

APPENDIX 5.11A

Soil Loss Estimates Calculations

Table 5.11-3. Estimate of Soil Loss by Water Erosion Using Revised Universal Soil Loss Equation (RUSLE2)

Feature (acreage) ²	Activity	Duration (months)	Estimates Using Revised Universal Soil Loss Equation ¹		
			Soil Loss (tons) without BMPs	Soil Loss (tons) with BMPs	Soil Loss (tons/yr) No Project
Project Site (4.60 acres)	Grading	2	0.84	0.0010	0.0078
	Construction	12	0.22	0.0061	-
Laydown Area (1.90 acres) (0.95 acres exposed; 0.95 paved or gravelled)	Grading	1	0.29	0.0017	0.0044
	Construction	12	0.76	0.021	-
Transmission Lines					
Corridor 1 (1.56 acres for construction; 0.0066 acre for pole footprints)	Grading	2	0.0016	0.0045	0.0000
	Construction	4	0.33	0.0090	-
Corridor 2 (2.16 acres for construction; 0.0092 acre for pole footprints)	Grading	2	0.0023	0.0065	0.0000
	Construction	4	0.47	0.013	-
Corridor 3 (0.00 acre for construction; 0.00 acre for pole footprints) - Reconductoring only	Grading	0	0.0000	0.0000	0.00000
	Construction	0	0.000	0.0000	-
Natural Gas Lines					
Alternative A (27.60 acres for construction; 4.22 acres for trench)	Grading	6	2.22	0.33	0.0075
	Construction	6	11.74	0.33	-
Alternative B (33.82 acres for construction; 5.41 acres for trench)	Grading	6	2.77	0.41	0.0092
	Construction	6	14.73	0.41	-
Project Soil Loss Estimates	All activities listed above	12	34.37	1.53	0.029

Notes:

- Soil losses (tons/acre/year) are estimated using RUSLE2 software available online [http://fargo.nserl.purdue.edu/rusle2_dataweb/].
 - The soil characteristics were estimated using RUSLE2 soil profiles corresponding to the mapped NRCS soil unit.
 - Soil loss (R-factors) were estimated using 2-year, 6-hour point precipitation frequency amount for the Almond Power Plant 2 project site found at [<http://www.nws.noaa.gov/ohd/hdsc/noaaatlas2.htm>].
 - Estimates of actual soil losses use the RUSLE2 soil loss times the duration and the affected area. The No Project Alternative estimate does not have a specific duration so loss is given as tons/year.
- Acreages assume 30 ft corridors for the transmission lines and 100 ft corridors for the natural gas pipeline construction. Trenches for the natural gas pipeline are assumed to be 4 ft wide. The transmission line pole holes will each have a 4 ft by 4 ft excavation footprint.

Other Project Assumptions as follows:

- It is assumed that 100% of the Almond Power Plant 2 project site and laydown area will be exposed during grading, and approximately 10% of the site will be bare soil during construction.
- It is assumed that grading the site will take 2 months and construction will take 12 months.
- It is assumed that grading for the laydown area will take 1 month and the area will be covered (gravelled or paved) immediately thereafter.
- It is assumed that soil loss will be negligible from the laydown area once it is covered.
- It is assumed that the natural gas pipeline will be installed within a 4 ft wide trench and a 100 ft construction corridor along existing roadways.
- It is assumed that the natural gas pipeline will take 6 months to construct and will take another 2 months before permanent cover is established.
- The overhead transmission lines will have poles outside of the project footprint. Each pole will have a 4 ft by 4 ft footprint.
- It is assumed that the grading/excavation for the transmission line poles will be completed within 2 months and the entire installation will be completed within 4 months.
- The water and sewer lines will be completed on-site, so no additional soil losses are estimated for them.

RUSLE2 Assumptions as follows:

- 100-ft slope length. Estimated soil unit slope is the midpoint of the minimum and maximum of the unit slope class.
- Construction** soil losses assume the following inputs: Management - Bare ground; Contouring - None, rows up and down hill; Diversion/terracing - None; Strips and Barriers - None.
- Grading** soil losses assume the following inputs: Management - Bare ground/rough surface; Contouring - None, rows up and down hill; Diversion/terracing - None; Strips and Barriers - None.
- Construction with BMP** soil losses assume the following inputs: Management - Silt fence; Contouring - Perfect, no row grade; Diversion/terracing - None; Strips and Barriers - 2 fences, 1 at end of RUSLE slope.
- No Project** soil losses assume the following inputs: Management - Dense grass, not harvested; Contouring - None, rows up and down hill; Diversion/terracing - None; Strips and Barriers - None.

