	**0.84**	**34.85**	**33.43**

Scenario 6 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
PPL Installation	15.87	57.51	120.86	0.12	10.96	6.10
Subtransmission Line Conductor Installation	17.68	50.22	172.17	0.20	6.43	5.59
Subtransmission Line Restoration	7.99	8.85	25.69	0.13	3.62	0.80
Fiber Optic Installation	0.32	2.17	2.09	0.00	0.22	0.09
Subtransmission Guard Structure Removal	10.47	35.45	97.64	0.12	4.01	3.57
Compressor Station Paving	3.79	16.48	23.80	0.03	1.64	1.37
Compressor Station Fencing	0.38	2.39	2.03	0.00	0.21	0.10
Compressor Station Landscaping	1.32	6.65	5.83	0.01	0.68	10.39
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**42.10**	**123.31**	**330.49**	**0.49**	**16.87**	**21.95**

Scenario 7 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Turbine Dismantling, Hauling and Site Clearing an	7.00	0.24	1.68	1.29	0.10	0.07
Total	**7.0**	**0.2**	**1.7**	**1.3**	**0.1**	**0.1**

Table 2
Compressor Station Survey

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.09	0.17	0.18	0.07	0.08	0.08
Vehicle Fugitive	--	--	--	--	0.04	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.09**	**0.17**	**0.18**	**0.07**	**0.12**	**0.08**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	5	1	0.01	0.09	0.10	0.00	0.00	0.00
Worker Commuting	40	2	0.07	0.07	0.07	0.07	0.07	0.07
Total Vehicle Exhaust			**0.09**	**0.17**	**0.18**	**0.07**	**0.08**	**0.08**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	5	1	0.00	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	2	0.04	0.00
Worker Commuting	Unpaved	0	2	0.00	0.00
Total Vehicle Fugitive				**0.04**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 3
Compressor Station Site Clearing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	4.74	17.10	34.72	0.04	2.04	1.87
Vehicle Exhaust	2.15	17.81	5.76	0.03	0.36	0.27
Vehicle Fugitive	--	--	--	--	1.08	0.00
Earthwork Fugitive	--	--	--	--	4.25	0.00
Total	**6.89**	**34.91**	**40.48**	**0.06**	**7.73**	**2.15**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
D6 Dozer		5	1	0.80	2.72	7.26	0.01	0.32	0.30
Grader		5	1	0.86	3.16	7.17	0.01	0.38	0.35
Backhoe/Loader		5	2	1.55	5.38	8.47	0.01	0.69	0.63
Sheep's Foot Vibrator Compactor (10 yards)		5	2	0.05	0.26	0.32	0.00	0.02	0.01
Forklift		5	2	1.48	5.58	11.50	0.01	0.64	0.59
Total Equipment Exhaust				**4.74**	**17.10**	**34.72**	**0.04**	**2.04**	**1.87**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	10	6	0.18	0.72	2.29	0.00	0.11	0.10
6 Ton Truck	10	2	0.06	0.24	0.76	0.00	0.04	0.03
Water Truck	20	1	0.06	0.24	0.76	0.00	0.04	0.03
Pickup Truck	5	1	0.01	0.09	0.10	0.00	0.00	0.00
Worker Commuting	40	50	1.83	16.53	1.84	0.02	0.17	0.11
Total Vehicle Exhaust			**2.15**	**17.81**	**5.76**	**0.03**	**0.36**	**0.27**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	Paved	10	6	0.03	0.00
Dump Truck	Unpaved	0	6	0.00	0.00
6 Ton Truck	Paved	10	2	0.01	0.00
6 Ton Truck	Unpaved	0	2	0.00	0.00
Water Truck	Paved	20	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Pickup Truck	Paved	5	1	0.00	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	50	1.03	0.00
Worker Commuting	Unpaved	0	50	0.00	0.00
Total Vehicle Fugitive				**1.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Bulldozing	Hours/Day	5	0.78	0.11
Grading[b]	VMT/Day	5	3.47	0.18
Total Earthwork Fugitive			**4.25**	**0.29**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[b.] Average vehicle speed assumed at 1 miles per hour for grading.

Emission factors are in Table 48

Table 4
Compressor Station Site Preparation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	3.37	11.85	23.86	0.03	1.43	1.32
Vehicle Exhaust	3.23	23.26	17.62	0.04	0.89	0.74
Vehicle Fugitive	--	--	--	--	1.27	0.00
Earthwork Fugitive	--	--	--	--	1.14	0.24
Total	**6.59**	**35.11**	**41.48**	**0.06**	**4.74**	**2.30**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
D6 Dozer		5	1	0.80	2.72	7.26	0.01	0.32	0.30
Grader		5	1	0.86	3.16	7.17	0.01	0.38	0.35
Excavator		5	2	0.11	0.34	0.64	0.00	0.04	0.03
Backhoe/Loader		5	2	1.55	5.38	8.47	0.01	0.69	0.63
Sheep's Foot Vibrator Compactor (10 yards)		5	2	0.05	0.26	0.32	0.00	0.02	0.01
Total Equipment Exhaust				**3.37**	**11.85**	**23.86**	**0.03**	**1.43**	**1.32**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	10	15	0.39	2.77	3.09	0.00	0.11	0.10
Dump Truck (20 yards)	24	12	0.88	3.44	11.01	0.01	0.53	0.46
Dump Truck (10 yards)	24	1	0.07	0.29	0.92	0.00	0.04	0.04
Water Truck	20	1	0.06	0.24	0.76	0.00	0.04	0.03
Worker Commuting	40	50	1.83	16.53	1.84	0.02	0.17	0.11
Total Vehicle Exhaust			**3.23**	**23.26**	**17.62**	**0.04**	**0.89**	**0.74**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	10	15	0.08	0.00
Pickup Truck	Unpaved	0	15	0.00	0.00
Water Truck	Paved	20	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Dump Truck (20 yards)	Paved	24	12	0.15	0.00
Dump Truck (10 yards)	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	50	1.03	0.00
Worker Commuting	Unpaved	0	50	0.00	0.00
Total Vehicle Fugitive				**1.27**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	1,150	1.14	0.24
Bulldozing	Hours/Day	5	0.78	0.11
Scraping and Grading[c]	VMT/Day	15	10.41	0.54
Storage Pile Wind Erosion[d]	Acres	0.5	11.00	2.29
Total Earthwork Fugitive			**23.34**	**3.17**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[b] Peak daily estimated from total of 100,000 CY over 4 months (87 working); i.e., 1150 CY per day

[c] Average vehicle speed assumed at 1 mile per hour for grading and scraping.

[d] Assumed for 0.5 acre storage pile area

Emission factors are in Table 46

Table 5
Compressor Station Civil

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	5.08	17.65	32.82	0.03	2.22	2.04
Vehicle Exhaust	6.36	54.25	14.72	0.08	0.93	0.68
Vehicle Fugitive	--	--	--	--	3.25	0.00
Earthwork Fugitive	--	--	--	--	0.88	0.13
Total	**11.44**	**71.91**	**47.54**	**0.11**	**7.27**	**2.85**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Drilling Rig		5	1	0.56	1.81	3.66	0.00	0.26	0.24
Backhoe/Loader		5	2	1.55	5.38	8.47	0.01	0.69	0.63
Forklift		5	1	0.74	2.79	5.75	0.01	0.32	0.29
30 Ton Hydraulic Crane		5	1	0.63	2.14	3.28	0.00	0.28	0.25
D6 Dozer		5	1	0.80	2.72	7.26	0.01	0.32	0.30
Front End Loader		5	1	0.77	2.69	4.24	0.00	0.34	0.32
Sheep's Foot Vibrator Compactor (10 yards)		5	1	0.03	0.13	0.16	0.00	0.01	0.01
Total Equipment Exhaust				**5.08**	**17.65**	**32.82**	**0.03**	**2.22**	**2.04**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	20	1	0.06	0.24	0.76	0.00	0.04	0.03
Pickup Truck	10	15	0.39	2.77	3.09	0.00	0.11	0.10
6 Ton Truck	20	7	0.43	1.67	5.35	0.01	0.26	0.22
Worker Commuting	40	150	5.48	49.58	5.51	0.06	0.52	0.33
Total Vehicle Exhaust			**6.36**	**54.25**	**14.72**	**0.08**	**0.93**	**0.68**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	Paved	20	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Pickup Truck	Paved	10	15	0.08	0.00
Pickup Truck	Unpaved	0	15	0.00	0.00
6 Ton Truck	Paved	20	7	0.07	0.00
6 Ton Truck	Unpaved	0	7	0.00	0.00
Worker Commuting	Paved	40	150	3.09	0.00
Worker Commuting	Unpaved	0	150	0.00	0.00
Total Vehicle Fugitive				**3.25**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	100	0.10	0.02
Bulldozing	Hours/Day	5	0.78	0.11
Total Earthwork Fugitive			**0.88**	**0.13**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[b] Estimate

Table 6
Compressor Station Mechanical

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	6.44	21.86	35.39	0.04	2.77	2.55
Vehicle Exhaust	6.30	54.02	13.95	0.07	0.89	0.65
Vehicle Fugitive	--	--	--	--	3.24	0.00
Earthwork Fugitive	--	--	--	--	0.10	0.00
Total	**12.74**	**75.88**	**49.34**	**0.11**	**7.00**	**3.20**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
30 Ton Hydraulic Crane		5	1	0.63	2.14	3.28	0.00	0.28	0.25
50 Ton Hydraulic Crane		5	1	0.63	2.14	3.28	0.00	0.28	0.25
200 Ton Crawler Crane		5	2	1.27	4.27	6.57	0.01	0.55	0.51
Forklift		5	1	0.74	2.79	5.75	0.01	0.32	0.29
Front End Loader		5	3	2.32	8.07	12.71	0.01	1.03	0.95
Welders		5	1	0.84	2.45	3.80	0.00	0.32	0.29
Total Equipment Exhaust				**6.44**	**21.86**	**35.39**	**0.04**	**2.77**	**2.55**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	10	15	0.39	2.77	3.09	0.00	0.11	0.10
6 Ton Truck	20	7	0.43	1.67	5.35	0.01	0.26	0.22
Worker Commuting	40	150	5.48	49.58	5.51	0.06	0.52	0.33
Total Vehicle Exhaust			**6.30**	**54.02**	**13.95**	**0.07**	**0.89**	**0.65**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	10	15	0.08	0.00
Pickup Truck	Unpaved	0	15	0.00	0.00
6 Ton Truck	Paved	20	7	0.07	0.00
6 Ton Truck	Unpaved	0	7	0.00	0.00
Worker Commuting	Paved	40	150	3.09	0.00
Worker Commuting	Unpaved	0	150	0.00	0.00
Total Vehicle Fugitive				**3.24**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	**100**	0.10	0.00
Total Earthwork Fugitive			**0.10**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[b] Estimate

Emission factors are in Table 46

Table 7
Compressor Station Electrical

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	5.84	18.29	50.71	0.06	2.19	2.02
Vehicle Exhaust	2.22	19.29	4.93	0.03	0.29	0.21
Vehicle Fugitive	--	--	--	--	1.11	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**8.06**	**37.58**	**55.64**	**0.08**	**3.59**	**2.22**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Front End Loader		5	1	0.77	2.69	4.24	0.00	0.34	0.32
Generators		8	2	1.10	3.71	8.26	0.01	0.45	0.41
Other Construction Equipment		8	2	3.97	11.89	38.22	0.04	1.40	1.29
Total Equipment Exhaust				**5.84**	**18.29**	**50.71**	**0.06**	**2.19**	**2.02**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	10	15	0.39	2.77	3.09	0.00	0.11	0.10
Worker Commuting	40	50	1.83	16.53	1.84	0.02	0.17	0.11
Total Vehicle Exhaust			**2.22**	**19.29**	**4.93**	**0.03**	**0.29**	**0.21**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	10	15	0.08	0.00
Pickup Truck	Unpaved	0	15	0.00	0.00
Worker Commuting	Paved	40	50	1.03	0.00
Worker Commuting	Unpaved	0	50	0.00	0.00
Total Vehicle Fugitive				**1.11**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 8
Compressor Station Paving

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	3.48	11.39	22.79	0.02	1.45	1.33
Vehicle Exhaust	0.30	2.47	1.02	0.00	0.05	0.04
Vehicle Fugitive	--	--	--	--	0.14	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Asphaltic Paving	--	2.62	--	--	--	--
Total	**3.8**	**16.5**	**23.8**	**0.0**	**1.6**	**1.4**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Paving Roller		5	2	0.94	3.10	5.54	0.01	0.39	0.36
Asphalt Paver		5	1	0.89	2.78	8.07	0.01	0.36	0.33
Asphalt Curb Machine		5	1	0.89	2.82	4.93	0.00	0.35	0.33
Tractor		5	1	0.77	2.69	4.24	0.00	0.34	0.32
Total Equipment Exhaust				**3.48**	**11.39**	**22.79**	**0.02**	**1.45**	**1.33**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	10	2	0.05	0.37	0.41	0.00	0.02	0.01
Dump Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.30**	**2.47**	**1.02**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	10	2	0.01	0.00
Pickup Truck	Unpaved	0	2	0.00	0.00
Dump Truck	Paved	10	1	0.01	0.00
Dump Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.14**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Asphaltic Paving VOC Emissions

Area Paved (acre/day)[a]	Emission Factor (lb/acre)[b]	ROG (lb/day)[c]
1.0	2.62	2.62

[a] Assumed a maximum of 1 acre paved in a day for worst-case emission estimation

[b] From URBEMISS 2007 User's Guide, Appendix A

[c] Emissions [lb/day] = Emission factor [lb/acre] x Area paved [acre/day]

Table 9
Compressor Station Fencing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.18	0.76	1.29	0.00	0.07	0.07
Vehicle Exhaust	0.20	1.63	0.74	0.00	0.04	0.03
Vehicle Fugitive	--	--	--	--	0.09	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.38**	**2.39**	**2.03**	**0.00**	**0.21**	**0.10**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Skid Steer Loader		8	1	0.18	0.76	1.29	0.00	0.07	0.07
Total Equipment Exhaust				**0.18**	**0.76**	**1.29**	**0.00**	**0.07**	**0.07**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Flatbed Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Pickup Truck	10	1	0.03	0.18	0.21	0.00	0.01	0.01
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.20**	**1.63**	**0.74**	**0.00**	**0.04**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Flatbed Truck	Paved	10	1	0.01	0.00
Flatbed Truck	Unpaved	0	1	0.00	0.00
Pickup Truck	Paved	10	1	0.01	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.09**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 10
Compressor Station Landscaping

