DOCKETED

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Appendix 4.1E
Air Quality Modeling Inputs

Table 4.1E-1
Pomona Repower Project
Dimensions of the Major Project Features

Feature	Length (feet)	Width (feet)	Height (feet)	Diameter (feet)
SCR and Transition (Tier 1)	53	23	23	
SCR and Transition (Tier 2)	23	23	33	
Combustion Gas Turbine (CGT),	27	13	29	—
CGT Generator Enclosure (Tier1)	30	16	15	—
CGT Generator Enclosure (Tier2)	11	16	34	—
CGT Air Intake System	44	38	46	—
VBV Silencer	—	—	48	12
Inter Cooler	40	12	12	—
Cooling water pump skid	25	10	12	
CEMS	10	7	10	
CO2 Storage	16	10	5	
Maintenance/Warehouse Building	162	62	20	—
Aux Transformer	34	18	15	
Power Control Module	50	15	12	
Ammonia Tank and Containment	49	26	15	
Warehouse	162	62	20	
Water Treatment Building	65	74	19	
Fuel gas enclosure	50	56	20	
Raw Water Tank	—	—	30	40
Demin Water Tank	—	—	30	40
Cooling Tower	88	35	25	—

Table 4.1E-2
Pomona Repower Project
Screening Modeling Inputs

Case	Amb Temp deg F	Stack height feet	Stack Height meters	Stack Diam feet	Stack Diam meters	Stack flow wacfm	Stack flow m3/sec	Stack Vel ft/sec	Stack Vel m/sec	Stack Temp deg F	Stack Temp deg K
Winter/Maximum w/o cooling	28.0	90.0	27.43	14.5	4.42	978,274	461.75	98.74	30.10	779.0	688.15
Winter/Minimum w/o cooling	28.0	90.0	27.43	14.5	4.42	536,090	253.04	54.11	16.49	796.0	697.59
ISO/Maximum w/o cooling	59.0	90.0	27.43	14.5	4.42	984,667	464.77	99.38	30.29	753.0	673.71
ISO/Minimum w/o cooling	59.0	90.0	27.43	14.5	4.42	525,992	248.27	53.09	16.18	789.0	693.71
Avg. Summer Temp./Maximum w/o cooling	74.0	90.0	27.43	14.5	4.42	966,143	456.03	97.51	29.72	763.0	679.26
Avg. Summer Temp./Minimum w/o cooling	74.0	90.0	27.43	14.5	4.42	511,447	241.41	51.62	15.73	777.0	687.04
Summer High Temp./Maximum w/o cooling	99.8	90.0	27.43	14.5	4.42	915,411	432.08	92.39	28.16	778.0	687.59
Summer High Temp./Minimum w/o cooling	99.8	90.0	27.43	14.5	4.42	493,001	232.70	49.76	15.17	806.0	703.15
Winter/Maximum w/cooling	28.0	90.0	27.43	14.5	4.42	1,003,199	473.52	101.25	30.86	747.0	670.37
Winter/Minimum w/cooling	28.0	90.0	27.43	14.5	4.42	535,523	252.77	54.05	16.47	796.0	697.59
ISO/Maximum w/cooling	59.0	90.0	27.43	14.5	4.42	989,951	467.27	99.92	30.45	749.0	671.48
ISO/Minimum w/cooling	59.0	90.0	27.43	14.5	4.42	528,307	249.37	53.32	16.25	786.0	692.04
Avg. Summer Temp./Maximum w/cooling	74.0	90.0	27.43	14.5	4.42	975,224	460.32	98.43	30.00	747.0	670.37
Avg. Summer Temp./Minimum w/cooling	74.0	90.0	27.43	14.5	4.42	517,888	244.45	52.27	15.93	774.0	685.37
Summer High Temp./Maximum w/cooling	99.8	90.0	27.43	14.5	4.42	949,139	448.00	95.80	29.20	768.0	682.04
Summer High Temp./Minimum w/cooling	99.8	90.0	27.43	14.5	4.42	506,601	239.12	51.13	15.58	801.0	700.37