Soil Type	Acreage		Soil Loss Estimates Using RUSLE2 software (tons/ac/year)			
Site		Slope	Grading	Construction w/o BMPs	Construction with BMPs	No Project
HdA	1.5	1.5	1.8	0.80	0.022	0.0023
HdpA	3.1	0.5	0.76	0.32	0.0091	0.0014
	4.6	Subtotal	5.06	0.219	0.006	0.0078
Laydown Area						
HdA	1.90	1.5	1.8	0.80	0.022	0.0023
	0.95	Subtotal	3.42	0.76	0.021	0.0044
Transmission Lines						
Corridor 1 (Circuit 1)						
HdA	0.0042	1.5	1.8	0.80	0.022	0.0023
HdpA	0.0024	0.5	0.76	0.32	0.0091	0.0014
	1.56	Subtotal	0.009	0.975	0.027	0.0000
Corridor 2 (Circuit 2)						
HdA	0.0064	1.5	1.8	0.80	0.022	0.0023
HdpA	0.0023	0.5	0.76	0.32	0.0091	0.0014
DrA	0.0006	0.5	0.88	0.37	0.010	0.0016
	2.16	Subtotal	0.014	1.415	0.039	0.00002
Corridor 3 (Reconducted Line)						
DrA	NA	0.5	0.88	0.37	0.010	0.0016
HdA	NA	1.5	1.8	0.80	0.022	0.0023
HdpA	NA	0.5	0.76	0.32	0.0091	0.0014
HdsA	NA	0.5	0.76	0.32	0.0091	0.0014
TuA	NA	1.5	1.2	0.50	0.014	0.0014
		Subtotal	0.000	0.000	0.000	0.000
Natural Gas Lines						
Alternative A						
DrA	0.81	0.5	0.88	0.37	0.01	0.0016
DwA	1.34	0.5	1.0	0.42	0.012	0.0018
FsA	0.09	0.5	1.0	0.42	0.012	0.0018
FtA	0.17	0.5	1.0	0.42	0.012	0.0019
FuA	0.17	0.5	1.0	0.42	0.012	0.0019
FwA	0.24	0.5	1.0	0.42	0.012	0.00185
HdA	0.45	1.5	1.8	0.80	0.022	0.0023
HdpA	0.12	0.5	0.76	0.32	0.0091	0.0014
HfA	0.50	0.5	0.59	0.24	0.0068	0.0010
HkbA	0.04	0.5	0.59	0.24	0.0068	0.0010
TrA	0.19	0.5	1.0	0.43	0.012	0.0018
TuA	0.14	1.5	1.2	0.50	0.014	0.0014
WaA	0.16	0.5	0.88	0.37	0.010	0.0016
	55.20	Subtotal	4.43	23.48	0.66	0.0075
Alternative B						
DeA	0.12	1.5	0.59	0.25	0.0072	0.001
DgA	0.12	1.5	0.59	0.25	0.0072	0.001
DrA	1.79	0.5	0.88	0.37	0.01	0.0016
DwA	0.59	0.5	1.0	0.42	0.012	0.0018
FtA	0.04	0.5	1.0	0.42	0.012	0.0019
FuA	0.39	0.5	1.0	0.42	0.012	0.0019
HdA	0.71	1.5	1.8	0.80	0.022	0.0023
HdpA	0.12	0.5	0.76	0.32	0.0091	0.0014
HfA	0.02	0.5	0.59	0.24	0.0068	0.0010
TuA	0.28	1.5	1.2	0.50	0.014	0.0014
WbA	1.13	0.5	0.88	0.37	0.01	0.0016
WdA	0.11	0.5	0.88	0.37	0.01	0.0016
	67.64	Subtotal	5.54	29.47	0.81	0.0092

Assumptions:

Assumes slope is the mid-point of the slope class

100% of project site would be bare soil during grading.

100% of transmission pole holes and trench areas will be bare soil during grading/excavation.

Assumes 50% of transmission line and natural gas pipeline corridors are currently unprotected.

It is assumed that transmission line poles will be placed every 250 ft along the transmission corridor.

Transmission pole impact area assumes a 4 ft by 4 ft footprint times the number of poles.

Transmission line construction impacts based on a 100 ft corridor along entire length.

The No Project soil loss assumes a 'dense grass, not harvested' management scenario.

Project: TID Almond Power Plant 2 - Jenny Krenz input for areas on 02/25/09 - subject to revision