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.93	3.23	5.08	0.01	0.41	0.38
Vehicle Exhaust	0.40	3.42	0.75	0.00	0.05	10.02
Vehicle Fugitive	--	--	--	--	0.21	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**1.32**	**6.65**	**5.83**	**0.01**	**0.68**	**10.39**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Tractor		6	1	0.93	3.23	5.08	0.01	0.41	0.38
Total Equipment Exhaust				**0.93**	**3.23**	**5.08**	**0.01**	**0.41**	**0.38**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Worker Commuting	40	10	0.37	3.31	0.37	0.00	0.03	10.00
Total Vehicle Exhaust			**0.40**	**3.42**	**0.75**	**0.00**	**0.05**	**10.02**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	Paved	10	1	0.01	0.00
Dump Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	10	0.21	0.00
Worker Commuting	Unpaved	0	10	0.00	0.00
Total Vehicle Fugitive				**0.21**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 11
Plant Power Line Construction

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	15.32	52.55	120.31	0.12	6.33	5.83
Vehicle Exhaust	0.55	4.96	0.55	0.01	0.05	0.03
Vehicle Fugitive	--	--	--	--	0.31	0.00
Earthwork Fugitive	--	--	--	--	4.26	0.24
Total	**15.87**	**57.51**	**120.86**	**0.12**	**10.96**	**6.10**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Backhoe		6	2	1.86	6.46	10.17	0.01	0.82	0.76
Hauler		4	1	0.95	3.35	7.96	0.01	0.39	0.36
Skid Steer Loader		4	2	0.18	0.76	1.29	0.00	0.07	0.07
Water Truck		6	1	1.42	5.03	11.94	0.01	0.58	0.54
Concrete Truck		4	1	0.95	3.35	7.96	0.01	0.39	0.36
Ditch Witch		6	1	1.42	5.03	11.94	0.01	0.58	0.54
Batch Plant		8	1	1.98	5.94	19.11	0.02	0.70	0.64
Drill Rig		6	2	1.34	4.34	8.78	0.01	0.63	0.58
Truck with Trailer		2	2	0.95	3.35	7.96	0.01	0.39	0.36
Compressor		2	1	0.50	1.49	4.78	0.01	0.18	0.16
Construction Fork		6	1	0.89	3.35	6.90	0.01	0.38	0.35
980 Loader		4	1	0.62	2.15	3.39	0.00	0.27	0.25
Boom Truck		4	1	0.95	3.35	7.96	0.01	0.39	0.36
Bucket Truck		4	1	0.95	3.35	7.96	0.01	0.39	0.36
Vibrating Roller		4	1	0.37	1.24	2.22	0.00	0.16	0.14
Total Equipment Exhaust				**15.32**	**52.55**	**120.31**	**0.12**	**6.33**	**5.83**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Emission factors based on equipment composite where BHP unknown.

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	15	0.55	4.96	0.55	0.01	0.05	0.03
Total Vehicle Exhaust			**0.55**	**4.96**	**0.55**	**0.01**	**0.05**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	15	0.31	0.00
Worker Commuting	Unpaved	0	15	0.00	0.00
Total Vehicle Fugitive				**0.31**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	100	0.10	0.02
Ditch Witch (Grading)[c]	VMT/Day	6	4.16	0.22
Total Earthwork Fugitive			**4.26**	**0.24**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[b] Estimate

[c.] Average vehicle speed assumed at 1 miles per hour for grading.

Emission factors are in Table 46

Table 12
Guard House and Office Trailer Relocation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	19.82	66.22	173.39	0.18	7.64	7.03
Vehicle Exhaust	0.55	4.96	0.55	0.01	0.05	0.03
Vehicle Fugitive	--	--	--	--	0.31	0.00
Earthwork Fugitive	--	--	--	--	2.78	0.14
Total	**20.36**	**71.18**	**173.94**	**0.19**	**10.78**	**7.21**

Construction Equipment Exhaust Emissions

Equipment	Hours/ Day Used[b]	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pickup	4	4	3.97	11.89	38.22	0.04	1.40	1.29
10-Ton Hydraulic Crane	4	1	0.64	2.17	5.81	0.01	0.26	0.24
Backhoe/Loader	4	2	1.15	4.06	9.23	0.01	0.52	0.48
Water Truck	4	2	1.98	5.94	19.11	0.02	0.70	0.64
Grader	4	1	0.69	2.53	5.74	0.01	0.30	0.28
D6 Dozer	4	2	2.70	11.30	23.91	0.02	1.03	0.95
Dump Truck	4	4	3.97	11.89	38.22	0.04	1.40	1.29
Sheep's Foot Vibrator Compactor (10 yards)	4	2	1.72	5.81	11.52	0.01	0.75	0.69
Front End Loader	4	2	1.15	4.06	9.23	0.01	0.52	0.48
Drill Rig	4	1	0.42	2.06	4.53	0.01	0.20	0.18
Paver/Sealer	4	2	1.42	4.52	7.89	0.01	0.57	0.52
Total Equipment Exhaust			**19.82**	**66.22**	**173.39**	**0.18**	**7.64**	**7.03**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Emission factors based on equipment composite where BHP unknown.

[b] Hours estimated based on 8 hour work day

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	15	0.55	4.96	0.55	0.01	0.05	0.03
Total Vehicle Exhaust			**0.55**	**4.96**	**0.55**	**0.01**	**0.05**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	15	0.31	0.00
Worker Commuting	Unpaved	0	15	0.00	0.00
Total Vehicle Fugitive				**0.31**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	100	0.10	0.02
Grading	VMT/Day	4	2.78	0.14
Bulldozing	Hours/Day	8	1.25	0.18
Total Earthwork Fugitive			**4.13**	**0.34**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

[b] Estimate

[c.] Assumes 1 mile of grader travel for the office trailers and Guard House.

Table 12a
Guard House and Office Trailer Relocation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	8.80	30.55	75.63	0.08	3.50	3.22
Vehicle Exhaust	0.55	4.96	0.55	0.01	0.05	0.03
Vehicle Fugitive	--	--	--	--	0.31	0.00
Earthwork Fugitive	--	--	--	--	2.78	0.14
Total	**9.35**	**35.50**	**76.18**	**0.09**	**6.64**	**3.40**

Construction Equipment Exhaust Emissions

Equipment	Hours/ Day Used[b]	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pickup	4	1	0.99	2.97	9.55	0.01	0.35	0.32
10-Ton Hydraulic Crane	4	1	0.64	2.17	5.81	0.01	0.26	0.24
Backhoe/Loader	4	1	0.58	2.03	4.61	0.00	0.26	0.24
Water Truck	4	1	0.99	2.97	9.55	0.01	0.35	0.32
Grader	4	1	0.69	2.53	5.74	0.01	0.30	0.28
D6 Dozer	4	1	1.35	5.65	11.96	0.01	0.52	0.47
Dump Truck	4	1	0.99	2.97	9.55	0.01	0.35	0.32
Sheep's Foot Vibrator Compactor (10 yards)	4	1	0.86	2.90	5.76	0.01	0.37	0.34
Front End Loader	4	1	0.58	2.03	4.61	0.00	0.26	0.24
Drill Rig	4	1	0.42	2.06	4.53	0.01	0.20	0.18
Paver/Sealer	4	1	0.71	2.26	3.95	0.00	0.28	0.26
Total Equipment Exhaust			**8.80**	**30.55**	**75.63**	**0.08**	**3.50**	**3.22**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Emission factors based on equipment composite where BHP unknown.

[b] Hours estimated based on 8 hour work day

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	15	0.55	4.96	0.55	0.01	0.05	0.03
Total Vehicle Exhaust			**0.55**	**4.96**	**0.55**	**0.01**	**0.05**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	15	0.31	0.00
Worker Commuting	Unpaved	0	15	0.00	0.00
Total Vehicle Fugitive				**0.31**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	100	0.10	0.02
Grading	VMT/Day	4	2.78	0.14
Bulldozing	Hours/Day	4	0.63	0.09
Total Earthwork Fugitive			**3.50**	**0.25**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

[b] Estimate

[c.] Assumes 1 mile of grader travel for the office trailers and Guard House.

Table 13
Substation Survey

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.15	0.18	0.19	0.15	0.15	0.15
Vehicle Fugitive	--	--	--	--	0.08	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.15**	**0.18**	**0.19**	**0.15**	**0.23**	**0.15**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	1	2	0.01	0.04	0.04	0.00	0.00	0.00
Worker Commuting	40	4	0.15	0.15	0.15	0.15	0.15	0.15
Total Vehicle Exhaust			**0.15**	**0.18**	**0.19**	**0.15**	**0.15**	**0.15**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	1	2	0.00	0.00
Pickup Truck	Unpaved	0	2	0.00	0.00
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 14
Substation Grading

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	4.52	13.98	40.31	0.04	1.73	1.59
Vehicle Exhaust	1.31	8.17	9.86	0.02	0.49	0.42
Vehicle Fugitive	--	--	--	--	0.44	0.00
Earthwork Fugitive	--	--	--	--	16.79	2.80
Total	**5.84**	**22.15**	**50.17**	**0.06**	**19.45**	**4.81**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Off-Highway Truck	500	8	1	1.99	6.03	18.55	0.02	0.70	0.64
Grader	350	3	1	0.52	1.89	4.30	0.00	0.23	0.21
Backhoe	350	2	1	0.28	0.81	3.10	0.00	0.10	0.10
Dozer	350	4	1	1.11	3.10	9.79	0.01	0.43	0.39
Scraper		3	1	0.43	1.52	3.46	0.00	0.20	0.18
Tamper		2	1	0.19	0.62	1.11	0.00	0.08	0.07
Total Equipment Exhaust				**4.52**	**13.98**	**40.31**	**0.04**	**1.73**	**1.59**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Tool Truck	5	1	0.01	0.09	0.10	0.00	0.00	0.00
Pickup Truck	20	1	0.05	0.37	0.41	0.00	0.02	0.01
Dump Truck	5	44	0.67	2.63	8.41	0.01	0.40	0.35
Worker Commuting	40	15	0.55	4.96	0.55	0.01	0.05	0.03
Total Vehicle Exhaust			**1.31**	**8.17**	**9.86**	**0.02**	**0.49**	**0.42**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

No. dump trucks = 440 CY/day / 10 CY/truck

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	Paved	10	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Tool Truck	Paved	5	1	0.00	0.00
Tool Truck	Unpaved	0	1	0.00	0.00
Pickup Truck	Paved	20	1	0.01	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Dump Truck	Paved	5	44	0.11	0.00
Dump Truck	Unpaved	0	44	0.00	0.00
Worker Commuting	Paved	40	15	0.31	0.00
Worker Commuting	Unpaved	0	15	0.00	0.00
Total Vehicle Fugitive				**0.44**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	1,000	0.99	0.21
Storage Pile Wind Erosion[c]	Acres	0.5	11.00	2.29
Bulldozing	Hours/Day	4	0.63	0.09
Scraping and Grading[d]	VMT/Day	6	4.16	0.22
Total Earthwork Fugitive			**16.79**	**2.80**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[b] Peak daily estimated from total of 40,000 CY over 45 days

[c] Assumed for 0.5 acre storage pile area

[d.] Assumes 1 mile of grader and scraper travel per hour.

Emission factors are in Table 46

Table 15
Substation Civil

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	2.84	9.49	11.06	0.01	1.00	0.92
Vehicle Exhaust	0.44	3.64	1.23	0.01	0.08	0.06
Vehicle Fugitive	--	--	--	--	0.22	0.00
Earthwork Fugitive	--	--	--	--	0.10	0.02
Total	**3.28**	**13.13**	**12.29**	**0.02**	**1.39**	**0.99**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Excavator	152	4	1	0.56	2.13	3.36	0.00	0.31	0.29
Foundation Auger	79	6	1	0.33	1.50	1.69	0.00	0.12	0.11
Backhoe	79	3	2	0.75	2.13	1.87	0.00	0.19	0.17
Skip Loader	75	3	1	0.24	0.75	0.74	0.00	0.07	0.06
Skid Steer Loader	75	3	2	0.47	1.50	1.48	0.00	0.13	0.12
Forklift	83	4	1	0.27	0.73	0.61	0.00	0.07	0.06
17 Ton Crane	125	2	1	0.22	0.74	1.31	0.00	0.12	0.11
Total Equipment Exhaust				**2.84**	**9.49**	**11.06**	**0.01**	**1.00**	**0.92**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Tool Truck	5	1	0.01	0.09	0.10	0.00	0.00	0.00
Dump Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Worker Commuting	40	10	0.37	3.31	0.37	0.00	0.03	0.02
Total Vehicle Exhaust			**0.44**	**3.64**	**1.23**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	Paved	10	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Tool Truck	Paved	5	1	0.00	0.00
Tool Truck	Unpaved	0	1	0.00	0.00
Dump Truck	Paved	10	1	0.01	0.00
Dump Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	10	0.21	0.00
Worker Commuting	Unpaved	0	10	0.00	0.00
Total Vehicle Fugitive				**0.22**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	100	0.10	0.02
Total Earthwork Fugitive			**0.10**	**0.02**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

[b] Estimate

Table 16
Substation MEER

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.0	0.0	0.0	0.0	0.0	0.0
Vehicle Exhaust	0.2	1.4	0.5	0.0	0.0	0.0
Vehicle Fugitive	--	--	--	--	0.1	0.0
Earthwork Fugitive	--	--	--	--	0.0	0.0
Total	**0.2**	**1.4**	**0.5**	**0.0**	**0.1**	**0.0**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.0	0.0	0.0	0.0	0.0	0.0
Total Equipment Exhaust				**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Carry-all Truck	5	1	0.02	0.06	0.19	0.00	0.01	0.01
Stake Truck	5	1	0.02	0.06	0.19	0.00	0.01	0.01
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.2**	**1.4**	**0.5**	**0.0**	**0.0**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Carry-all Truck	Paved	5	1	0.0	0.0
Carry-all Truck	Unpaved	0	1	0.0	0.0
Stake Truck	Paved	5	1	0.0	0.0
Stake Truck	Unpaved	0	1	0.0	0.0
Worker Commuting	Paved	40	4	0.1	0.0
Worker Commuting	Unpaved	0	4	0.0	0.0
Total Vehicle Fugitive				**0.1**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.0	0.0
Total Earthwork Fugitive			**0.0**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 17
Substation Electrical