	NOx lb/hr	CO lb/hr	PM10 lb/hr	SOx lb/hr	NOx g/sec	CO g/sec	PM10 g/sec	SOx g/sec
Winter/Maximum w/o cooling	8.84	8.61	3.50	2.00	1.114	1.085	0.441	0.253
Winter/Minimum w/o cooling	3.37	3.29	3.50	0.76	0.425	0.414	0.441	0.096
ISO/Maximum w/o cooling	8.65	8.42	3.50	1.96	1.089	1.061	0.441	0.247
ISO/Minimum w/o cooling	3.30	3.22	3.50	0.75	0.416	0.405	0.441	0.094
Avg. Summer Temp./Maximum w/o cooling	8.43	8.21	3.50	1.91	1.063	1.035	0.441	0.241
Avg. Summer Temp./Minimum w/o cooling	3.23	3.14	3.50	0.73	0.407	0.396	0.441	0.092
Summer High Temp./Maximum w/o cooling	7.84	7.64	3.50	1.78	0.988	0.963	0.441	0.224
Summer High Temp./Minimum w/o cooling	3.06	2.98	3.50	0.69	0.386	0.376	0.441	0.087
Winter/Maximum w/cooling	8.84	8.61	3.50	2.00	1.113	1.084	0.441	0.252
Winter/Minimum w/cooling	3.37	3.28	3.50	0.76	0.425	0.414	0.441	0.096
ISO/Maximum w/cooling	8.72	8.49	3.50	1.98	1.099	1.070	0.441	0.249
ISO/Minimum w/cooling	3.32	3.23	3.50	0.75	0.418	0.407	0.441	0.095
Avg. Summer Temp./Maximum w/cooling	8.61	8.38	3.50	1.95	1.085	1.056	0.441	0.246
Avg. Summer Temp./Minimum w/cooling	3.28	3.20	3.50	0.74	0.414	0.403	0.441	0.094
Summer High Temp./Maximum w/cooling	8.23	8.02	3.50	1.86	1.037	1.010	0.441	0.235
Summer High Temp./Minimum w/cooling	3.18	3.09	3.50	0.72	0.400	0.390	0.441	0.090

Table 4.1E-3
Pomona Repower Project
Screening Level Modeling Impacts

Operating Mode	Conc. (ug/m3) NO2 1-hr	Conc. (ug/m3) SO2 1-hr	Conc. (ug/m3) CO 1-hr	Conc. (ug/m3) SO2 3-hr	Conc. (ug/m3) CO 8-hr	Conc. (ug/m3) SO2 24-hr	Conc. (ug/m3) PM10 24-hr	Conc. (ug/m3) NO2 Annual	Conc. (ug/m3) SO2 Annual	Conc. (ug/m3) PM10 Annual
Winter/Maximum w/o cooling	1.117	0.260	1.088	0.177	0.516	0.054	0.092	0.079	0.018	0.031
Winter/Minimum w/o cooling	0.745	0.173	0.725	0.134	0.405	0.039	0.173	0.043	0.010	0.044
ISO/Maximum w/o cooling	1.100	0.256	1.071	0.175	0.510	0.053	0.093	0.078	0.018	0.031
ISO/Minimum w/o cooling	0.742	0.172	0.723	0.134	0.406	0.039	0.177	0.043	0.010	0.045
Avg. Summer Temp./Maximum w/o cooling	1.089	0.254	1.060	0.174	0.507	0.053	0.094	0.076	0.018	0.032
Avg. Summer Temp./Minimum w/o cooling	0.744	0.173	0.725	0.136	0.411	0.039	0.183	0.043	0.010	0.047
Summer High Temp./Maximum w/o cooling	1.062	0.247	1.034	0.171	0.501	0.052	0.099	0.073	0.017	0.032
Summer High Temp./Minimum w/o cooling	0.717	0.166	0.699	0.131	0.398	0.038	0.187	0.042	0.010	0.048
Winter/Maximum w/cooling	1.106	0.258	1.077	0.175	0.510	0.054	0.091	0.079	0.018	0.031
Winter/Minimum w/cooling	0.745	0.173	0.726	0.134	0.406	0.039	0.173	0.043	0.010	0.044
ISO/Maximum w/cooling	1.105	0.257	1.076	0.175	0.512	0.054	0.092	0.078	0.018	0.031
ISO/Minimum w/cooling	0.744	0.173	0.725	0.135	0.407	0.039	0.176	0.043	0.010	0.045
Avg. Summer Temp./Maximum w/cooling	1.109	0.258	1.080	0.177	0.516	0.054	0.094	0.078	0.018	0.032
Avg. Summer Temp./Minimum w/cooling	0.751	0.175	0.731	0.137	0.414	0.039	0.181	0.044	0.010	0.046
Summer High Temp./Maximum w/cooling	1.079	0.251	1.051	0.173	0.504	0.052	0.096	0.075	0.017	0.032
Summer High Temp./Minimum w/cooling	0.731	0.170	0.712	0.133	0.403	0.038	0.182	0.042	0.010	0.047

Table 4.1E-4
Pomona Repower Project
Emission Rates and Stack Parameters for Refined Modeling

	Stack Diam, m	Stack Height, m	Temp, deg K	Exhaust Flow, m3/s	Exhaust Velocity, m/s	Emission Rates, g/s NOx	SO2	CO	PM10	Stack Diam, ft	Stack Height, ft	Exh Temp, Deg F	Exh Flow Rate, ft3/m	Exhaust Velocity, ft/s	Emission Rates, lb/hr NOx	SO2	CO	PM10
Averaging Period: One hour NOx																		
New GT	4.4	27.4	688	461.7	30.1	1.1137	n/a	n/a	n/a	14.5	90	779	978,274	99	8.84	n/a	n/a	n/a
New Cooling Tower - vent 1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
New Cooling Tower - vent 2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Averaging Period: One hour CO and SOx																		
New GT	4.4	27.4	688	461.7	30.1	n/a	0.2525	1.0846	n/a	14.5	90	779	978,274	99	n/a	2.00	8.61	n/a
New Cooling Tower - vent 1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
New Cooling Tower - vent 2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Averaging Period: Three hours SOx																		
New GT	4.4	27.4	688	461.7	30.1	n/a	0.2525	n/a	n/a	14.5	90	779	978,274	99	n/a	2.00	n/a	n/a
New Cooling Tower - vent 1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
New Cooling Tower - vent 2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 4.1E-4
Emission Rates and Stack Parameters for Refined Modeling (cont.)