OBJECTID	AREASymbol	Length (miles)	Length (feet)	Acres	Acreage_tot		
Almond Power Plant 2 Site	HdA		1.50	1.50		Acreage received from Mike Haskell (04/07/09).	
	HdpA		3.10	3.10		Acreage received from Mike Haskell (04/07/09).	
	Sum			4.60			
				0.15		Assumes only 10% of site is bare soil during construction	
Laydown Area	HdA		1.90	1.90		Acreage received from Mike Haskell (04/07/09).	
	Sum			0.95		Assumes 50% of site is bare soil during construction	
Natural gas pipeline (Alternative A) - trench	DfA	1.67	8792	0.81	0.81	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	DwA	2.77	14614	1.34	1.34	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	FsA	0.18	937	0.09	0.09	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	FlA	0.36	1899	0.17	0.17	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	FuA	0.36	1885	0.17	0.17	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	FwA	0.49	2578	0.24	0.24	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	HdA	0.32	1655	0.45	0.45	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	HdpA	0.26	1356	0.12	0.12	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	HfA	1.03	5441	0.50	0.50	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	HkbA	0.09	472	0.04	0.04	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	TrA	0.39	2038	0.19	0.19	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	TuA	0.28	1504	0.14	0.14	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	WaA	0.33	1719	0.16	0.16	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	9.11			4.42		Assumes 100% exposed during construction	
Natural gas pipeline (Alternative A) - corridor	DfA	1.67	8792	20.18	20.18	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	DwA	2.77	14614	33.55	33.55	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	FsA	0.18	937	2.15	2.15	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	FlA	0.36	1899	4.36	4.36	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	FuA	0.36	1885	4.33	4.33	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	FwA	0.49	2578	5.92	5.92	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	HdA	0.32	1655	11.15	11.15	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	HdpA	0.26	1356	3.11	3.11	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	HfA	1.03	5441	12.49	12.49	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	HkbA	0.09	472	1.08	1.08	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	TrA	0.39	2038	4.68	4.68	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	TuA	0.28	1504	3.45	3.45	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	WaA	0.33	1719	3.95	3.95	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	9.11		Sum	110.40			
				55.20		Assumes only 50% of the corridor is exposed during construction.	
Natural gas pipeline (Alternative B) - trench	DeA	0.25	1330	0.12	0.12	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	DgA	0.24	1259	0.12	0.12	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	DfA	3.69	19508	1.79	1.79	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	DwA	1.22	6439	0.59	0.59	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	FfA	0.08	397	0.04	0.04	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	FuA	0.80	4232	0.39	0.39	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	HdA	1.47	7753	0.71	0.71	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	HdpA	0.25	1343	0.12	0.12	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	HfA	0.04	214	0.02	0.02	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	TuA	0.27	2993	0.28	0.28	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	WaA	2.33	12303	1.13	1.13	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
	WdA	0.22	1149	0.11	0.11	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).	
		11.16			5.41		Assumes 100% exposed during construction
Natural gas pipeline (Alternative B) - corridor	DeA	0.25	1330	3.05	3.05	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	DgA	0.24	1259	2.89	2.89	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	DfA	3.69	19508	44.78	44.78	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	DwA	1.22	6439	14.78	14.78	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	FfA	0.08	397	0.91	0.91	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	FuA	0.80	4232	9.72	9.72	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	HdA	1.47	7753	17.80	17.80	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	HdpA	0.25	1343	3.08	3.08	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	HfA	0.04	214	0.49	0.49	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	TuA	0.57	2998	6.88	6.88	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	WaA	2.33	12303	28.24	28.24	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
	WdA	0.22	1149	2.64	2.64	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).	
		11.16		Sum	135.28		
				67.64		Assumes only 50% of the corridor is exposed during construction.	
Transmission Line - Circuit 1 115-kV Circuit 1 Line						Construction Corridor	
	HdA	0.55	2885	0.0042	1.9870	Assumes 4x4 ft hole for each pole spaced at 250 ft. Assumes 30 ft construction corridor. Spacing and corridor from "Transmission" memo 1/5/09; miles in e-mail from Mike H	
	HdpA	0.31	1636	0.0024	1.1269	Assumes 4x4 ft hole for each pole spaced at 250 ft. Assumes 30 ft construction corridor. Spacing and corridor from "Transmission" memo 1/5/09; miles in e-mail from Mike H	
		0.86		Sum	0.0066	3.1139	
	# T poles	4521			0.0066		Assumes pole hole footprint will be unprotected until pole installed
						1.56	Assumes 50% of the corridor is unprotected during construction
	Transmission Line - Circuit 2 115-kV Circuit 2 Line	HdA	0.82	4330	0.0064	2.9818	Assumes 4x4 ft hole for each pole spaced at 250 ft. Assumes 30 ft construction corridor. Spacing and corridor from "Transmission" memo 1/5/09; miles in e-mail from Mike H
		HdpA	0.30	1560	0.0023	1.0743	Assumes 4x4 ft hole for each pole spaced at 250 ft. Assumes 30 ft construction corridor. Spacing and corridor from "Transmission" memo 1/5/09; miles in e-mail from Mike H
		DfA	0.07	395	0.0006	0.2726	Assumes 4x4 ft hole for each pole spaced at 250 ft. Assumes 30 ft construction corridor. Spacing and corridor from "Transmission" memo 1/5/09; miles in e-mail from Mike H
			1.19		Sum	0.0092	4.3267
# T poles		6285			0.0092		Assumes pole hole footprint will be unprotected until pole installed
						2.16	Assumes 50% of the corridor is unprotected during construction
Transmission Line - Reconductored 69kV T-Line		DfA	0.37	1968	NA	0.9036	Assumes no construction on ground, only vehicle traffic & parking. Assumes area under transmission line is currently 100% vegetated. Area of disturbance = 20 ft (Greg Tur
		HdA	0.86	4528	NA	2.0789	Assumes no construction on ground, only vehicle traffic & parking. Assumes area under transmission line is currently 100% vegetated. Area of disturbance = 20 ft (Greg Tur
		HdpA	1.17	6154	NA	2.8254	Assumes no construction on ground, only vehicle traffic & parking. Assumes area under transmission line is currently 100% vegetated. Area of disturbance = 20 ft (Greg Tur
		HdsA	0.24	1288	NA	0.5915	Assumes no construction on ground, only vehicle traffic & parking. Assumes area under transmission line is currently 100% vegetated. Area of disturbance = 20 ft (Greg Tur
	TuA	0.29	1530	NA	0.7024	Assumes no construction on ground, only vehicle traffic & parking. Assumes area under transmission line is currently 100% vegetated. Area of disturbance = 20 ft (Greg Tur	
		2.93		Sum	NA	7.1018	
						Assumes no work will be taking place on ground.	
					0.00	Assumed 100% of construction corridor is vegetated or covered.	
Service Water Construction Water Potable Water Process Water						Trench acres	
						Construction Corridor acres	
	-	0	0	0	0	0	On-site connection, according to fact sheet dated 12/30/08
	-	0	0	0	0	0	On-site connection, according to fact sheet dated 12/30/08
-	0	0	0	0	0	Will be delivered, according to fact sheet dated 12/30/08	
-	0	0	0	0	0	On-site connection, according to fact sheet dated 12/30/08	