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	1.22	3.40	4.55	0.01	0.41	0.38
Vehicle Exhaust	0.47	4.04	1.19	0.01	0.06	0.05
Vehicle Fugitive	--	--	--	--	0.23	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**1.69**	**7.44**	**5.75**	**0.01**	**0.70**	**0.42**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Scissor Lift	87	3	2	0.45	1.16	1.19	0.00	0.11	0.10
Manlift	43	3	2	0.13	0.35	0.61	0.00	0.04	0.04
Reach Manlift	87	4	1	0.30	0.77	0.79	0.00	0.08	0.07
15 Ton Crane	125	3	1	0.33	1.12	1.96	0.00	0.18	0.17
Total Equipment Exhaust				**1.22**	**3.40**	**4.55**	**0.01**	**0.41**	**0.38**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	20	2	0.10	0.74	0.82	0.00	0.03	0.03
Worker Commuting	40	10	0.37	3.31	0.37	0.00	0.03	0.02
Total Vehicle Exhaust			**0.47**	**4.04**	**1.19**	**0.01**	**0.06**	**0.05**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	Paved	20	2	0.02	0.00
Crew Truck	Unpaved	0	2	0.00	0.00
Worker Commuting	Paved	40	10	0.21	0.00
Worker Commuting	Unpaved	0	10	0.00	0.00
Total Vehicle Fugitive				**0.23**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 18
Substation Wiring

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.08	0.23	0.41	0.00	0.03	0.02
Vehicle Exhaust	0.18	1.65	0.18	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.10	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.27**	**1.88**	**0.59**	**0.00**	**0.15**	**0.04**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Manlift	43	4	1	0.08	0.23	0.41	0.00	0.03	0.02
Total Equipment Exhaust				**0.08**	**0.23**	**0.41**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	5	0.18	1.65	0.18	0.00	0.02	0.01
Total Vehicle Exhaust			**0.18**	**1.65**	**0.18**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	5	0.10	0.00
Worker Commuting	Unpaved	0	5	0.00	0.00
Total Vehicle Fugitive				**0.10**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 19
Substation Transformer

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	1.07	3.33	4.84	0.00	0.46	0.42
Vehicle Exhaust	0.47	3.45	2.60	0.01	0.12	0.10
Vehicle Fugitive	--	--	--	--	0.17	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**1.54**	**6.78**	**7.45**	**0.01**	**0.75**	**0.52**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Forklift	83	1	6	0.40	1.09	0.92	0.00	0.10	0.09
Crane	125	1	6	0.67	2.23	3.93	0.00	0.36	0.33
Total Equipment Exhaust				**1.07**	**3.33**	**4.84**	**0.00**	**0.46**	**0.42**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	30	2	0.16	1.11	1.24	0.00	0.05	0.04
Low Bed Truck	30	1	0.09	0.36	1.15	0.00	0.05	0.05
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.47**	**3.45**	**2.60**	**0.01**	**0.12**	**0.10**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	Paved	30	2	0.03	0.00
Crew Truck	Unpaved	0	2	0.00	0.00
Low Bed Truck	Paved	30	1	0.02	0.00
Low Bed Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.17**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 20
Substation Testing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.12	1.03	0.49	0.00	0.02	0.02
Vehicle Fugitive	--	--	--	--	0.05	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.12**	**1.03**	**0.49**	**0.00**	**0.07**	**0.02**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	20	1	0.05	0.37	0.41	0.00	0.02	0.01
Worker Commuting	40	2	0.07	0.66	0.07	0.00	0.01	0.00
Total Vehicle Exhaust			**0.12**	**1.03**	**0.49**	**0.00**	**0.02**	**0.02**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	Paved	20	1	0.01	0.00
Crew Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	2	0.04	0.00
Worker Commuting	Unpaved	0	2	0.00	0.00
Total Vehicle Fugitive				**0.05**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 21
Substation Maintenance

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.18	1.37	1.27	0.00	0.05	0.04
Vehicle Fugitive	--	--	--	--	0.05	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.18**	**1.37**	**1.27**	**0.00**	**0.10**	**0.04**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Maintenance Truck	30	2	0.16	1.11	1.24	0.00	0.05	0.04
Worker Commuting	32	1	0.03	0.26	0.03	0.00	0.00	0.00
Total Vehicle Exhaust			**0.18**	**1.37**	**1.27**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Maintenance Truck	Paved	30	2	0.03	0.00
Maintenance Truck	Unpaved	0	2	0.00	0.00
Worker Commuting	Paved	32	1	0.02	0.00
Worker Commuting	Unpaved	0	1	0.00	0.00
Total Vehicle Fugitive				**0.05**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 22
Substation Paving

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.90	2.89	5.41	0.01	0.42	0.39
Vehicle Exhaust	0.44	3.33	2.22	0.01	0.10	0.08
Vehicle Fugitive	--	--	--	--	0.16	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Asphaltic Paving	--	2.62	--	--	--	--
Total	**1.3**	**8.8**	**7.6**	**0.0**	**0.7**	**0.5**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Paving Roller	46	4	2	0.13	0.44	0.84	0.00	0.04	0.04
Asphalt Paver	152	4	1	0.66	2.09	3.88	0.00	0.34	0.31
Asphalt Curb Machine	35	3	1	0.05	0.16	0.30	0.00	0.02	0.01
Tractor	45	3	1	0.06	0.20	0.39	0.00	0.02	0.02
Total Equipment Exhaust				**0.90**	**2.89**	**5.41**	**0.01**	**0.42**	**0.39**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	30	2	0.16	1.11	1.24	0.00	0.05	0.04
Stake Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Dump Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.44**	**3.33**	**2.22**	**0.01**	**0.10**	**0.08**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	Paved	30	2	0.03	0.00
Crew Truck	Unpaved	0	2	0.00	0.00
Stake Truck	Paved	10	1	0.01	0.00
Stake Truck	Unpaved	0	1	0.00	0.00
Dump Truck	Paved	10	1	0.01	0.00
Dump Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.16**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Asphaltic Paving VOC Emissions

Area Paved (acre/day)[a]	Emission Factor (lb/acre)[b]	ROG (lb/day)[c]
1.0	2.62	2.6

[a] Assumed one acre to be paved (worst-case)

[b] From URBEMISS 2007 User's Guide, Appendix A,
http://www.urbemis.com/software/download.html

[c] Emissions [lb/day] = Emission factor [lb/acre] x Area paved [acre/day]

Table 23
Substation Fencing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.63	2.01	1.97	0.00	0.17	0.16
Vehicle Exhaust	0.19	1.53	0.63	0.00	0.04	0.03
Vehicle Fugitive	--	--	--	--	0.09	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.82**	**3.54**	**2.60**	**0.00**	**0.30**	**0.19**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Skid Steer Loader	75	8	1	0.63	2.01	1.97	0.00	0.17	0.16
Total Equipment Exhaust				**0.63**	**2.01**	**1.97**	**0.00**	**0.17**	**0.16**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Flatbed Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Pickup Truck	5	1	0.01	0.09	0.10	0.00	0.00	0.00
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.19**	**1.53**	**0.63**	**0.00**	**0.04**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Flatbed Truck	Paved	10	1	0.01	0.00
Flatbed Truck	Unpaved	0	1	0.00	0.00
Pickup Truck	Paved	5	1	0.00	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.09**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 24
Substation Landscaping

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.13	0.41	0.79	0.00	0.04	0.04
Vehicle Exhaust	0.25	2.10	0.60	0.00	0.04	0.03
Vehicle Fugitive	--	--	--	--	0.13	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.38**	**2.51**	**1.39**	**0.00**	**0.21**	**0.07**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Tractor	45	6	1	0.13	0.41	0.79	0.00	0.04	0.04
Total Equipment Exhaust				**0.13**	**0.41**	**0.79**	**0.00**	**0.04**	**0.04**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.25**	**2.10**	**0.60**	**0.00**	**0.04**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	Paved	10	1	0.01	0.00
Dump Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.13**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 26
Subtransmission Guard Structure Installation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	8.83	28.00	84.04	0.10	3.25	2.99
Vehicle Exhaust	0.22	1.98	0.22	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.12	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**9.05**	**29.98**	**84.26**	**0.10**	**3.39**	**3.00**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pick-up	300	6	2	1.97	5.16	19.38	0.02	0.69	0.63
1-Ton Crew Cab Flat Bed, 4x4	500	6	1	0.98	2.58	9.69	0.01	0.34	0.32
Compressor Trailer	120	6	1	0.43	2.89	3.69	0.01	0.27	0.25
Auger Truck	500	6	1	1.50	4.52	13.91	0.02	0.52	0.48
Extendable Flat Bed Pole Truck	500	6	1	1.50	4.52	13.91	0.02	0.52	0.48
30-Ton Crane Truck	500	8	1	1.46	5.30	14.18	0.01	0.55	0.50
80ft. Hydraulic Man-lift Bucket Truck	500	4	1	1.00	3.02	9.28	0.01	0.35	0.32
Total Equipment Exhaust				**8.83**	**28.00**	**84.04**	**0.10**	**3.25**	**2.99**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.22**	**1.98**	**0.22**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.12**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 26
Subtransmission Line Survey

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.15	1.36	0.19	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.08	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.15**	**1.36**	**0.19**	**0.00**	**0.10**	**0.01**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	1	2	0.01	0.04	0.04	0.00	0.00	0.00
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.15**	**1.36**	**0.19**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	1	2	0.00	0.00
Pickup Truck	Unpaved	0	2	0.00	0.00
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 27
Subtransmission Marshalling Yard

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	1.58	5.74	13.85	0.01	0.66	0.60
Vehicle Exhaust	0.15	1.32	0.15	0.00	0.01	0.01
Vehicle Fugitive	--	--	--	--	0.08	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**1.73**	**7.06**	**13.99**	**0.02**	**0.75**	**0.61**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	250	2	1	0.328	0.860	3.230	0.004	0.115	0.106
30-Ton Crane Truck	250	2	1	0.249	0.693	2.474	0.003	0.094	0.086
10,000 lb Rough Terrain	250	5	1	0.820	3.651	6.438	0.007	0.374	0.344
Truck, Semi, Tractor	500	1	1	0.19	0.53	1.71	0.00	0.07	0.07
Total Equipment Exhaust				**1.58**	**5.74**	**13.85**	**0.01**	**0.66**	**0.60**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.15**	**1.32**	**0.15**	**0.00**	**0.01**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 28
Subtransmission ROW Clearing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	11.34	38.58	107.60	0.12	4.10	3.77
Vehicle Exhaust	0.15	1.32	0.15	0.00	0.01	0.01
Vehicle Fugitive	--	--	--	--	0.08	0.00
Earthwork Fugitive	--	--	--	--	5.10	0.35
Total	**11.48**	**39.90**	**107.75**	**0.12**	**9.30**	**4.12**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	500	8	1	1.31	3.44	12.92	0.01	0.46	0.42
Road Grader	500	6	1	1.29	4.51	12.72	0.01	0.48	0.45
Water Truck	350	8	2	3.99	12.07	37.10	0.04	1.39	1.28
Backhoe/Loader	500	6	1	1.58	5.10	16.35	0.02	0.59	0.54
Track Type Dozer	350	6	1	2.17	10.45	19.24	0.02	0.82	0.76
Lowboy Truck/Trailer	500	4	1	1.00	3.02	9.28	0.01	0.35	0.32
Total Equipment Exhaust				**11.34**	**38.58**	**107.60**	**0.12**	**4.10**	**3.77**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.15**	**1.32**	**0.15**	**0.00**	**0.01**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Grading[b]	VMT/Day	6	4.16	0.22
Bulldozing	Hours/Day	6	0.94	0.13
Total Earthwork Fugitive			**5.10**	**0.35**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[b.] Assumes 1 mile of grader travel per hour.

Emission factors are in Table 46

Table 28a - LST Analysis
Subtransmission ROW Clearing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	4.75	17.25	45.11	0.05	1.74	1.60
Vehicle Exhaust	0.15	1.32	0.15	0.00	0.01	0.01
Vehicle Fugitive	--	--	--	--	0.08	0.00
Earthwork Fugitive	--	--	--	--	1.32	0.12
Total	**4.90**	**18.57**	**45.26**	**0.05**	**3.16**	**1.73**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	500	2	1	0.33	0.86	3.23	0.00	0.11	0.11
Road Grader	500	2	1	0.43	1.50	4.24	0.00	0.16	0.15
Water Truck	350	2	1	0.50	1.51	4.64	0.01	0.17	0.16
Backhoe/Loader	500	4	1	1.05	3.40	10.90	0.02	0.39	0.36
Track Type Dozer	350	4	1	1.45	6.96	12.83	0.01	0.55	0.50
Lowboy Truck/Trailer	500	4	1	1.00	3.02	9.28	0.01	0.35	0.32
Total Equipment Exhaust				**4.75**	**17.25**	**45.11**	**0.05**	**1.74**	**1.60**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.15**	**1.32**	**0.15**	**0.00**	**0.01**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Grading[b]	VMT/Day	1	0.69	0.04
Bulldozing	Hours/Day	4	0.63	0.09
Total Earthwork Fugitive			**1.32**	**0.12**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[b.] Assumes 0.5 miles of grader travel per hour.