	Stack Diam, m	Stack Height, m	Temp, deg K	Exhaust Flow, m3/s	Exhaust Velocity, m/s	Emission Rates, g/s NOx	SO2	CO	PM10	Stack Diam, ft	Stack Height, ft	Exh Temp, Deg F	Exh Flow Rate, ft3/m	Exhaust Velocity, ft/s	Emission Rates, lb/hr NOx	SO2	CO	PM10
Averaging Period: Eight hours CO																		
New GT	4.4	27.4	688	461.7	30.1	n/a	n/a	1.0846	n/a	14.5	90	779	978,274	99	n/a	n/a	8.61	n/a
New Cooling Tower - vent 1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
New Cooling Tower - vent 2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Averaging Period: 24-hour SOx																		
New GT	4.4	27.4	688	461.7	30.1	n/a	0.2525	n/a	n/a	14.5	90	779	978,274	99	n/a	2.00	n/a	n/a
New Cooling Tower - vent 1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
New Cooling Tower - vent 2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Averaging Period: 24-hour PM10																		
New GT	4.4	27.4	703	232.7	15.2	n/a	n/a	n/a	0.4410	14.5	90	806	493,001	50	n/a	n/a	n/a	3.50
New Cooling Tower - vent 1	6.1	10.7	316	271.4	9.3	n/a	n/a	n/a	0.0033	20.0	35	110	575,000	31	n/a	n/a	n/a	0.03
New Cooling Tower - vent 2	6.1	10.7	316	271.4	9.3	n/a	n/a	n/a	0.0033	20.0	35	110	575,000	31	n/a	n/a	n/a	0.03

Table 4.1E-4
Emission Rates and Stack Parameters for Refined Modeling (cont.)

	Stack Diam, m		Temp, deg K	Exhaust Flow, m3/s	Exhaust Velocity, m/s	Emission Rates, g/s NOx	SO2	CO	PM10	Stack Diam, ft	Stack Height, ft	Exh Temp, Deg F	Exh Flow Rate, ft3/m	Exhaust Velocity, ft/s	Emission Rates, lb/hr NOx	SO2	CO	PM10
Averaging Period: Annual NOx and SOx																		
New GT	4.4	27.4	688	461.7	30.1	0.5756	0.0360	n/a	n/a	14.5	90	779	978,274	99	4.57	0.29	n/a	n/a
New Cooling Tower - vent 1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
New Cooling Tower - vent 2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Averaging Period: Annual PM10																		
New GT	4.4	27.4	703	232.7	15.2	n/a	n/a	n/a	0.1093	14.5	90	806	493,001	50	n/a	n/a	n/a	0.87
New Cooling Tower - vent 1	6.1	10.7	316	271.4	9.3	n/a	n/a	n/a	0.0014	20.0	35	110	575,000	31	n/a	n/a	n/a	0.01
New Cooling Tower - vent 2	6.1	10.7	316	271.4	9.3	n/a	n/a	n/a	0.0014	20.0	35	110	575,000	31	n/a	n/a	n/a	0.01

Table 4.1E-5
Pomona Repower Project
Startup/Shutdown Modeling Inputs

Operating Case	Stack Ht. feet	Stack Dia. ft	Stack flow wacfm	Stack flow m3/sec	Stack Vel ft/sec	Stack Vel m/sec	Stack Temp deg F	Stack Temp deg K	NOx lb/hr	CO lb/hr	NOx g/sec	CO g/sec
New GT - Startup/Shutdown/Restart	90	14.5	493,001	233	50	15	806	703	35.30	21.64	4.45	2.73
New Cooling Tower - vent 1	35	20	575,000	271	31	9	110	316	n/a	n/a	n/a	n/a
New Cooling Tower - vent 2	35	20	575,000	271	31	9	110	316	n/a	n/a	n/a	n/a

Table 4.1E-6
Pomona Repower Project
Commissioning Modeling Inputs

Operating Case	Stack Ht. feet	Stack Dia. ft	Stack flow wacfm	Stack flow m3/sec	Stack Vel ft/sec	Stack Vel m/sec	Stack Temp deg F	Stack Temp deg K	NOx lb/hr	CO lb/hr	PM10 lb/hr	SOx lb/hr	NOx g/sec	CO g/sec	PM10 g/sec	SOx g/sec
New GT - Commissioning	90	14.5	493,001	233	50	15	806	703	88.07	242.37	3.50	2.00	11.10	30.54	0.44	0.25
New Cooling Tower - vent 1	35	20	575,000	271	31	9	110	316	n/a	n/a	0.03	n/a	n/a	n/a	0.00	n/a
New Cooling Tower - vent 2	35	20	575,000	271	31	9	110	316	n/a	n/a	0.03	n/a	n/a	n/a	0.00	n/a