Table 5.11-4. Estimate of Total Suspended Particulates (TSP) Emitted from Grading and Wind Erosion

Emission Source	Acreage	Duration (months)	Unmitigated TSP (tons)	Mitigated TSP (tons)
Grading Dust:				
Project Site	4.60	2	0.158	0.055
Laydown Area	1.90	1	0.033	0.011
<i>Natural Gas Pipeline (4 ft trench)</i>				
Alternative A	4.42	6	0.455	0.159
Alternative B	5.41	6	0.558	0.195
<i>Transmission Line Pole Holes</i>				
Corridor 1	0.007	2	0.0002	0.0001
Corridor 2	0.009	2	0.0003	0.0001
Corridor 3	0.000	2	0.0000	0.0000
<i>Transmission Line Total</i>	<i>0.016</i>		<i>0.0005</i>	<i>0.0002</i>
Wind Blown Dust:				
Project Site	4.60	10	0.146	0.051
Laydown Area	0.00	11	0.000	0.000
<i>Natural Gas Pipeline Corridor</i>				
Alternative A	55.20	2	3.496	1.224
Alternative B	67.64	2	4.284	1.499
<i>Transmission Line Corridor</i>				
Corridor 1	1.557	4	0.197	0.069
Corridor 2	2.164	4	0.274	0.096
Corridor 3	0.000	4	0.000	0.000
<i>Transmission Line Total</i>	<i>3.721</i>	<i>4</i>	<i>0.471</i>	<i>0.165</i>
Estimated Total			9.60	3.36

Notes:

All linear feature impacts noted above are for portions outside of the project areas footprint.

Project Assumptions:

Grading for the project site will be completed in a 2 month period and construction will extend an additional 10 months.

Grading for the laydown area will be completed in a 1 month period and the site will be covered (gravelled or paved) immediately.

Approximately 1/10th of the project site will have bare soil exposure during the length of the construction period.

Water and sewer line connections will be made on site.

One of the two natural gas line alternatives will be chosen for this project. Alternative A is 9.11 miles long, and Alternative B is 11.16 miles long.

The natural gas supply line will be installed along roadway rights-of-way in a 4-ft trench with 100-ft construction corridor.

Data Sources:

^a PM10 Emission Factor Source: Midwest Research Institute, South Coast AQMD Project No. 95040, Level 2 Analysis Procedure, March 1996

^b PM10 to TSP Conversion Factor Source: Bay Area Air Quality Management District CEQA Guidelines, Assessing the Air Quality Impacts of Projects, December 1999.

SCAQMD CEQA Handbook (1993) Table 11-4 for mitigation efficiency rates (as summarized in Table 8.9-4)