Emission factors are in Table 46

Table 29
Subtransmission Line Roadway

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	12.02	43.41	115.48	0.12	4.42	4.06
Vehicle Exhaust	0.11	0.99	0.11	0.00	0.01	0.01
Vehicle Fugitive	--	--	--	--	0.06	0.00
Earthwork Fugitive	--	--	--	--	7.88	0.49
Total	**12.13**	**44.40**	**115.59**	**0.12**	**12.37**	**4.56**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	500	2	2	0.66	1.72	6.46	0.01	0.23	0.21
Road Grader	500	4	1	0.86	3.01	8.48	0.01	0.32	0.30
Water Truck	350	8	2	3.99	12.07	37.10	0.04	1.39	1.28
Backhoe/Front Loader	500	6	1	2.08	9.81	20.41	0.02	0.82	0.76
Drum Type Compactor		4	1	0.90	2.49	10.19	0.01	0.34	0.31
Track Type Dozer	350	6	1	2.17	10.45	19.24	0.02	0.82	0.76
Excavator	500	6	1	0.87	2.36	8.96	0.01	0.31	0.29
Lowboy Truck/Trailer	500	2	1	0.50	1.51	4.64	0.01	0.17	0.16
Total Equipment Exhaust				**12.02**	**43.41**	**115.48**	**0.12**	**4.42**	**4.06**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	3	0.11	0.99	0.11	0.00	0.01	0.01
Total Vehicle Exhaust			**0.11**	**0.99**	**0.11**	**0.00**	**0.01**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	3	0.06	0.00
Worker Commuting	Unpaved	0	3	0.00	0.00
Total Vehicle Fugitive				**0.06**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Bulldozing	Hours/Day	6	0.94	0.13
Excavating and Grading[b]	VMT/Day	10	6.94	0.36
Total Earthwork Fugitive			**7.88**	**0.49**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[b.] Assumes 1 mile of grader and excavator travel per hour.

Emission factors are in Table 46

Table 30
Subtransmission Pole Framing and Setting

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	11.82	40.08	107.60	0.13	4.59	4.23
Vehicle Exhaust	0.22	1.98	0.22	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.12	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**12.04**	**42.07**	**107.82**	**0.13**	**4.74**	**4.24**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	300	5	3	2.46	6.45	24.22	0.03	0.86	0.79
10,000 lb/ Rough Terrain Forklift	200	4	1	0.66	2.92	5.15	0.01	0.30	0.28
30-Ton Crane	300	6	2	1.49	4.16	14.85	0.02	0.56	0.52
Compressor Trailer	120	6	3	3.12	13.73	23.03	0.03	1.39	1.28
Flat Bed Truck/Trailer	350	4	1	1.00	3.02	9.28	0.01	0.35	0.32
10-cu yd. Dump Truck	350	4	1	1.00	3.02	9.28	0.01	0.35	0.32
Backhoe/Front Loader	350	8	1	2.10	6.80	21.79	0.03	0.78	0.72
Total Equipment Exhaust				**11.82**	**40.08**	**107.60**	**0.13**	**4.59**	**4.23**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.22**	**1.98**	**0.22**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.12**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 30a
Subtransmission Pole Framing and Setting - LST Analysis

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	7.36	24.55	68.67	0.08	2.81	2.59
Vehicle Exhaust	0.22	1.98	0.22	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.12	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**7.58**	**26.54**	**68.89**	**0.09**	**2.96**	**2.60**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	300	5	1	0.82	2.15	8.07	0.01	0.29	0.26
10,000 lb/ Rough Terrain Forklift	200	4	1	0.66	2.92	5.15	0.01	0.30	0.28
30-Ton Crane	300	6	1	0.75	2.08	7.42	0.01	0.28	0.26
Compressor Trailer	120	6	1	1.04	4.58	7.68	0.01	0.46	0.43
Flat Bed Truck/Trailer	350	4	1	1.00	3.02	9.28	0.01	0.35	0.32
10-cu yd. Dump Truck	350	4	1	1.00	3.02	9.28	0.01	0.35	0.32
Backhoe/Front Loader	350	8	1	2.10	6.80	21.79	0.03	0.78	0.72
Total Equipment Exhaust				**7.36**	**24.55**	**68.67**	**0.08**	**2.81**	**2.59**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.22**	**1.98**	**0.22**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.12**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 31
Subtransmission Line TSP Footing Installation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	15.80	53.79	151.00	0.17	5.91	5.44
Vehicle Exhaust	0.80	6.08	3.63	0.01	0.19	0.15
Vehicle Fugitive	--	--	--	--	0.34	0.00
Earthwork Fugitive	--	--	--	--	0.02	0.00
Total	**16.59**	**59.88**	**154.64**	**0.18**	**6.46**	**5.60**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab Flat Bed, 4x4	300	2	4	1.99	6.03	18.55	0.02	0.70	0.64
30-Ton Crane Truck	300	5	2	1.82	6.62	17.72	0.02	0.68	0.63
Backhoe	200	8	2	1.95	9.41	15.43	0.02	0.90	0.83
Auger Truck	500	6	2	2.99	9.05	27.83	0.03	1.05	0.96
4000 Gallon Water Truck	350	4	2	1.99	6.03	18.55	0.02	0.70	0.64
10-cu. yd. Dump Truck	350	5	2	2.49	7.54	23.19	0.03	0.87	0.80
10-cu. yd. Concrete Mixer Truck	425	5	3	2.56	9.10	29.73	0.04	1.02	0.94
Total Equipment Exhaust				**15.80**	**53.79**	**151.00**	**0.17**	**5.91**	**5.44**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	20	2	0.12	0.48	1.53	0.00	0.07	0.06
Crew Truck	20	2	0.10	0.74	0.82	0.00	0.03	0.03
Concrete Truck	20	1	0.06	0.24	0.76	0.00	0.04	0.03
Worker Commuting	40	14	0.51	4.63	0.51	0.01	0.05	0.03
Total Vehicle Exhaust			**0.80**	**6.08**	**3.63**	**0.01**	**0.19**	**0.15**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	Paved	20	2	0.02	0.00
Water Truck	Unpaved	0	2	0.00	0.00
Crew Truck	Paved	20	2	0.02	0.00
Crew Truck	Unpaved	0	2	0.00	0.00
Concrete Truck	Paved	20	1	0.01	0.00
Concrete Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	14	0.29	0.00
Worker Commuting	Unpaved	0	14	0.00	0.00
Total Vehicle Fugitive				**0.34**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	22	0.02	0.00
Total Earthwork Fugitive			**0.02**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 31a
Subtransmission Line TSP Footing Installation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	6.97	23.87	65.91	0.08	2.61	2.40
Vehicle Exhaust	0.69	5.47	2.46	0.01	0.14	0.11
Vehicle Fugitive	--	--	--	--	0.32	0.00
Earthwork Fugitive	--	--	--	--	0.02	0.00
Total	**7.66**	**29.35**	**68.36**	**0.08**	**3.09**	**2.52**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab Flat Bed, 4x4	300	2	1	0.50	1.51	4.64	0.01	0.17	0.16
30-Ton Crane Truck	300	5	1	0.91	3.31	8.86	0.01	0.34	0.32
Backhoe	200	8	1	0.97	4.70	7.72	0.01	0.45	0.41
Auger Truck	500	6	1	1.50	4.52	13.91	0.02	0.52	0.48
4000 Gallon Water Truck	350	4	1	1.00	3.02	9.28	0.01	0.35	0.32
10-cu. yd. Dump Truck	350	5	1	1.25	3.77	11.59	0.01	0.44	0.40
10-cu. yd. Concrete Mixer Truck	425	5	1	0.85	3.03	9.91	0.01	0.34	0.31
Total Equipment Exhaust				**6.97**	**23.87**	**65.91**	**0.08**	**2.61**	**2.40**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	20	1	0.06	0.24	0.76	0.00	0.04	0.03
Crew Truck	20	1	0.05	0.37	0.41	0.00	0.02	0.01
Concrete Truck	20	1	0.06	0.24	0.76	0.00	0.04	0.03
Worker Commuting	40	14	0.51	4.63	0.51	0.01	0.05	0.03
Total Vehicle Exhaust			**0.69**	**5.47**	**2.46**	**0.01**	**0.14**	**0.11**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	Paved	20	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Crew Truck	Paved	20	1	0.01	0.00
Crew Truck	Unpaved	0	1	0.00	0.00
Concrete Truck	Paved	20	1	0.01	0.00
Concrete Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	14	0.29	0.00
Worker Commuting	Unpaved	0	14	0.00	0.00
Total Vehicle Fugitive				**0.32**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	22	0.02	0.00
Total Earthwork Fugitive			**0.02**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 32
Subtransmission Line Conductor Installation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	17.08	44.83	171.47	0.19	6.03	5.55
Vehicle Exhaust	0.60	5.39	0.70	0.01	0.06	0.04
Vehicle Fugitive	--	--	--	--	0.33	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**17.68**	**50.22**	**172.17**	**0.20**	**6.43**	**5.59**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pick-up	300	8	2	2.62	6.88	25.84	0.03	0.92	0.85
1-Ton Crew Cab Flat Bed, 4x4	300	8	4	5.25	13.76	51.68	0.06	1.84	1.69
Wire Truck/Trailer	350	2	2	0.66	1.72	6.46	0.01	0.23	0.21
Dump Truck	350	2	1	0.33	0.86	3.23	0.00	0.11	0.11
Bucket Truck	350	8	2	2.62	6.88	25.84	0.03	0.92	0.85
22-Ton Manitex	350	8	2	2.24	5.88	24.03	0.02	0.81	0.75
Splicing Rig	350	2	1	0.28	0.74	3.00	0.00	0.10	0.09
Splicing Lab	300	2	1	0.28	0.74	3.00	0.00	0.10	0.09
3 Drum Straw line Puller	300	6	1	0.84	2.21	9.01	0.01	0.31	0.28
Static Truck/Tensioner	350	6	2	1.97	5.16	19.38	0.02	0.69	0.63
Total Equipment Exhaust				**17.08**	**44.83**	**171.47**	**0.19**	**6.03**	**5.55**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	0.35	16	0.01	0.10	0.12	0.00	0.00	0.00
Worker Commuting	40	16	0.58	5.29	0.59	0.01	0.06	0.04
Total Vehicle Exhaust			**0.60**	**5.39**	**0.70**	**0.01**	**0.06**	**0.04**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	Paved	0.35	16	0.00	0.00
Crew Truck	Unpaved	0	16	0.00	0.00
Worker Commuting	Paved	40	16	0.33	0.00
Worker Commuting	Unpaved	0	16	0.00	0.00
Total Vehicle Fugitive				**0.33**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 33
Subtransmission Line Assembly

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	12.93	37.04	122.14	0.14	4.87	4.48
Vehicle Exhaust	0.29	2.64	0.29	0.00	0.03	0.02
Vehicle Fugitive	--	--	--	--	0.16	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**13.22**	**39.69**	**122.44**	**0.14**	**5.06**	**4.50**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pick-up Truck, 4x4	300	5	5	4.10	10.75	40.37	0.05	1.44	1.32
1-Ton Crew Cab Flat Bed, 4x4	300	5	4	3.28	8.60	32.30	0.04	1.15	1.06
Compressor Trailer	120	5	2	1.32	5.42	8.65	0.01	0.74	0.68
80-Ton Rough Terrain Crane	350	6	3	2.24	6.23	22.27	0.02	0.85	0.78
40' Flat Bed Truck/Trailer	350	4	2	1.99	6.03	18.55	0.02	0.70	0.64
Total Equipment Exhaust				**12.93**	**37.04**	**122.14**	**0.14**	**4.87**	**4.48**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	8	0.29	2.64	0.29	0.00	0.03	0.02
Total Vehicle Exhaust			**0.29**	**2.64**	**0.29**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	8	0.16	0.00
Worker Commuting	Unpaved	0	8	0.00	0.00
Total Vehicle Fugitive				**0.16**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 33a
Subtransmission Line Assembly - LST Analysis

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	4.04	12.11	37.17	0.04	1.58	1.45
Vehicle Exhaust	0.29	2.64	0.29	0.00	0.03	0.02
Vehicle Fugitive	--	--	--	--	0.16	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**4.33**	**14.75**	**37.47**	**0.05**	**1.77**	**1.47**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pick-up Truck, 4x4	300	5	1	0.82	2.15	8.07	0.01	0.29	0.26
1-Ton Crew Cab Flat Bed, 4x4	300	5	1	0.82	2.15	8.07	0.01	0.29	0.26
Compressor Trailer	120	5	1	0.66	2.71	4.32	0.00	0.37	0.34
80-Ton Rough Terrain Crane	350	6	1	0.75	2.08	7.42	0.01	0.28	0.26
40' Flat Bed Truck/Trailer	350	4	1	1.00	3.02	9.28	0.01	0.35	0.32
Total Equipment Exhaust				**4.04**	**12.11**	**37.17**	**0.04**	**1.58**	**1.45**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	8	0.29	2.64	0.29	0.00	0.03	0.02
Total Vehicle Exhaust			**0.29**	**2.64**	**0.29**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	8	0.16	0.00
Worker Commuting	Unpaved	0	8	0.00	0.00
Total Vehicle Fugitive				**0.16**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 34
Subtransmission Line Restoration

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	7.81	7.20	25.50	0.12	2.88	0.70
Vehicle Exhaust	0.18	1.65	0.18	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.10	0.00
Earthwork Fugitive	--	--	--	--	0.63	0.09
Total	**7.99**	**8.85**	**25.69**	**0.13**	**3.62**	**0.80**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	300	2	2	0.66	0.56	0.60	0.00	0.23	0.07
Road Grader	350	6	1	1.29	0.97	2.65	0.01	0.48	0.10
Water Truck	350	4	1	1.00	0.75	1.74	0.00	0.35	0.08
Backhoe/Front Loader	350	6	1	1.58	1.34	5.76	0.03	0.59	0.14
Drum Type Compactor	250	6	1	1.35	0.84	2.87	0.01	0.50	0.10
Track Type Dozer	350	4	1	1.45	2.52	11.71	0.08	0.55	0.18
Lowboy Truck/Trailer	300	3	1	0.49	0.21	0.17	0.00	0.17	0.03
Total Equipment Exhaust				**7.81**	**7.20**	**25.50**	**0.12**	**2.88**	**0.70**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	5	0.18	1.65	0.18	0.00	0.02	0.01
Total Vehicle Exhaust			**0.18**	**1.65**	**0.18**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	5	0.10	0.00
Worker Commuting	Unpaved	0	5	0.00	0.00
Total Vehicle Fugitive				**0.10**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Grading[b]	VMT/Day	6	4.16	0.22
Bulldozing	Hours/Day	4	0.63	0.09
Total Earthwork Fugitive			**4.79**	**0.30**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[b.] Assumes 1 mile of grader travel per hour.

