Appendix 3

Air Quality Emission Calculations

Appendix 3. Air Quality Appendix for Downs Substation Construction

- Supplemental emissions estimates for motor vehicle trips

Assumptions

1. SCAMQD's 2011 on-road emission factors for passenger vehicles are used as they are used in the PEA.
2. Annual emissions are estimated by staff based on the given number of operating days identified in the PEA Appendix.

Substation Construction

			Emission Factors (lbs/mile)								Daily Emissions (lbs/day)									Annual Emissions (lbs)							
Construction Activity	**Number of Vehicles**	**Miles/Day**	**ROG**	**CO**	**NOx**	**SO_X**	**PM10**	**PM2.5**	**CO_2**	**CH_4**	**ROG**	**CO**	**NOx**	**SO_X**	**PM10**	**PM2.5**	**CO_2**	**CH_4**	**# of Days**	**ROG**	**CO**	**NOx**	**SO_X**	**PM10**	**PM2.5**	**CO_2**	**CH_4**
Grading Task Personal Vehicles	8	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.102	0.992	0.101	0.001	0.011	0.007	132.28	0.009	13	1.33	12.89	1.32	0.02	0.14	0.09	1,720	0.12
Fencing Task Personal Vehicles	4	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.051	0.496	0.051	0.001	0.005	0.003	66.14	0.005	5	0.26	2.48	0.25	0.00	0.03	0.02	331	0.02
Civil Task Personal Vehicles	8	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.102	0.992	0.101	0.001	0.011	0.007	132.28	0.009	30	3.07	29.75	3.04	0.04	0.32	0.20	3,968	0.28
MEER Task Personal Vehicles	4	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.051	0.496	0.051	0.001	0.005	0.003	66.14	0.005	40	2.05	19.83	2.03	0.03	0.21	0.14	2,646	0.18
Electrical Task Personal Vehicles	8	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.102	0.992	0.101	0.001	0.011	0.007	132.28	0.009	40	4.09	39.66	4.05	0.05	0.43	0.27	5,291	0.37
Wiring Task Personal Vehicles	2	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.026	0.248	0.025	0.000	0.003	0.002	33.07	0.002	60	1.53	14.87	1.52	0.02	0.16	0.10	1,984	0.14
																			Total (tpy)	0.006	0.060	0.006	0.000	0.001	0.000	7.97	0.001

115 kV Relay Upgrade Construction

			Emission Factors (lbs/mile)								Daily Emissions (lbs/day)									Annual Emissions (lbs)							
Vehicle Class	**Estimated Workforce**	**VMT**	**ROG**	**CO**	**NOx**	**SO_X**	**PM10**	**PM2.5**	**CO_2**	**CH_4**	**ROG**	**CO**	**NOx**	**SO_X**	**PM10**	**PM2.5**	**CO_2**	**CH_4**	**# of Days**	**ROG**	**CO**	**NOx**	**SO_X**	**PM10**	**PM2.5**	**CO_2**	**CH_4**
Survey Task Personal Vehicles	4	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.051	0.496	0.051	0.001	0.005	0.003	66.14	0.005	2	0.10	0.99	0.10	0.00	0.01	0.01	132	0.01
Roads & Landing Work	5	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.064	0.620	0.063	0.001	0.007	0.004	82.68	0.006	5	0.32	3.10	0.32	0.00	0.03	0.02	413	0.03
LWS / Wood Pole Haul	4	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.051	0.496	0.051	0.001	0.005	0.003	66.14	0.005	3	0.15	1.49	0.15	0.00	0.02	0.01	198	0.01
IWS / Wood Pole Assembly	8	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.102	0.992	0.101	0.001	0.011	0.007	132.28	0.009	5	0.51	4.96	0.51	0.01	0.05	0.03	661	0.05
Guard Structure	6	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.077	0.744	0.076	0.001	0.008	0.005	99.21	0.007	6	0.46	4.46	0.46	0.01	0.05	0.03	595	0.04
Install Tubular Steel Pole Foundations	7	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.089	0.868	0.089	0.001	0.009	0.006	115.75	0.008	10	0.89	8.68	0.89	0.01	0.09	0.06	1,157	0.08
LWS / Wood Pole	8	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.102	0.992	0.101	0.001	0.011	0.007	132.28	0.009	5	0.51	4.96	0.51	0.01	0.05	0.03	661	0.05
Tubular Steel Pole Haul	4	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.051	0.496	0.051	0.001	0.005	0.003	66.14	0.005	2	0.10	0.99	0.10	0.00	0.01	0.01	132	0.01
Tubular Steel Pole Assembly	8	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.102	0.992	0.101	0.001	0.011	0.007	132.28	0.009	5	0.51	4.96	0.51	0.01	0.05	0.03	661	0.05
Tubular Steel Pole Erection	8	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.102	0.992	0.101	0.001	0.011	0.007	132.28	0.009	5	0.51	4.96	0.51	0.01	0.05	0.03	661	0.05
Remove Existing Conductor	14	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.179	1.735	0.177	0.002	0.019	0.012	231.49	0.016	1	0.18	1.74	0.18	0.00	0.02	0.01	231	0.02
Install Conductor & GW	20	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.256	2.479	0.253	0.003	0.027	0.017	330.71	0.023	8	2.05	19.83	2.03	0.03	0.21	0.14	2,646	0.18
Guard Structure Remova	6	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.077	0.744	0.076	0.001	0.008	0.005	99.21	0.007	1	0.08	0.74	0.08	0.00	0.01	0.01	99	0.01
Remove LWS Poles	6	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.077	0.744	0.076	0.001	0.008	0.005	99.21	0.007	3	0.23	2.23	0.23	0.00	0.02	0.02	298	0.02
Restoration	7	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.089	0.868	0.089	0.001	0.009	0.006	115.75	0.008	2	0.18	1.74	0.18	0.00	0.02	0.01	231	0.02
Temporary Equipment & Material Staging Area	4	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.051	0.496	0.051	0.001	0.005	0.003	66.14	0.005	180	9.21	89.24	9.12	0.12	0.96	0.61	11,905	0.83
																			Total (tpy)	0.008	0.078	0.008	0.000	0.001	0.001	10.34	0.001

Fiber Optic Telecommunication System Construction

			Emission Factors (lbs/mile)								Daily Emissions (lbs/day)									Annual Emissions (lbs)							
Vehicle Class	**Number of Vehicles**	**VMT**	**ROG**	**CO**	**NOx**	**SO_X**	**PM10**	**PM2.5**	**CO_2**	**CH_4**	**ROG**	**CO**	**NOx**	**SO_X**	**PM10**	**PM2.5**	**CO_2**	**CH_4**	**# of Days**	**ROG**	**CO**	**NOx**	**SO_X**	**PM10**	**PM2.5**	**CO_2**	**CH_4**
Cable Construction Task Personal Vehicles	5	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.064	0.620	0.063	0.001	0.007	0.004	82.68	0.006	23	1.47	14.25	1.46	0.02	0.15	0.10	1,902	0.13
Receive and Load Out Materials Task Personal Vehicles	5	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.064	0.620	0.063	0.001	0.007	0.004	82.68	0.006	23	1.47	14.25	1.46	0.02	0.15	0.10	1,902	0.13
Cleanup Task Personal Vehicles	5	15	0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10235	0.00008	0.064	0.620	0.063	0.001	0.007	0.004	82.68	0.006	23	1.47	14.25	1.46	0.02	0.15	0.10	1,902	0.13
																			Total (tpy)	0.002	0.021	0.002	0.000	0.000	0.000	2.85	0.000