Project: TID Almond Power Plant 2

Reverified 04/07/09 JLK

Dust from Wind Erosion - With and Without Mitigation

Grading		MRI factor of 0.011 tons/acre/month is based on 168 hours per month of construction activity.
PM10 Emission Factor (ton/acre/month)	0.011	Fact Sheet, 4/26/2007.
Project Site		
Duration (months):	2	Assumes 2 months of active grading.
Site Acreage:	4.60	Assumes 100% of site is graded
PM10 Emitted (tons):	0.10	
TSP Emitted (tons):	0.158	assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	0.055	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Laydown Area		
Duration (months):	1	Assumes one month to grade
Site Acreage:	1.90	Assumes 100% of site is graded
PM10 Emitted (tons):	0.02	
TSP Emitted (tons):	0.033	Assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	0.011	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Natural Gas Pipeline Trenches		
Alternative A		
Duration (months):	6	Assumes 6 months to grade pipeline
Site Acreage:	4.416	Assumes a 4 ft wide trench
PM10 Emitted (tons):	0.2915	
TSP Emitted (tons):	0.4554	assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	0.1594	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Alternative B		
Duration (months):	6	Assumes 6 months to grade pipeline
Site Acreage:	5.411	Assumes a 4 ft wide trench
PM10 Emitted (tons):	0.3571	
TSP Emitted (tons):	0.5580	assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	0.1953	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Transmission Line Pole Holes		
Corridor 1		
Duration (months):	2	Assumes 2 months to grade transmission line
Site Acreage:	0.007	Assumes 18 4 ft by 4 ft pole holes
PM10 Emitted (tons):	0.0001	
TSP Emitted (tons):	0.0002	Assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	0.0001	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Corridor 2		
Duration (months):	2	Assumes 2 months to grade transmission line
Site Acreage:	0.009	Assumes 25 4 ft by 4 ft pole holes
PM10 Emitted (tons):	0.0002	
TSP Emitted (tons):	0.0003	Assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	0.0001	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Corridor 3		
Duration (months):	0	Assumes no grading is necessary to reconductor line
Site Acreage:	0.000	Assumes only reconductoring to take place (on existing poles)
PM10 Emitted (tons):	0.0000	
TSP Emitted (tons):	0.0000	Assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	0.0000	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Water Line Trench		
Duration (months):	0	Assumes on-site construction
Site Acreage:	0.000	
PM10 Emitted (tons):	0.000	
TSP Emitted (tons):	0.000	Assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	0.000	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Sewer Line Trench		
Duration (months):	0	Assumes on-site construction
Site Acreage:	0.000	
PM10 Emitted (tons):	0.000	
TSP Emitted (tons):	0.000	Assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	0.000	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Total Unmitigated TSP Emitted (tons)	1.205	
Total Mitigated TSP Emitted (tons)	0.422	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4

*Emission Factor Source: Midwest Research Institute, South Coast AQMD Project No. 95040, March 1996, Level 2 Analysis Procedure

† Conversion Factor Source: Bay Area Air Quality Management District (BAAQMD) BAAQMD CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans, December 1999

Wind Blown Dust

TSP Emission Factor (ton/acre/year)	0.38	Emission Factor Source: AP-42, Section 11.9 Western Surface Coal Mining Table 11.9-4, January 1995.
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Project Site

Acreage exposed	4.60	
Duration (months)	10	Assumes 10 months of construction (after 2 months of grading)
TSP Emitted for Site (tons):	0.146	Assumes 1/10th of the site is bare soil during 10 month construction period
Mitigated TSP Emitted (tons):	0.051	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Laydown Area		
Acreage exposed	0.000	Assumes laydown area is completely covered following grading
Duration (months)	11	Assume 11 months for construction period (minus 1 month for grading)
TSP Emitted for Site (tons):	0.000	
Mitigated TSP Emitted (tons):	0.000	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Natural Gas Pipeline		
Alternative A		
Acreage exposed	55.20	Assumes 9.11 mile pipeline with 100 ft construction corridor along side of road
Duration (months)	2	Assumes 2 months after excavating trench that permanent cover (revegetation, paving, etc) is established
TSP Emitted for Site (tons):	3.496	
Mitigated TSP Emitted (tons):	1.224	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Alternative B		
Acreage exposed	67.638	Assumes 11.16 mile pipeline with 100 ft construction corridor along side of road
Duration (months)	2	Assumes 2 months after excavating trench that permanent cover (revegetation, paving, etc) is established
TSP Emitted for Site (tons):	4.284	
Mitigated TSP Emitted (tons):	1.499	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Transmission Line Corridor		
Corridor 1		
Acreage exposed	1.557	Assumes only 50% of construction corridor is exposed soil
Duration (months)	4.0	
TSP Emitted for Site (tons):	0.197	
Mitigated TSP Emitted (tons):	0.069	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Corridor 2		
Acreage exposed	2.164	Assumes only 50% of construction corridor is exposed soil
Duration (months)	4.0	
TSP Emitted for Site (tons):	0.274	
Mitigated TSP Emitted (tons):	0.096	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Corridor 3		
Acreage exposed	0.000	Assumes only 50% of construction corridor is exposed soil
Duration (months)	4.0	
TSP Emitted for Site (tons):	0.000	
Mitigated TSP Emitted (tons):	0.000	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Water Line Corridor		
Acreage exposed	0.000	Assumes on-site construction
Duration (months)	0	
TSP Emitted for Site (tons):	0.000	
Mitigated TSP Emitted (tons):	0.000	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Sewer Line Corridor		
Acreage exposed	0.000	Assumes on-site construction
Duration (months)	0	
TSP Emitted for Site (tons):	0.000	
Mitigated TSP Emitted (tons):	0.000	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Total (tons) without mitigation	8.397	
Total (tons) with mitigation	2.939	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4

MUSYM	MUKEY	muname	NAME	Acres	
HdA	462607	Hanford sanc	Laydown Area	1.90	updated 04/08/09
HdpA	462613	Hanford sanc	Project Site	3.10	updated 04/08/09
HdA	462607	Hanford sanc	Project Site	1.50	updated 04/08/09