Emission factors are in Table 48

Table 35
Fiber Optic Installation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.32	2.17	2.09	0.00	0.10	0.09
Vehicle Fugitive	--	--	--	--	0.11	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.32**	**2.17**	**2.09**	**0.00**	**0.22**	**0.09**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	20	1	0.05	0.37	0.41	0.00	0.02	0.01
Heavy Duty Truck	20	2	0.12	0.48	1.53	0.00	0.07	0.06
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.32**	**2.17**	**2.09**	**0.00**	**0.10**	**0.09**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	20	1	0.01	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Heavy Duty Truck	Paved	20	2	0.02	0.00
Heavy Duty Truck	Unpaved	0	2	0.00	0.00
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.11**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 36
Subtransmission Guard Structure Removal

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	10.25	33.46	97.42	0.11	3.87	3.56
Vehicle Exhaust	0.22	1.98	0.22	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.12	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**10.47**	**35.45**	**97.64**	**0.12**	**4.01**	**3.57**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pick-up	300	6	2	1.97	5.16	19.38	0.02	0.69	0.63
1-Ton Crew Cab Flat Bed	300	6	2	1.97	5.16	19.38	0.02	0.69	0.63
Compressor Trailer	120	6	2	0.87	5.77	7.39	0.01	0.55	0.50
Extendable Flat Bed Pole	350	6	2	2.99	9.05	27.83	0.03	1.05	0.96
30-Ton Crane Truck	500	8	1	1.46	5.30	14.18	0.01	0.55	0.50
80ft. Hydraulic Man-lift Bu	350	4	1	1.00	3.02	9.28	0.01	0.35	0.32
Total Equipment Exhaust				**10.25**	**33.46**	**97.42**	**0.11**	**3.87**	**3.56**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.22**	**1.98**	**0.22**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.12**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 37
Worker Shuttle

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Vehicle Exhaust	0.16	1.11	1.24	0.00	0.05	0.04
Vehicle Fugitive	--	--	--	--	0.03	0.00
Total	**0.16**	**1.11**	**1.24**	**0.00**	**0.08**	**0.04**

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Shuttle	60	1	0.16	1.11	1.24	0.00	0.05	0.04
Total Vehicle Exhaust			**0.16**	**1.11**	**1.24**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Shuttle	Paved	60	1	0.03	0.00
Worker Shuttle	Unpaved	0	1	0.00	0.00
Total Vehicle Fugitive				**0.03**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Table 38
Construction Greenhouse Gas Emissions

Emissions Summary

Construction Activity	CO_2e (MT)[a]
Substation	**335**
66 kV Subtransmission Line	**1663**
Compressor Station	**2334**
Worker Shuttle	**37**
Plant Power Line	**431**
Guard House and Office Trailer Relocation	**170**
Turbine Decommissioning and Dismantling	**85**
Project Total	**5055**

Source	CO_2e (MT)[a]
Equipment Exhaust	3,301
Motor Vehicle Exhaust	1,754
Project Total	***5,055***

Construction Equipment Exhaust - Substation Site

Equipment	Horse-Power	Hours/ Day Used	Number	Days Used	CO_2 (MT)[a]	CH4 (MT)[a]	CO_2e (MT)[a]
Substation Grading							
Off-Highway Truck	500	8	1	90	88.9	0.007	89.10
Grader	350	3	1	90	16.3	0.002	16.30
Backhoe	350	2	1	90	14.0	0.001	14.04
Dozer	350	4	1	90	30.0	0.004	30.05
Scraper	0	3	1	90	13.3	0.002	13.34
Tamper	0	2	1	90	4.1	0.001	4.06
Substation Civil							
Excavator	152	4	1	60	8.0	0.001	8.04
Foundation Auger	79	6	1	15	1.3	0.000	1.27
Backhoe	79	3	2	15	1.2	0.000	1.25
Skip Loader	75	3	1	60	2.1	0.001	2.10
Skid Steer Loader	75	3	2	60	4.2	0.001	4.19
Forklift	83	4	1	60	1.6	0.001	1.61
17 Ton Crane	125	2	1	60	2.7	0.001	2.74
Substation Electrical							
Scissor Lift	87	3	2	70	3.7	0.001	3.76
Manlift	43	3	2	70	2.1	0.000	2.10
Reach Manlift	87	4	1	70	2.5	0.001	2.51
15 Ton Crane	125	3	1	35	2.4	0.000	2.40
Substation Wiring							
Manlift	43	4	1	25	0.5	0.00	0.50
Substation Transformer							
Forklift	83	1	6	30	1.2	0.00	1.21
Crane	125	1	6	10	1.4	0.00	1.37
Substation Paving							
Paving Roller	46	4	2	15	0.7	0.00	0.73
Asphalt Paver	152	4	1	15	1.9	0.00	1.89
Asphalt Curb Machine	35	3	1	15	0.3	0.00	0.26
Tractor	45	3	1	15	0.3	0.00	0.32
Substation Fencing							
Skid Steer Loader	75	8	1	10	0.9	0.00	0.93
Substation Landscaping							

Table 38
Construction Greenhouse Gas Emissions

Tractor	45	6	1	15	0.6	0.000	0.65
TOTAL							**206.72**

[a] Emissions [metric tons, MT] = Emission factor [lb/mi] x Distance per vehicle [mi/day] x Number vehicles x Days used *453.6 [g/lb] / 1,000,000 [g/MT]

Motor Vehicle Exhaust - Substation Site						
Vehicle Type	**Miles/ Day per Vehicle**	**Number**	**Days Used**	**CO_2 (MT)[a]**	**CH4 (MT)[a]**	**CO_2e (MT)[a]**
Substation Survey						
Pickup Truck	1	2	10	0.02	0.00	0.02
Worker Commuting	40	4	10	0.80	0.00	0.80
Substation Grading						
Water Truck	10	1	90	1.72	0.00	1.72
Tool Truck	5	1	90	0.56	0.00	0.56
Pickup Truck	20	1	90	2.23	0.00	2.23
Dump Truck	5	44	90	37.82	0.00	37.85
Worker Commuting	40	15	90	26.84	0.00	26.88
Substation Civil						
Water Truck	10	1	60	1.15	0.00	1.15
Tool Truck	5	1	60	0.37	0.00	0.37
Dump Truck	10	1	60	1.15	0.00	1.15
Worker Commuting	40	10	60	11.93	0.00	11.95
Substation MEER						
Carry-all Truck	5	1	20	0.19	0.00	0.19
Stake Truck	5	1	20	0.19	0.00	0.19
Worker Commuting	40	4	20	1.59	0.00	1.59
Substation Electrical						
Crew Truck	20	2	70	3.47	0.00	3.47
Worker Commuting	40	10	70	13.92	0.00	13.94
Substation Wiring						
Worker Commuting	40	5	25	2.49	0.00	2.49
Substation Transformer						
Crew Truck	30	2	30	2.23	0.00	2.23
Low Bed Truck	30	1	30	1.72	0.00	1.72
Worker Commuting	40	6	30	3.58	0.00	3.58
Substation Testing						
Crew Truck	20	1	80	1.98	0.00	1.98
Worker Commuting	40	2	80	3.18	0.00	3.19
Substation Maintenance						
Maintenance Truck	30	2	30	2.23	0.00	2.23
Worker Commuting	32	1	31	0.49	0.00	0.49
Substation Paving						
Crew Truck	30	2	15	1.12	0.00	1.12
Stake Truck	10	1	15	0.29	0.00	0.29
Dump Truck	10	1	15	0.29	0.00	0.29
Worker Commuting	40	6	15	1.79	0.00	1.79
Substation Fencing						
Flatbed Truck	10	1	10	0.19	0.00	0.19
Pickup Truck	5	1	10	0.06	0.00	0.06
Worker Commuting	40	4	10	0.80	0.00	0.80
Substation Landscaping						
Dump Truck	10	1	15	0.29	0.00	0.29
Worker Commuting	40	6	15	1.79	0.00	1.79
TOTAL						**128.6**

[a] Emissions [metric tons, MT] = Emission factor [lb/mi] x Distance per vehicle [mi/day] x Number vehicles x Days used *453.6 [g/lb] / 1,000,000 [g/MT]

Table 38
Construction Greenhouse Gas Emissions

Construction Equipment Exhaust - 66kV Subtransmission							
Equipment	Horse-Power	Hours/ Day Used	Number	Days Used	CO_2 (MT)[a]	CH4 (MT)[a]	CO_2e (MT)[a]
Subtransmission Marshalling Yard							
1-Ton Crew Cab, 4x4	250	2	1	660	99.7	0.009	99.91
30-Ton Crane Truck	250	2	1	660	99.7	0.009	99.91
10,000 lb Rough Terrain Fork Lift	250	5	1	660	81.4	0.009	81.62
Truck, Semi, Tractor	500	1	1	660	81.5	0.007	81.67
Subtransmission ROW Clearing							
1-Ton Crew Cab, 4x4	500	8	1	1	1.0	0.000	0.99
Road Grader	500	6	1	1	0.4	0.000	0.36
Water Truck	350	8	2	1	0.8	0.000	0.77
Backhoe/Loader	500	6	1	1	0.9	0.000	0.94
Track Type Dozer	350	6	1	1	0.5	0.000	0.50
Lowboy Truck/Trailer	500	4	1	1	0.5	0.000	0.46
Subtransmission Line Roadway							
1-Ton Crew Cab, 4x4	500	2	2	35	17.3	0.001	17.32
Road Grader	500	4	1	35	8.4	0.001	8.45
Water Truck	350	8	2	35	27.1	0.003	27.11
Backhoe/Front Loader	500	6	1	35	32.8	0.002	32.90
Drum Type Compactor	0	4	1	35	0.3	0.000	0.27
Track Type Dozer	350	6	1	35	17.5	0.002	17.53
Excavator	500	6	1	18	5.9	0.001	5.87
Lowboy Truck/Trailer	500	2	1	18	4.2	0.000	4.16
Subtransmission Guard House Installation							
3/4-Ton Pickup		6	2	6	4.9	0.001	4.96
1-Ton Crew Cab Flat Bed, 4x4	500	6	1	6	4.4	0.000	4.45
Compressor Trailer	120	6	1	6	1.3	0.000	1.32
Auger Truck	500	6	1	6	4.4	0.000	4.45
Extendable Flat Bed Pole Truck	500	6	1	6	4.4	0.000	4.45
30-Ton Crane Truck	500	8	1	6	5.9	0.000	5.94
80ft. Hydraulic Man-lift Bucket Truck	500	4	1	6	2.0	0.000	1.96
Subtransmission Pole Framing and Setting							
1-Ton Crew Cab, 4x4	300	5	3	19	21.5	0.002	21.57
10,000 lb/ Rough Terrain Forklift	200	4	1	2	0.2	0.000	0.20
30-Ton Crane	300	6	2	2	1.2	0.000	1.22
Compressor Trailer	120	6	3	19	12.5	0.002	12.58
Flat Bed Truck/Trailer	350	4	1	2	0.6	0.000	0.61
10-cu yd. Dump Truck	350	4	1	17	5.1	0.000	5.15
Backhoe/Front Loader	350	8	1	17	10.6	0.001	10.61
Subtransmission Line TSP Footing Installation							
1-Ton Crew Cab Flat Bed, 4x4	300	2	4	111	67.1	0.006	67.21
30-Ton Crane Truck	300	5	2	111	56.5	0.006	56.59
Backhoe	200	8	2	111	81.7	0.009	81.86
Auger Truck	500	6	2	75	111.2	0.009	111.37
4000 Gallon Water Truck	350	4	2	111	67.1	0.006	67.21
10-cu. yd. Dump Truck	350	5	2	111	83.9	0.007	84.01
10-cu. yd. Concrete Mixer Truck	425	5	3	75	85.0	0.008	85.15
Subtransmission Line Conductor Installation							
3/4-Ton Pick-up	300	8	2	38	45.9	0.004	46.02
1-Ton Crew Cab Flat Bed, 4x4	300	8	4	38	91.9	0.008	92.03
Wire Truck/Trailer	350	2	2	26	7.9	0.001	7.87
Dump Truck	350	2	1	38	5.7	0.001	5.75
Bucket Truck	350	8	2	38	45.9	0.004	46.02
22-Ton Manitex	350	8	2	38	29.4	0.003	29.44

Table 38
Construction Greenhouse Gas Emissions

Splicing Rig	350	2	1	10	1.7	0.000	1.71
Splicing Lab	300	2	1	10	1.0	0.000	0.97
3 Drum Straw line Puller	300	6	1	20	5.8	0.001	5.81
Static Truck/Tensioner	350	6	2	20	11.6	0.001	11.62
Subtransmission Assembly							
3/4-Ton Pick-up Truck, 4x4	300	5	5	37	69.9	0.006	70.01
1-Ton Crew Cab Flat Bed, 4x4	300	5	4	37	55.9	0.005	56.01
Compressor Trailer	120	5	2	37	13.6	0.002	13.61
80-Ton Rough Terrain Crane	350	6	3	37	33.9	0.003	33.95
40' Flat Bed Truck/Trailer	350	4	2	25	15.1	0.001	15.14
Subtransmission Line Restoration							
1-Ton Crew Cab, 4x4	300	2	2	4	1.2	0.000	1.21
Road Grader	350	6	1	4	1.4	0.000	1.45
Water Truck	350	4	1	4	0.8	0.000	0.77
Backhoe/Front Loader	350	6	1	4	1.9	0.000	1.87
Drum Type Compactor	250	6	1	4	0.0	0.000	0.05
Track Type Dozer	350	4	1	4	1.3	0.000	1.34
Lowboy Truck/Trailer	300	3	1	4	0.6	0.000	0.58
Subtransmission Guard House Removal							
3/4-Ton Pick-up	300	6	2	4	3.6	0.000	3.63
1-Ton Crew Cab Flat Bed, 4x4	300	6	2	4	3.6	0.000	3.63
Compressor Trailer	120	6	2	4	1.8	0.000	1.77
Extendable Flat Bed Pole Truck	350	6	2	4	3.6	0.000	3.63
30-Ton Crane Truck	500	8	1	4	4.0	0.000	3.96
80ft. Hydraulic Man-lift Bucket Truck	350	4	1	4	1.2	0.000	1.21
TOTAL							**1,574.7**

[a] Emissions [metric tons, MT] = Emission factor [lb/hr] x Operating time [hr/day] x Number x Days used [days] x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 43

Table 38
Construction Greenhouse Gas Emissions

Motor Vehicle Exhaust - 66kV Subtransmission						
Vehicle Type	**Miles/ Day per Vehicle**	**Number**	**Days Used**	**CO_2 (MT)[a]**	**CH4 (MT)[a]**	**CO_2e (MT)[a]**
Subtransmission Marshalling Yards						
Worker Commuting	40	4	660	52.48	0.00	52.57
Subtransmission ROW Clearing						
Worker Commuting	40	4	1	0.08	0.00	0.08
Subtransmission Guard House Installation						
Worker Commuting	40	6	6	0.72	0.00	0.72
Subtransmission Line Survey						
Pickup Truck	1	2	10	0.02	0.00	0.02
Worker Commuting	40	4	10	0.80	0.00	0.80
Subtransmission Line Roadway						
Worker Commuting	40	3	5	0.30	0.00	0.30
Subtransmission Pole Framing and Setting						
Worker Commuting	40	6	113	13.48	0.00	13.50
Subtransmission Line TSP Footing Installation						
Water Truck	20	2	33	2.52	0.00	2.52
Crew Truck	20	2	33	1.64	0.00	1.64
Concrete Truck	20	1	33	1.26	0.00	1.26
Worker Commuting	40	14	33	9.18	0.00	9.20
Subtransmission Line Conductor Installation						
Crew Truck	0.35	16	7	0.05	0.00	0.05
Worker Commuting	40	16	7	2.23	0.00	2.23
Subtransmission Line Assembly						
Worker Commuting	40	8	6	0.95	0.00	0.96
Subtransmission Line Restoration						
Worker Commuting	40	5	4	0.40	0.00	0.40
Fiber Optic Installation						
Pickup Truck	20	1	10	0.25	0.00	0.25
Heavy Duty Truck	20	2	10	0.76	0.00	0.76
Worker Commuting	40	4	10	0.80	0.00	0.80
Subtransmission Guard House Removal						
Worker Commuting	40	6	4	0.48	0.00	0.48
TOTAL						**88.5**

[a] Emissions [metric tons, MT] = Emission factor [lb/mi] x Distance per vehicle [mi/day] x Number vehicles x Days used *453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 44

Table 38
Construction Greenhouse Gas Emissions

Construction Equipment Exhaust - Compressor Station Site							
Equipment	**Horse-Power**	**Hours/ Day Used**	**Number**	**Days Used**	**CO_2 (MT)[a]**	**CH4 (MT)[a]**	**CO_2e (MT)[a]**
Compressor Station Site Clearing							
D6 Dozer		5	1	21	6.1	0.0	6.14
Grader		5	1	21	6.3	0.0	6.34
Backhoe/Loader		5	2	21	7.5	0.0	7.51
Sheep's Foot Vibrator Compactor (10 yards)		5	2	21	0.4	0.0	0.41
Forklift		5	2	21	11.4	0.0	11.42
Compressor Station Site Preparation							
D6 Dozer		5	1	87	25.4	0.0	25.45
Grader		5	1	87	26.2	0.0	26.26
Excavator		5	2	87	3.0	0.0	3.02
Backhoe/Loader		5	2	87	31.0	0.0	31.11
Sheep's Foot Vibrator Compactor (10 yards)		5	2	87	1.7	0.0	1.71
Compressor Station Civil							
Drilling Rig		5	1	30	4.3	0.0	4.34
Backhoe/Loader		5	2	129	46.0	0.0	46.13
Forklift		5	1	129	35.0	0.0	35.07
30 Ton Hydraulic Crane		4	1	129	13.7	0.0	13.74
D6 Dozer		5	1	129	37.6	0.0	37.73
Front End Loader		5	1	129	23.0	0.0	23.07
Sheep's Foot Vibrator Compactor (10 yards)		5	1	129	1.3	0.0	1.26
Compressor Station Mechanical							
30 Ton Hydraulic Crane		5	1	198	26.3	0.0	26.36
50 Ton Hydraulic Crane		5	1	198	26.3	0.0	26.36
200 Ton Crawler Crane		5	2	198	52.5	0.0	52.72
Forklift		5	1	198	53.7	0.0	53.83
Front End Loader		5	3	198	105.8	0.0	106.21
Welders		5	1	198	26.4	0.0	26.51
Compressor Station Electrical							
Front End Loader		5	1	152	27.1	0.0	27.18
Generators		5	2	152	37.5	0.0	37.59
Other Construction Equipment		5	2	152	179.3	0.0	179.66
Compressor Station Paving							
Paving Roller		5	2	15	3.4	0.0	3.39
Asphalt Paver		5	1	15	4.8	0.0	4.81
Asphalt Curb Machine		5	1	15	2.7	0.0	2.66
Tractor		5	1	15	2.7	0.0	2.68
Compressor Station Fencing							
Skid Steer Loader		5	1	10	0.4	0.0	0.38
Compressor Station Landscaping							
Tractor		5	1	15	2.7	0.0	2.68
TOTAL							**833.73**

[a] Emissions [metric tons, MT] = Emission factor [lb/hr] x Operating time [hr/day] x Number x Days used [days] x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 43

Motor Vehicle Exhaust - Compressor Station Site						
Vehicle Type	**Miles/ Day per Vehicle**	**Number**	**Days Used**	**CO_2 (MT)[a]**	**CH4 (MT)[a]**	**CO_2e (MT)[a]**
Compressor Station Survey						
Pickup Truck	5	1	20	0.12	0.00	0.12
Worker Commuting	40	2	20	0.80	0.00	0.80

Table 38
Construction Greenhouse Gas Emissions

Compressor Station Site Clearing						
Dump Truck	10	6	21	2.41	0.00	2.41
6 Ton Truck	10	2	21	0.80	0.00	0.80
Water Truck	20	1	21	0.80	0.00	0.80
Pickup Truck	5	1	21	0.13	0.00	0.13
Worker Commuting	40	50	21	20.87	0.00	20.91
Compressor Station Site Preparation						
Pickup Truck	10	15	87	16.17	0.00	16.19
Dump Truck (20 yards)	24	12	87	47.86	0.00	47.90
Dump Truck (10 yards)	24	1	87	3.99	0.00	3.99
Water Truck	20	1	87	3.32	0.00	3.33
Worker Commuting	40	50	87	86.48	0.01	86.61
Compressor Station Civil						
Water Truck	20	1	129	4.93	0.00	4.93
Pickup Truck	10	15	129	23.98	0.00	24.00
6 Ton Truck	20	7	129	34.50	0.00	34.52
Worker Commuting	40	150	129	384.68	0.03	385.28
Compressor Station Mechanical						
Pickup Truck	10	15	198	36.81	0.00	36.84
6 Ton Truck	20	7	198	52.95	0.00	52.99
Worker Commuting	40	150	198	590.44	0.04	591.36
Compressor Station Electrical						
Pickup Truck	10	15	152	28.26	0.00	28.28
Worker Commuting	40	50	152	151.09	0.01	151.32
Compressor Station Paving						
Pickup Truck	10	2	15	0.37	0.00	0.37
Dump Truck	10	1	15	0.29	0.00	0.29
Worker Commuting	40	6	15	1.79	0.00	1.79
Compressor Station Fencing						
Flatbed Truck	10	1	10	0.19	0.00	0.19
Pickup Truck	10	1	10	0.12	0.00	0.12
Worker Commuting	40	4	10	0.80	0.00	0.80
Compressor Station Landscaping						
Dump Truck	10	1	15	0.29	0.00	0.29
Worker Commuting	40	10	15	2.98	0.00	2.99
TOTAL						**1,500.4**

[a] Emissions [metric tons, MT] = Emission factor [lb/mi] x Distance per vehicle [mi/day] x Number vehicles x Days used *453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 44

Table 38
Construction Greenhouse Gas Emissions

Worker Shuttle Exhaust						
Vehicle Type	**Miles/day**	**Number**	**Days Used**	**CO_2 (MT)**	**CH4 (MT)**	**CO_2e (MT)**
Worker Shuttle	60.00	1.00	492	36.59	0.00	36.62

[a] Emissions [metric tons, MT] = Emission factor [lb/mi] x Distance per vehicle [mi/day] x Number vehicles x Days used *453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 44

Construction Equipment Exhaust - PPL							
Equipment	**Horse-Power**	**Hours/ Day Used**	**Number**	**Days Used**	**CO_2 (MT)[a]**	**CH4 (MT)[a]**	**CO_2e (MT)[a]**
Backhoe		6	2	90	38.5	0.0	38.62
Hauler		4	1	90	24.7	0.0	24.80
Skid Steer Loader		4	2	90	5.5	0.0	5.47
Water Truck		6	1	90	37.1	0.0	37.21
Concrete Truck		4	1	90	24.7	0.0	24.80
Ditch Witch		6	1	90	37.1	0.0	37.21
Batch Plant		8	1	90	84.9	0.0	85.10
Drill Rig		6	2	90	31.2	0.0	31.26
Truck with Trailer		2	2	90	24.7	0.0	24.80
Compressor		2	1	90	21.2	0.0	21.28
Construction Fork		6	1	90	29.3	0.0	29.36
980 Loader		4	1	90	12.8	0.0	12.87
Boom Truck		4	1	90	24.7	0.0	24.80
Bucket Truck		4	1	90	24.7	0.0	24.80
Vibrating Roller		4	1	90	8.1	0.0	8.13
TOTAL							**430.53**

Construction Equipment Exhaust - Guard House and Office Trailer Relocation							
Equipment	**Horse-Power**	**Hours/ Day Used**	**Number**	**Days Used**	**CO_2 (MT)[a]**	**CH4 (MT)[a]**	**CO_2e (MT)[a]**
3/4-Ton Pickup		4	4	60	65.9	0.0	66.14
10-Ton Hydraulic Crane		4	1	1	0.1	0.0	0.11
Backhoe/Loader		4	2	60	17.1	0.0	17.16
Water Truck		4	2	30	16.5	0.0	16.54
Grader		4	1	30	7.2	0.0	7.24
D6 Dozer		4	2	30	14.0	0.0	14.04
Dump Truck		4	4	30	33.0	0.0	33.07
Sheep's Foot Vibrator Compactor (10 yards)		4	2	30	0.5	0.0	0.47
Front End Loader		4	2	30	8.6	0.0	8.58
Drill Rig		4	1	30	3.5	0.0	3.47
Paver/Sealer		4	2	7	3.6	0.0	3.60
TOTAL							**170.43**

Construction Equipment Exhaust - Turbine Demolition							
Equipment	**Horse-Power**	**Hours/ Day Used**	**Number**	**Days Used**	**CO_2 (MT)[a]**	**CH4 (MT)[a]**	**CO_2e (MT)[a]**
49a_1: Construction Equipment Exhaust Emissions - Dismantling							
None	0	0	0	0	0	0	0
49a_2: Motor Vehicle Exhaust Emissions - Dismantling							
		Miles/ Day per Vehicle	**Number**	**Days Used**	**CO_2 (MT)[a]**	**CH4 (MT)[a]**	**CO_2e (MT)[a]**

Table 38
Construction Greenhouse Gas Emissions

Heavy Duty Truck		10	3	30	1.72	0.00	1.72
Worker Commuting		40	4	30	2.39	0.00	2.39
49a_3: Motor Vehicle Entrained Particulate Matter Emissions - Dismantling							
	Horse-Power	**Hours/ Day Used**	**Number**	**Days Used**	**CO_2 (MT)[a]**	**CH4 (MT)[a]**	**CO_2e (MT)[a]**
49b_1: Construction Equipment Exhaust Emissions - Turbine Hauling							
None	0	0	0	0	0	0	0
		Miles/ Day per Vehicle	**Number**	**Days Used**	**CO_2 (MT)[a]**	**CH4 (MT)[a]**	**CO_2e (MT)[a]**
49b_2: Motor Vehicle Exhaust Emissions - Turbine Hauling							
Heavy Duty Truck		50	2	30	5.73	0.00	5.73
3/4-Ton Pickup		50	1	30	1.86	0.00	1.86
Worker Commuting		40	4	30	2.39	0.00	2.39
	Horse-Power	**Hours/ Day Used**	**Number**	**Days Used**	**CO_2 (MT)[a]**	**CH4 (MT)[a]**	**CO_2e (MT)[a]**
49c_1: Construction Equipment Exhaust Emissions - Clearing and Grading							
Crane		5	1	30	4.0	0.0	3.99
Excavator		5	1	30	0.5	0.0	0.52
Backhoe		5	2	30	10.7	0.0	10.73
Grader		5	2	30	18.1	0.0	18.11
Dozer		5	2	30	9.6	0.0	9.60
		Miles/ Day per Vehicle	**Number**	**Days Used**	**CO_2 (MT)[a]**	**CH4 (MT)[a]**	**CO_2e (MT)[a]**
Heavy Duty Truck		10	15	30	8.60	0.00	8.60
Dump Truck		24	12	30	16.50	0.00	16.52
Worker Commuting		40	4	30	2.39	0.00	2.39
Total GHG Emissions from Turbine Decommissioning, Dismantling, Hauling, Clearing and Grading =							**84.55**

Table 39
Operational Emissions

Net Overall Change in Daily Operational Mass Emissions

Source	Daily Mass Emissions (lbs/day)					
	ROG	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Vehicle Emissions	0.55	4.96	0.55	0.01	0.36	0.03
Decrease from removal of Jet Turbines	(8.55)	(334.04)	(1069.61)	(13.02)	(19.15)	(19.15)
Net Total	**(8.01)**	**(329.08)**	**(1069.06)**	**(13.01)**	**(18.78)**	**(19.11)**
Significance Threshold	*55*	*550*	*55*	*150*	*150*	*55*
Significant? (Yes/No)	***No***	***No***	***No***	***No***	***No***	***No***

Current Project Emissions Summary

Source	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Vehicle Exhaust	0.55	4.96	0.55	0.01	0.05	0.03
Vehicle Fugitive	--	--	--	--	0.31	0.00
Total	**0.55**	**4.96**	**0.55**	**0.01**	**0.36**	**0.03**

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	60	10	0.55	4.96	0.55	0.01	0.05	0.03
Total Vehicle Exhaust			**0.55**	**4.96**	**0.55**	**0.01**	**0.05**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	60	10	0.31	0.00
Worker Commuting	Unpaved	0	10	0.00	0.00
Total Vehicle Fugitive				**0.31**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Emissions Decrease from Decommissioning of the Existing Jet Turbines

Source	Average Daily Fuel Use (MMscf/day)[1]	Daily Mass Emissions (lbs/day)					
		ROG	CO	NOx	PM_{10}	SO_X	CO_2
Emission Factor (lb/MMscf)[2]		**2.16**	**84.21**	**--**	**4.83**	**3.28**	**112970.00**
D-14	1.38	2.98	116.28	358.56	6.66	4.53	155982.17
D-15	1.26	2.72	106.31	348.08	6.09	4.14	142611.47
D-16	1.32	2.85	111.45	362.97	6.39	4.34	149502.64
Decrease due to shutdown of Turbines[4]		**(8.55)**	**(334.04)**	**(1069.61)**	**(19.15)**	**(13.02)**	**(448,096.28)**

[1] Average Daily Fuel Use calculated from Annual Acutal Fuel Use from the CEMS data for years 2007 and 2008. Average Annual Fuel Use for the two years was divided by 365 for daily fuel use.