NAME	LENGTH MILES		
Natural Gas Pipeline Alternate A	9.11	Entire line	ok 04/08/09
Natural Gas Pipeline Alternate B	11.16	Entire line	ok 04/08/09
115-kV Circuit 1	0.86	Entire line	ok 04/08/09
115-kV Circuit 2	1.19	Entire line	ok 04/08/09
Reconducted 69-kV line	2.93	Entire line	ok 04/08/09

NAME	LENGTH	Soil Type	Length Miles
115-kV Circuit 1 Line	1636.28	HdpA	0.31
115-kV Circuit 1 Line	2885.12	HdA	0.55
	4521.40		0.86

115-kV Circuit 2 Line	1559.85	HdpA	0.30
115-kV Circuit 2 Line	395.85	DrA	0.07
115-kV Circuit 2 Line	4314.93	HdA	0.82
	6270.63		1.19

Add to text
?
DeA
DgA
WbA
WdA

Add to bottom of table
153
159
CeA
CsB
DIA
DUA
DzA
FrA
HbA
HdB
HddA
W
WeA

Natural Gas Pipeline (Alternate A)	1165.67	DrA	0.22	
Natural Gas Pipeline (Alternate A)	151.71	DrA	0.03	
Natural Gas Pipeline (Alternate A)	1181.29	DrA	0.22	
Natural Gas Pipeline (Alternate A)	19.98	DrA	0.00	
Natural Gas Pipeline (Alternate A)	3140.10	DrA	0.59	
Natural Gas Pipeline (Alternate A)	941.09	DrA	0.18	
Natural Gas Pipeline (Alternate A)	2191.86	DrA	0.42	
Natural Gas Pipeline (Alternate A)	1700.38	DwA	0.32	
Natural Gas Pipeline (Alternate A)	476.95	DwA	0.09	
Natural Gas Pipeline (Alternate A)	21.69	DwA	0.00	
Natural Gas Pipeline (Alternate A)	2565.03	DwA	0.49	
Natural Gas Pipeline (Alternate A)	2130.91	DwA	0.40	
Natural Gas Pipeline (Alternate A)	29.72	DwA	0.01	
Natural Gas Pipeline (Alternate A)	866.15	DwA	0.16	
Natural Gas Pipeline (Alternate A)	6381.71	DwA	1.21	
Natural Gas Pipeline (Alternate A)	441.81	DwA	0.08	
Natural Gas Pipeline (Alternate A)	936.88	FsA	0.18	
Natural Gas Pipeline (Alternate A)	456.84	FIA	0.09	
Natural Gas Pipeline (Alternate A)	760.42	FIA	0.14	
Natural Gas Pipeline (Alternate A)	681.75	FIA	0.13	
Natural Gas Pipeline (Alternate A)	223.83	FUA	0.04	
Natural Gas Pipeline (Alternate A)	1491.22	FUA	0.28	
Natural Gas Pipeline (Alternate A)	169.89	FUA	0.03	
Natural Gas Pipeline (Alternate A)	1969.15	FwA	0.37	
Natural Gas Pipeline (Alternate A)	608.92	FwA	0.12	
Natural Gas Pipeline (Alternate A)	82.46	HdA	0.02	
Natural Gas Pipeline (Alternate A)	3207.22	HdA	0.61	
Natural Gas Pipeline (Alternate A)	1565.45	HdA	0.30	
Natural Gas Pipeline (Alternate A)	1356.10	HdpA	0.26	
Natural Gas Pipeline (Alternate A)	1009.13	HIA	0.19	
Natural Gas Pipeline (Alternate A)	1578.75	HIA	0.30	
Natural Gas Pipeline (Alternate A)	933.83	HIA	0.18	
Natural Gas Pipeline (Alternate A)	1918.89	HIA	0.36	
Natural Gas Pipeline (Alternate A)	471.79	HkbA	0.09	
Natural Gas Pipeline (Alternate A)	1390.43	TrA	0.26	
Natural Gas Pipeline (Alternate A)	647.75	TrA	0.12	
Natural Gas Pipeline (Alternate A)	1504.35	TuA	0.28	
Natural Gas Pipeline (Alternate A)	1718.86	WaA	0.33	
	48089.96		9.11	

Miles

DrA	1.67
DwA	2.77
FsA	0.18
FIA	0.36
FUA	0.49
FwA	0.49
HdA	0.92
HdpA	0.26
HIA	1.03
HkbA	0.09
TrA	0.39
TuA	0.28
WaA	0.33
	9.11