[2] Emission factors in lb/MMscf from AP42 - Chapter 3.1, Table 3.1-1 and Table 3.1-2a for all pollutants except NOx. NOx emissions are calculated from Annual NOx emissions 2007 and 2008 (CEMS data)

Turbine Fuel Data

Equipment	Acutal Fuel Use (MMscf/year)		Actual Nox Emissions (lbs/year)		Average Annual		Average Daily		Peak Daily
	2007	2008	2007	2008	MMscf/year	lbs/year	MMscf/day	lbs/day	MMscf/day
D-14	500.34	507.60	130478.72	131269.05	503.97	130873.89	1.38	358.56	3.5053554
D-15	440.54	481.00	113772.60	140325.03	460.77	127048.82	1.26	348.08	3.5053554
D-16	502.37	463.70	139429.80	125539.50	483.04	132484.65	1.32	362.97	3.5053554

Source: Actuals from CEMS data provided by SCG. Peak daily from SCAQMD permit limit of 150 MMBtu/hour

Emissions Decrease from Decommissioning of the Existing Jet Turbines

Source	Peak Daily Fuel Use (MMscf/day)[1]	Daily Mass Emissions (lbs/day)					
		ROG	CO	NOx	PM_{10}	SO_X	CO_2
Emission Factor (lb/MMscf)[2]		**2.16**	**84.21**	**--**	**4.83**	**3.28**	**112970**
D-14	3.51	7.56	295.20	358.56	16.92	11.51	396000.00
D-15	3.51	7.56	295.20	348.08	16.92	11.51	396000.00
D-16	3.51	7.56	295.20	362.97	16.92	11.51	396000.00
Decrease due to shutdown of Turbines[4]		**(22.68)**	**(885.60)**	**(1069.61)**	**(50.76)**	**(34.52)**	**(1,188,000.00)**

[1] Peak Daily Fuel Use is based on SCAQMD permit limit of 150 MMBtu/hour. Fuel use is calculated for natural gas heating value of 1027 btu/scf per SCG recommendation.

[2] Emission factors in lb/MMscf from AP42 - Chapter 3.1, Table 3.1-1 and Table 3.1-2a for all pollutants except NOx. NOx emissions are calculated from Annual NOx emissions 2007 and 2008 (CEMS data)

Table 39
Operational Emissions

Emission Factors		
Pollutant	**Emission Factor**	**Units**
ROG	0.0021	lb/MMBTU
CO	0.082	lb/MMBTU
SO2[1]	0.003196	lb/MMBTU
PM (Condensable)[2]	0.0047	lb/MMBTU
CO2	110	lb/MMBTU

Inputs	
Natural Gas Heating Value	Units
1027	but/scf

1. SO2 = 0.94*(S); Where S = Sulfure Content of Fuel; Defualt value for S = 3.4E-03, per Table 3.1-2a, Footnote h.
2. PM factors based on combustion from gas turbine with steam injection.

Table 40
Operational Greenhouse Gas Emissions

Net GHG Emissions Summary

Source	CO2 Equivalents, metric tons/year
SF_6 Leakage	54
Motor Vehicle Exhaust	4
Compressor Electricity Use	138,709
Potential GHG Emissions from Current Project	**138,766**
Jet Turbine D14	(69,789)
Jet Turbine D15	(69,789)
Jet Turbine D16	(69,789)
Decrease in GHG due to Removal of Turbines	***(209,368)***
Net Total GHG Emissions	**(70,601)**

GHG emissions from the new electric driven compressors and exisitng jet turbines are based on maximum potential to emit for 8760 hours per year.

Current Project GHG Emissions Summary

Source	CO_2e (MT/year)
SF_6 Leakage	54
Motor Vehicle Exhaust	4
Compressor Electricity Use	138,709
TOTAL	**138,766**

SF_6 Leakage

Item	Value	Units
SF_6 per Breaker	30	pounds
No. Breakers	17	
Total SF_6	510	pounds
Annual Leakage Rate	1	percent
Annual Emissions	5.1	pounds
Global Warming Potential[a]	23,200	
CO_2e Emissions[b]	**54**	**MT/year**

[a] Table C.7, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009
[b] CO_2e emissions [metric tons] per year = SF_6 emissions [lb] x Global warming potential [lb CO2e/lb SF6] x 453.6 [g/lb] /1,000,000 [g/MT]

Motor Vehicle Exhaust

Vehicle Type	Miles/ Day per Vehicle	Number	Annual Use (days)	CO_2 (MT)[a]	CH_4 (MT)[a]	CO_2e (MT)[b]
Worker Commuting	40	4	48	3.82	0.00	3.82
TOTAL						3.82

[a] Emissions [metric tons, MT] = Emission factor [lb/mi] x Distance per vehicle [mi/day] x Number vehicles x Annual Use x 453.6 [g/lb] / 1,000,000 [g/MT]
[b] CO2e = CO2 + (21*CH4); where 21 is the GWP of methane.
Emission factors are in Table 44

GHG Emissions from New Electric VFD Motors - PTE (8760 hours)

		Emission Factor (lb/MWh)[b]			Emissions (MT/yr)			
Source	Annual Electricity Usage, MWh/yr[a]	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	CO_2e
VFD motor 1	140,160	724.12	0.0302	0.0081	46,036	2	1	46,236
VFD motor 2	140,160	724.12	0.0302	0.0081	46,036	2	1	46,236
VFD motor 3	140,160	724.12	0.0302	0.0081	46,036	2	1	46,236
							Total	**138,709**
[a] Annual electricity usage for each of the 16 MW VFD motors for a 24 hour operation for 365 days per year.								
[b] Table C.2, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009								
Global warming potential of CH_4, Table C.1, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009						21		
Global warming potential of N_2O, Table C.1, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009						310		

GHG Emissions Decrease from Removal of Exisitng Jet Turbines - AER

		Emission Factor (kg/MMBtu)			Emissions (MT/yr)			
Source	Annual Usage, MMBTU/yr[1]	CO_2[b]	CH_4[c]	N_2O[c]	CO_2	CH_4	N_2O	CO_2e
Jet Turbine D14	529,169	53.06	0.001	0.0001	28,077.68	0.53	0.05	(28,105)
Jet Turbine D15	483,809	53.06	0.001	0.0001	25,670.88	0.48	0.05	(25,696)
Jet Turbine D16	507,187	53.06	0.001	0.0001	26,911.33	0.51	0.05	(26,938)
							Total Emission Decrease	**80,739**
[a] Annual Fuel usage per year was calculated from annual acutal fuel use from the CEMS data for years 2007 and 2008 and using a natural gas heating value 1027.								
[b] Table C.7, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009								
[c] Table C.8, Industrial Sector, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009								
Global warming potential of CH_4, Table C.1, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009						21		
Global warming potential of N_2O, Table C.1, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009						310		

Potential to Emit GHG Emissions Decrease from Removal of the Three Jet Turbines - 8760 Hours

Source	Annual Usage, MMBTU/yr[1]	CO2 Emission Factor, kg CO2/MMBTU (a)	CH4 Emission Factor, kg CH4/MMBTU (b)	N2O Emission Factor, kg N2O/MMBTU (b)	CO2 Emissions, metric tons/year	CH4 Emissions, metric tons/year	N2O Emissions, metric tons/year	CO2 Equivalents, metric tons/year
Jet Turbine D14	1,314,000	53.06	0.001	0.0001	69,720.84	1.31	0.13	(69,789)
Jet Turbine D15	1,314,000	53.06	0.001	0.0001	69,720.84	1.31	0.13	(69,789)
Jet Turbine D16	1,314,000	53.06	0.001	0.0001	69,720.84	1.31	0.13	(69,789)
							Total Emission Decrease	**209,368**
[1] Annual Fuel suage per year was calculated from permitted peak fuel use (150 MMBtu/hr) for 8760 hours of operation.								
(a) Table C.7, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009								
(b) Table C.8, Industrial Sector, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009								
Global warming potential of CH_4, Table C.1, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009								21
Global warming potential of N_2O, Table C.1, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009								310

Table 41
Project Total GHG Emissions Summary

Source	CO_2e
Construction	
Equipment Exhaust (MT)	3,301
Motor Vehicle Exhaust (MT)	1,754
Total Construction Emissions (MT)	***5,055***
Total Construction Emissions Amortized over 30 years (MT/year)	***168***
Operation	
SF6 Leakage (MT/year)	54
Motor Vehicle Exhaust (MT/year)	4
Compressor Electricity Use (MT/year)	138,709
Potential GHG Emissions from Current Project (MT/year)	***138,766***
Jet Turbine D14 Operation (MT/year)	(69,789)
Jet Turbine D15 Operation (MT/year)	(69,789)
Jet Turbine D16 Operation (MT/year)	(69,789)
Decrease in GHG due to Removal of Turbines (MT/year)	***(209,368)***
Net Operational GHG Emissions (MT/year)	***(70,433)***
Total Project GHG Emissions (MT/year)	**(70,264)**
SCAQMD Interim Threshold (MT/year)	10,000
Significant (Yes/No)?	**No**

maximum potential to emit for 8760 hours per year.

Table 47
Localized Significance Threshold Analysis

LST Analysis for the Compressor Station Site
(2 acre site; Nearest Receptor at over 1,000 meters)

	CO	NOx	PM10	PM2.5
Peak Daily Construction Emissions	114.56	106.22	12.55	5.46
Peak Daily Operational Emissions	4.96	4.96	0.36	0.03
NOx and CO LST	***8933***	***291***	**--**	**--**
PM10 and PM2.5 Operational LST	**--**	**--**	***139***	***80***
PM10 and PM2.5 Construction LST	**--**	**--**	***34***	***20***
Significant (Yes/No)?	**NO**	**NO**	**NO**	**NO**

LST Analysis for the Substation Site
(2 acre site; Nearest Receptor at over 900 meters)

	CO	NOx	PM10	PM2.5
Peak Daily Construction Emissions	39.92	66.30	21.21	6.03
Peak Daily Operational Emissions	4.96	0.55	0.36	0.03
NOx and CO LST	***8933***	***291***	**--**	**--**
PM10 and PM2.5 Operational LST	**--**	**--**	***139***	***80***
PM10 and PM2.5 Construction LST	**--**	**--**	***34***	***20***
Significant (Yes/No)?	**NO**	**NO**	**NO**	**NO**

LST Analysis for the PPL
(2 acre site; Nearest Receptor at over 900 meters)

	CO	NOx	PM10	PM2.5
Peak Daily Construction Emissions	57.51	120.86	10.96	6.10
Peak Daily Operational Emissions	4.96	0.55	0.36	0.03
NOx and CO LST	***8933***	***291***	**--**	**--**
PM10 and PM2.5 Operational LST	**--**	**--**	***139***	***80***
PM10 and PM2.5 Construction LST	**--**	**--**	***34***	***20***
Significant (Yes/No)?	**NO**	**NO**	**NO**	**NO**

LST Analysis for the 66kV
(1 acre site; Nearest Receptor at 25 meters)[1]

	CO	NOx	PM10	PM2.5
Peak Daily Construction Emissions	29.35	68.89	3.16	2.60
Peak Daily Operational Emissions	4.96	0.55	0.36	0.03
NOx and CO LST	***590***	***114***	**--**	**--**
PM10 and PM2.5 Operational LST	**--**	**--**	***1***	***1***
PM10 and PM2.5 Construction LST	**--**	**--**	***4***	***3***
Significant (Yes/No)?	**NO**	**NO**	**NO**	**NO**

1. Receptor distance is within 25 meters of 12 poles to be replaced within the alignment.

LST Analysis for the San Fernando Substation
(1 acre site; Nearest Receptor at 25 meters)

	CO	NOx	PM10	PM2.5
Peak Daily Construction Emissions	29.35	68.89	3.16	2.60
Peak Daily Operational Emissions	4.96	0.55	0.36	0.03
NOx and CO LST	***590***	***114***	**--**	**--**
PM10 and PM2.5 Operational LST	**--**	**--**	***1***	***1***
PM10 and PM2.5 Construction LST	**--**	**--**	***4***	***3***
Significant (Yes/No)?	**NO**	**NO**	**NO**	**NO**

LST Analysis for the New Guardhouse and Office Trailers
(<1 acre site; Nearest Receptor at >50 meters)

	CO	NOx	PM10	PM2.5
Peak Daily Construction Emissions	35.50	76.18	6.64	3.40
Peak Daily Operational Emissions				
NOx and CO LST	***879***	***115***	**--**	**--**
PM10 and PM2.5 Operational LST	**--**	**--**	***3***	***1***
PM10 and PM2.5 Construction LST	**--**	**--**	***12***	***4***
Significant (Yes/No)?	**NO**	**NO**	**NO**	**NO**