Natural Gas Pipeline (Alternate B)	1330.05	DeA	0.25	
Natural Gas Pipeline (Alternate B)	1259.23	DgA	0.24	
Natural Gas Pipeline (Alternate B)	193.98	DrA	0.04	
Natural Gas Pipeline (Alternate B)	2378.81	DrA	0.45	
Natural Gas Pipeline (Alternate B)	1691.50	DrA	0.32	
Natural Gas Pipeline (Alternate B)	5980.02	DrA	1.13	
Natural Gas Pipeline (Alternate B)	1598.91	DrA	0.30	
Natural Gas Pipeline (Alternate B)	6779.63	DrA	1.28	
Natural Gas Pipeline (Alternate B)	885.20	DrA	0.17	
Natural Gas Pipeline (Alternate B)	140.35	DwA	0.03	
Natural Gas Pipeline (Alternate B)	1915.85	DwA	0.36	
Natural Gas Pipeline (Alternate B)	2890.08	DwA	0.55	
Natural Gas Pipeline (Alternate B)	1493.18	DwA	0.28	
Natural Gas Pipeline (Alternate B)	397.00	FIA	0.08	
Natural Gas Pipeline (Alternate B)	928.95	FUA	0.18	
Natural Gas Pipeline (Alternate B)	2523.79	FUA	0.48	
Natural Gas Pipeline (Alternate B)	779.53	FUA	0.15	
Natural Gas Pipeline (Alternate B)	3461.62	HdA	0.66	
Natural Gas Pipeline (Alternate B)	2017.99	HdA	0.38	
Natural Gas Pipeline (Alternate B)	1453.19	HdA	0.28	
Natural Gas Pipeline (Alternate B)	820.57	HdA	0.16	
Natural Gas Pipeline (Alternate B)	1342.96	HdpA	0.25	
Natural Gas Pipeline (Alternate B)	213.89	HIA	0.04	
Natural Gas Pipeline (Alternate B)	2592.80	TuA	0.49	
Natural Gas Pipeline (Alternate B)	404.86	TuA	0.08	
Natural Gas Pipeline (Alternate B)	1231.01	WbA	0.23	
Natural Gas Pipeline (Alternate B)	2638.88	WbA	0.50	
Natural Gas Pipeline (Alternate B)	8432.74	WbA	1.60	
Natural Gas Pipeline (Alternate B)	1149.35	WdA	0.22	
	58925.85		11.16	

Miles

DeA	0.25
DgA	0.24
DrA	3.69
DwA	1.22
FIA	0.08
FUA	0.80
HdA	1.47
HdpA	0.25
HIA	0.04
TuA	0.57
WbA	2.33
WdA	0.22
	11.16

Reconducted 69kV Transmission Line	56.64	DrA	0.01	
Reconducted 69kV Transmission Line	587.22	DrA	0.11	
Reconducted 69kV Transmission Line	1324.19	DrA	0.25	
Reconducted 69kV Transmission Line	378.56	HdA	0.07	
Reconducted 69kV Transmission Line	611.66	HdA	0.12	
Reconducted 69kV Transmission Line	749.68	HdA	0.14	
Reconducted 69kV Transmission Line	810.69	HdA	0.15	
Reconducted 69kV Transmission Line	557.46	HdA	0.11	
Reconducted 69kV Transmission Line	700.92	HdA	0.13	
Reconducted 69kV Transmission Line	190.80	HdA	0.04	
Reconducted 69kV Transmission Line	528.00	HdA	0.10	
Reconducted 69kV Transmission Line	2362.75	HdpA	0.45	
Reconducted 69kV Transmission Line	577.81	HdpA	0.11	
Reconducted 69kV Transmission Line	1146.66	HdpA	0.22	
Reconducted 69kV Transmission Line	797.77	HdpA	0.15	
Reconducted 69kV Transmission Line	345.07	HdpA	0.07	
Reconducted 69kV Transmission Line	923.61	HdpA	0.17	
Reconducted 69kV Transmission Line	100.00	HdsA	0.02	
Reconducted 69kV Transmission Line	474.30	HdsA	0.09	
Reconducted 69kV Transmission Line	713.95	HdsA	0.14	
Reconducted 69kV Transmission Line	300.03	TuA	0.06	
Reconducted 69kV Transmission Line	509.33	TuA	0.10	
Reconducted 69kV Transmission Line	296.30	TuA	0.06	
Reconducted 69kV Transmission Line	424.25	TuA	0.08	
	15467.65		2.93	