LST Analysis for Turbine Dismantling, Hauling, Site Clearing and Grading
(2 acre site; Nearest Receptor at over 1,000 meters)

	CO	NOx	PM10	PM2.5
Peak Daily Construction Emissions	26.14	56.41	15.85	4.03
Peak Daily Operational Emissions	4.96	0.55	0.36	0.03
NOx and CO LST	***8933***	***291***	**--**	**--**
PM10 and PM2.5 Operational LST	**--**	**--**	***139***	***80***
PM10 and PM2.5 Construction LST	**--**	**--**	***34***	***20***
Significant (Yes/No)?	**NO**	**NO**	**NO**	**NO**

Table 47
Localized Significance Threshold Analysis
SCAQMD Localized Significance Threshold (LST) Values

	Allowable emissions (lb/day) as a function of receptor distance from Site Boundary														
Pollutant	**1 Acre**					**2 Acre**					**5 Acre**				
Receptor Distance (meters)	**25**	**50**	**100**	**200**	**500**	**25**	**50**	**100**	**200**	**500**	**25**	**50**	**100**	**200**	**500**
CO	590	879	1294	2500	8174	877	1256	1787	3108	8933	1644	2095	2922	4608	11049
NOx	114	115	133	173	273	163	159	172	204	291	246	236	251	275	345
PM_{10} Construction	4	12	25	51	131	6	19	32	59	139	12	38	52	79	161
PM_{10} Operation	1	3	6	13	32	2	5	8	15	34	3	10	13	19	39
$PM_{2.5}$ Construction	3	4	7	18	74	4	5	9	20	80	6	8	13	26	95
$PM_{2.5}$ Operation	1	1	2	5	18	1	2	2	5	20	2	2	3	7	23

Table 48-A

Peak Daily Compressor Site Construction Emissions						
Scenario[1]	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
1	0.24	1.27	1.41	0.07	0.20	0.11
2	13.63	71.13	83.20	0.13	12.55	2.03
3	11.60	73.01	48.77	0.11	7.35	2.89
4	20.95	114.56	106.22	0.20	10.66	5.46
5	2.13	11.21	9.80	0.02	1.09	0.62
Peak Daily	**20.95**	**114.56**	**106.22**	**0.20**	**12.55**	**5.46**

[1] Emissions were calculated for six scenarios, listed below. Each scenario includes a combination of construction activities that could occur at the same time.

Scenario 1 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Survey	0.09	0.17	0.18	0.07	0.12	0.08
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**0.24**	**1.27**	**1.41**	**0.07**	**0.20**	**0.11**

Scenario 2 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Site Clearing	6.89	34.91	40.48	0.06	7.73	0.99
Compressor Station Site Preparation	6.59	35.11	41.48	0.06	4.74	0.99
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**13.63**	**71.13**	**83.20**	**0.13**	**12.55**	**2.03**

Scenario 3 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Civil	11.44	71.91	47.54	0.11	7.27	2.85
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**11.60**	**73.01**	**48.77**	**0.11**	**7.35**	**2.89**

Scenario 4 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Mechanical	12.74	75.88	49.34	0.11	7.00	3.20
Compressor Station Electrical	8.06	37.58	55.64	0.08	3.59	2.22
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**20.95**	**114.56**	**106.22**	**0.20**	**10.66**	**5.46**

Scenario 5 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Paving	0.18	1.44	0.53	0.00	0.12	0.02
Compressor Station Fencing	0.27	1.88	0.59	0.00	0.15	0.04
Compressor Station Landscaping	1.54	6.78	7.45	0.01	0.75	0.52
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**2.13**	**11.21**	**9.80**	**0.02**	**1.09**	**0.62**

Table 48-B

Peak Daily Substation Site Construction Emissions						
Scenario[1]	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
1	0.31	1.29	1.42	0.15	0.31	0.19
2	10.09	39.92	66.30	0.08	21.21	6.03
3	5.84	32.40	26.33	0.05	2.86	1.64
4	2.18	14.86	12.01	0.02	1.14	0.64
Peak Daily	**10.09**	**39.92**	**66.30**	**0.15**	**21.21**	**6.03**

[1] Emissions were calculated for four scenarios based on estimated schedule and activity that could occur concurrently, as listed below.

Scenario 1 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Substation Survey	0.15	0.18	0.19	0.15	0.23	0.15
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**0.31**	**1.29**	**1.42**	**0.15**	**0.31**	**0.19**

Scenario 2 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Substation Grading	5.84	22.15	50.17	0.06	19.45	4.81
Substation Fencing	0.82	3.54	2.60	0.00	0.30	0.19
Substation Civil	3.28	13.13	12.29	0.02	1.39	0.99
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**10.09**	**39.92**	**66.30**	**0.08**	**21.21**	**6.03**

Scenario 3 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Substation MEER	0.18	1.44	0.53	0.00	0.12	0.02
Substation Electrical	1.69	7.44	5.75	0.01	0.70	0.42
Substation Wiring	0.27	1.88	0.59	0.00	0.15	0.04
Substation Transformer	1.54	6.78	7.45	0.01	0.75	0.52
Substation Testing	0.12	1.03	0.49	0.00	0.07	0.02
Substation Maintenance	0.18	1.37	1.27	0.00	0.10	0.04
Substation Paving	1.33	8.84	7.63	0.01	0.69	0.47
Substation Landscaping	0.38	2.51	1.39	0.00	0.21	0.07
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**5.84**	**32.40**	**26.33**	**0.05**	**2.86**	**1.64**

Scenario 4 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Substation Testing	0.12	1.03	0.49	0.00	0.07	0.02
Substation Maintenance	0.18	1.37	1.27	0.00	0.10	0.04
Substation Paving	1.33	8.84	7.63	0.01	0.69	0.47
Substation Landscaping	0.38	2.51	1.39	0.00	0.21	0.07
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**2.18**	**14.86**	**12.01**	**0.02**	**1.14**	**0.64**

Table 48-C

Peak Daily 66kV Substransmission Construction Emissions						
Scenario[1]	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
1	4.90	18.57	45.26	0.05	3.16	1.73
2	7.58	26.54	68.89	0.09	2.96	2.60
3	7.66	29.35	68.36	0.08	3.09	2.52
4	4.33	14.75	37.47	0.05	1.77	1.47
Peak Daily	**7.66**	**29.35**	**68.89**	**0.09**	**3.16**	**2.60**

[1] Emissions were calculated for four scenarios based on estimated schedule and activity that could occur concurrently, as listed below.

Scenario 1 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Subtransmission ROW Clearing	4.90	18.57	45.26	0.05	3.16	1.73
Total	**4.90**	**18.57**	**45.26**	**0.05**	**3.16**	**1.73**

Scenario 2 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Subtransmission Pole Framing and Setting	7.58	26.54	68.89	0.09	2.96	2.60
Total	**7.58**	**26.54**	**68.89**	**0.09**	**2.96**	**2.60**

Scenario 3 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
TSP Footing	7.66	29.35	68.36	0.08	3.09	2.52
Total	**7.66**	**29.35**	**68.36**	**0.08**	**3.09**	**2.52**

Scenario 4 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Subtransmission Line Assembly	4.33	14.75	37.47	0.05	1.77	1.47
Total	**4.33**	**14.75**	**37.47**	**0.05**	**1.77**	**1.47**

Table 49
Turbine Dismantling, Hauling and Site Clearing and Grading

49: Emissions Summary - Dismantling, Hauling, and Site Clearing and Grading

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Dismantling	7.0	0.2	1.7	1.3	0.1	0.1
Hauling	7.0	0.6	3.4	5.0	0.2	0.3
Clearing and Grading	6.7	25.3	51.3	0.1	15.5	3.7
Total	**20.7**	**26.1**	**56.4**	**6.3**	**15.9**	**4.0**
Significance Threshold	75	550	100	150	150	55
Significant? (Yes/No)	No	No	No	No	No	No

49a: Emissions Summary - Dismantling

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.0	0.0	0.0	0.0	0.0	0.0
Vehicle Exhaust	7.0	0.2	1.7	1.3	0.0	0.1
Vehicle Fugitive	--	--	--	--	0.1	0.0
Earthwork Fugitive	--	--	--	--	0.0	0.0
Total	**7.0**	**0.2**	**1.7**	**1.3**	**0.1**	**0.1**

49a_1: Construction Equipment Exhaust Emissions - Dismantling

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.0	0.0	0.0	0.0	0.0	0.0
Total Equipment Exhaust				**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

49a_2: Motor Vehicle Exhaust Emissions - Dismantling

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Heavy Duty Truck	10	3	0.09	0.36	1.15	0.00	0.05	0.05
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**7.0**	**0.2**	**1.7**	**1.3**	**0.0**	**0.1**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

49a_3: Motor Vehicle Entrained Particulate Matter Emissions - Dismantling

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Heavy Duty Truck	Paved	10	3	0.0	0.0
Heavy Duty Truck	Unpaved	0	3	0.0	0.0
Worker Commuting	Paved	40	4	0.1	0.0
Worker Commuting	Unpaved	0	4	0.0	0.0
Total Vehicle Fugitive				**0.1**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

49a_4: Fugitive Particulate Matter Emissions - Dismantling

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day		0.00	0.00
Total Earthwork Fugitive			**0.0**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

[b] Estimate

Table 49
Turbine Dismantling, Hauling and Site Clearing and Grading

49b: Emissions Summary - Hualing

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.0	0.0	0.0	0.0	0.0	0.0
Vehicle Exhaust	7.0	0.6	3.4	5.0	0.0	0.2
Vehicle Fugitive	--	--	--	--	0.1	0.0
Earthwork Fugitive	--	--	--	--	0.1	0.0
Total	**7.0**	**0.6**	**3.4**	**5.0**	**0.2**	**0.3**

49b_1: Construction Equipment Exhaust Emissions - Turbine Hauling

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None		0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total Equipment Exhaust				**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

49b_2: Motor Vehicle Exhaust Emissions - Turbine Hauling

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Heavy Duty Truck	50	2	0.30	1.20	3.82	0.00	0.18	0.16
3/4-Ton Pickup	50	1	0.13	0.92	1.03	0.00	0.04	0.03
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**7.0**	**0.6**	**3.4**	**5.0**	**0.0**	**0.2**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

49b_3: Motor Vehicle Entrained Particulate Matter Emissions - Turbine Hauling

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Heavy Duty Truck	Paved	50	2	0.1	0.0
Heavy Duty Truck	Unpaved	0	2	0.0	0.0
Worker Commuting	Paved	40	4	0.1	0.0
Worker Commuting	Unpaved	0	4	0.0	0.0
Total Vehicle Fugitive				**0.1**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

49b_4: Fugitive Particulate Matter Emissions - Turbine Hauling

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	100	0.10	0.02
Total Earthwork Fugitive			**0.1**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

[b] Estimate

Table 49
Turbine Dismantling, Hauling and Site Clearing and Grading

Emissions Summary - Clearing and Grading						
Source	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Equipment Exhaust	5.2	18.8	34.4	0.0	2.4	2.2
Vehicle Exhaust	1.5	6.6	16.9	0.0	0.8	0.7
Vehicle Fugitive	--	--	--	--	0.3	0.0
Earthwork Fugitive	--	--	--	--	12.0	0.8
Total	**6.7**	**25.3**	**51.3**	**0.1**	**15.5**	**3.7**

49c_1: Construction Equipment Exhaust Emissions - Clearing and Grading									
Equipment	**Horse-Power**	**Hours/ Day Used**	**Number**	**ROG (lb/day)[a]**	**CO (lb/day)[a]**	**NO_x (lb/day)[a]**	**SO_x (lb/day)[a]**	**PM_{10} (lb/day)[a]**	**$PM_{2.5}$ (lb/day)[a]**
Crane		5	1	0.63	2.14	3.28	0.00	0.28	0.25
Excavator		5	1	0.05	0.17	0.32	0.00	0.02	0.02
Backhoe		5	2	1.55	5.38	8.47	0.01	0.69	0.63
Grader		5	2	1.72	6.31	14.34	0.01	0.75	0.69
Dozer		5	2	1.27	4.77	7.99	0.01	0.68	0.62
Total Equipment Exhaust				**5.2**	**18.8**	**34.4**	**0.0**	**2.4**	**2.2**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

49c_2: Motor Vehicle Exhaust Emissions - Clearing and Grading								
Vehicle Type	**Miles/ Day per Vehicle**	**Number**	**ROG (lb/day)[a]**	**CO (lb/day)[a]**	**NO_x (lb/day)[a]**	**SO_x (lb/day)[a]**	**PM_{10} (lb/day)[a]**	**$PM_{2.5}$ (lb/day)[a]**
Heavy Duty Truck	10	15	0.46	1.79	5.73	0.01	0.27	0.24
Dump Truck	24	12	0.88	3.44	11.01	0.01	0.53	0.46
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**1.5**	**6.6**	**16.9**	**0.0**	**0.8**	**0.7**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

49c_3: Motor Vehicle Entrained Particulate Matter Emissions - Clearing and Grading					
Vehicle Type	**Road Type**	**Miles/ Day per Vehicle**	**Number**	**PM_{10} (lb/day)[a]**	**$PM_{2.5}$ (lb/day)[a]**
Heavy Duty Truck	Paved	10	15	0.1	0.0
Heavy Duty Truck	Unpaved	0	15	0.0	0.0
Dump Truck	Paved	24	12	0.1	0.0
Dump Truck	Unpaved	0	12	0.0	0.0
Worker Commuting	Paved	40	4	0.1	0.0
Worker Commuting	Unpaved	0	4	0.0	0.0
Total Vehicle Fugitive				**0.3**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

49c_4: Fugitive Particulate Matter Emissions - Clearing and Grading				
Activity	**Activity Units**	**Activity Level**	**PM_{10} (lb/day)[a]**	**$PM_{2.5}$ (lb/day)[a]**
Soil Dropping[b]	CY/Day	100	0.00	0.02
Bulldozing	Hours/Day	10	1.56	0.22
Grading and Excavating[c]	VMT/Day	15	10.41	0.54
Total Earthwork Fugitive			**12.0**	**0.8**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

[b] Estimate

[c] Assumes rate of grader and excavator travel at 1 mile per hour within the compressor station site.