Miles

DrA	0.37
HdA	0.86
HdpA	1.17
HdsA	0.24
TuA	0.29
	2.93

Project Site				Affected Soil	Soils w/in		
				Units	1 mile		
MUSYM	Acres			DrA	DtA		
HdA	1.47			DwA	DuA		
HdpA	2.54			FsA	DzA		
	4.01			FtA	FrA		
				FuA	HbA		
				FwA	HdB		
				HdA	HddA		
				HdpA	WbA		
				HdsA			
				HfA			
				HkbA		HdA	0.85
				TrA		HdpA	0.30
				TuA		DrA	0.08
				WaA			
Linear Features							
NAME	Soil Type	LENGTH FEET	Length Miles				
115-kV Circuit 1 (Corridor 1)	HdA	3223.20	0.61				
115-kV Circuit 1 (Corridor 1)	HdA	1282.18	0.24				
115-kV Circuit 1 (Corridor 1)	HdpA	1564.62	0.30				
115-kV Circuit 1 (Corridor 1)	DrA	406.29	0.08				
		6476.29	1.23				
115-kV Circuit 2 Line (Corridor 2)	HdA	2730.07	0.52				
115-kV Circuit 2 Line (Corridor 2)	HdpA	1636.11	0.31				
		4366.17	0.83				
Proposed 69-kV T-Line (Corridor 3)	HdA	2429.14	0.46				
Proposed 69-kV T-Line (Corridor 3)	HdpA	1827.90	0.35				
		4257.04	0.81				
Reconductored 69kV T-Line (Corridor 4)	DrA	587.22	0.11				
Reconductored 69kV T-Line (Corridor 4)	DrA	1324.19	0.25	DrA	0.36		
Reconductored 69kV T-Line (Corridor 4)	HdA	378.56	0.07	HdA	0.84		
Reconductored 69kV T-Line (Corridor 4)	HdA	611.66	0.12	HdpA	1.06		
Reconductored 69kV T-Line (Corridor 4)	HdA	620.06	0.12	HdsA	0.24		
Reconductored 69kV T-Line (Corridor 4)	HdA	810.69	0.15	TuA	0.29		
Reconductored 69kV T-Line (Corridor 4)	HdA	557.46	0.11				
Reconductored 69kV T-Line (Corridor 4)	HdA	700.92	0.13				
Reconductored 69kV T-Line (Corridor 4)	HdA	190.80	0.04				
Reconductored 69kV T-Line (Corridor 4)	HdA	584.64	0.11				
Reconductored 69kV T-Line (Corridor 4)	HdpA	2362.75	0.45				
Reconductored 69kV T-Line (Corridor 4)	HdpA	1146.66	0.22				
Reconductored 69kV T-Line (Corridor 4)	HdpA	797.77	0.15				
Reconductored 69kV T-Line (Corridor 4)	HdpA	345.07	0.07				
Reconductored 69kV T-Line (Corridor 4)	HdpA	923.61	0.17				
Reconductored 69kV T-Line (Corridor 4)	HdsA	713.95	0.14				
Reconductored 69kV T-Line (Corridor 4)	HdsA	100.00	0.02				
Reconductored 69kV T-Line (Corridor 4)	HdsA	474.30	0.09				
Reconductored 69kV T-Line (Corridor 4)	TuA	300.03	0.06				
Reconductored 69kV T-Line (Corridor 4)	TuA	509.33	0.10				
Reconductored 69kV T-Line (Corridor 4)	TuA	296.30	0.06				
Reconductored 69kV T-Line (Corridor 4)	TuA	424.25	0.08				
		14760.21	2.80				
Natural Gas Pipeline	DrA	1165.67	0.22				
Natural Gas Pipeline	DrA	151.71	0.03				
Natural Gas Pipeline	DrA	1181.29	0.22	DrA	1.67		
Natural Gas Pipeline	DrA	19.98	0.00	DwA	2.77		
Natural Gas Pipeline	DrA	3140.10	0.59	FsA	0.18		
Natural Gas Pipeline	DrA	941.09	0.18	FtA	0.36		
Natural Gas Pipeline	DrA	2191.86	0.42	FuA	0.36		
Natural Gas Pipeline	DwA	1700.38	0.32	FwA	0.49		
Natural Gas Pipeline	DwA	476.95	0.09	HdA	0.91		
Natural Gas Pipeline	DwA	21.69	0.00	HdpA	0.38		
Natural Gas Pipeline	DwA	6381.71	1.21	HfA	1.03		
Natural Gas Pipeline	DwA	441.81	0.08	HkbA	0.09		
Natural Gas Pipeline	DwA	2565.03	0.49	TrA	0.39		
Natural Gas Pipeline	DwA	2130.91	0.40	TuA	0.28		
Natural Gas Pipeline	DwA	29.72	0.01	WaA	0.33		
Natural Gas Pipeline	DwA	866.15	0.16				
Natural Gas Pipeline	FsA	936.88	0.18				
Natural Gas Pipeline	FtA	456.84	0.09				
Natural Gas Pipeline	FtA	760.42	0.14				
Natural Gas Pipeline	FtA	681.75	0.13				
Natural Gas Pipeline	FuA	223.83	0.04				
Natural Gas Pipeline	FuA	1491.22	0.28				
Natural Gas Pipeline	FuA	169.89	0.03				
Natural Gas Pipeline	FwA	1969.15	0.37				
Natural Gas Pipeline	FwA	608.92	0.12				
Natural Gas Pipeline	HdA	3164.57	0.60				
Natural Gas Pipeline	HdA	1565.45	0.30				
Natural Gas Pipeline	HdA	82.46	0.02				
Natural Gas Pipeline	HdpA	2002.81	0.38				
Natural Gas Pipeline	HfA	1009.13	0.19				
Natural Gas Pipeline	HfA	1578.75	0.30				
Natural Gas Pipeline	HfA	933.83	0.18				
Natural Gas Pipeline	HfA	1918.89	0.36				
Natural Gas Pipeline	HkbA	471.79	0.09				
Natural Gas Pipeline	TrA	1390.43	0.26				
Natural Gas Pipeline	TrA	647.75	0.12				
Natural Gas Pipeline	TuA	1504.35	0.28				
Natural Gas Pipeline	WaA	1718.86	0.33				
		48694.03	9.22				