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December 10, 2015

Kerby E. Zozula
Manager, Engineering Division
Ventura County Air Pollution Control District
669 County Square Drive, 2nd Floor
Ventura, CA 93003

Subject: Application for an Authority to Construct/Determination of Compliance for the Proposed Puente Power Project (ATC No. 00013-370)

Dear Mr. Zozula:

The Puente Power Project (P3 or project) Application for an Authority to Construct (ATC)/Determination of Compliance (DOC) was submitted to the Ventura County Air Pollution Control District (VCAPCD) on March 19, 2015, and was accepted as complete on May 28, 2015. The project includes the installation of a new simple-cycle GE 7HA.01 natural gas fired combustion turbine generator (CTG). Recently the Applicant received updated gas turbine performance information and a lower $PM_{10}/PM_{2.5}$ hourly emission rate from the CTG vendor, General Electric (GE). Due to this updated information from GE, it was necessary to revise the emission calculations and air quality modeling summarized in the ATC/DOC application submitted to the VCAPCD. The following paragraphs discuss these updates. The substantive information contained in this letter and the attachment is identical to the information provided to the California Energy Commission (CEC), but the format/table numbering corresponds to that of the ATC/DOC application, which are different than the tables in the CEC Application for Certification (AFC).

Updates to Emission Calculations/Air Quality Modeling

As discussed above, GE recently provided updated gas turbine performance runs and a reduction in the maximum hourly $PM_{10}/PM_{2.5}$ emission rate from 10.6 to 10.1 lbs/hr for the proposed new P3 CTG. The updated gas turbine performance runs include revised heat input and stack exhaust characteristics for the new P3 CTG, and updated NOx, CO, and ROC hourly mass emission levels (due to changes in exhaust parameters) for the various gas turbine operating cases. In addition, the updated gas turbine performance runs include lowered minimum emissions compliance loads[1] (MECL) for the various ambient temperature operating cases. The changes to the P3 CTG MECLs are shown in Table 1.

[1] This is the minimum CTG load where the unit is able to continue to comply with Best Available Control Technology (BACT) limits of 2.5 ppmv @ 15% O2 for NOx, 4.0 ppmv @ 15% O2 for CO, and 2.0 ppmv @ 15% O2 for ROC.

Table 1 Summary of MECLs for P3 CTG		
CTG Operating Cases Ambient Temp (°F)	Previous MECLs (shown in ATC/DOC Application GT performance runs)	Updated MECLs
38.9	30%	25%
59	30%	25%
77.8	35%	30%
82	36%	31%

Due to these changes, it was necessary to revise the P3 CTG emission estimates summarized in the ATC/DOC application for the project to account for these updated CTG emission/performance characteristics. In addition, due to the changes in the exhaust parameters for the new P3 CTG, it was necessary to update the air quality ambient impact modeling and public health analysis for the project. As part of these project updates, the annual capacity factor for the P3 CTG was reduced from the level in the AFC of (i.e., approximately 28%) to approximately 25% to better account for the expected future operation of this unit. When the CEC and VCAPCD staffs learned of the Applicant's plan to revise the air quality modeling based on the new GE CTG data, they asked that the Applicant also incorporate changes to the modeling procedures adopted since the initial modeling was conducted for the ATC/DOC application. These requested changes are listed below.

- Use AERMOD version 15181, as opposed to the AERMOD version 14134 used previously.
- Use new meteorological data processed with AERMET version 15181, rather than AERMET version 14134 as used in the previous modeling.
- Use a five-year meteorological database covering the period from 2010 to 2014, rather than a 2009 to 2013 metrological database as used in the previous modeling.
- Use background ambient hourly ozone/NO_2 data covering the period from 2010 to 2014, rather than 2009 to 2013 hourly ozone/NO_2 background ambient data used in the previous modeling.
- Use the AERSCREEN fumigation model, rather than the SCREEN3 model used in the previous fumigation modeling.

In addition to the above changes, the updated air quality ambient impact modeling and public health analysis reflects the phased shutdown of Mandalay Generating Station (MGS) Units 1 and 2, as discussed in the Project Enhancement and Refinement, Demolition of Mandalay Generating Station Units 1 and 2 docketed with the CEC on November 19, 2015 (TN# 206698). The air quality/public health analysis in the ATC/DOC application assumed that MGS Units 1 and 2 would be permanently shutdown following the completion of the commissioning period for the new P3 CTG. For the updated air quality/public health analysis, it is assumed that MGS Unit 2 will be permanently shutdown at the end of the commissioning period for the P3 CTG, and MGS Unit 1 will continue to operate for several months and will

be permanently shutdown by the applicable once-through cooling (OTC) compliance deadline of December 31, 2020.[2]

The above updates are reflected in the revised emission summary tables and air quality/public health modeling summary tables included in Attachment 1. The revised detailed emission calculations are included in Attachment 2. The updated detailed air quality/public health modeling files were included in a compact disc submitted to the VCAPCD last week.

Compliance with New Federal Carbon Pollution Standard

In the ATC/DOC application submitted to the VCAPCD, the Applicant discussed the applicability of the P3 CTG with the January 2014 proposed new federal carbon pollution standard (CPS) rule. However, the final version of the CPS, published at 40 CFR 60 Subpart TTTT on October 23, 2015, contains different applicability and subcategorization criteria as compared to EPA's January 2014 proposal. While P3 will no longer be exempt (as it was under the proposed rule), it would comply with the clean fuels input-based standard established by the final CPS for the non-base load natural gas-fired combustion turbine subcategory. The applicable CO_2 emission standard from Table 2 to Subpart TTTT is as follows:

Affected Electric Generating Unit (EGU)	CO_2 Emission Standard
Newly constructed or reconstructed stationary combustion turbine that supplies its design efficiency or 50 percent, whichever is less, times its potential electric output or less as net-electric sales on either a 12-operating month or a 3-year rolling average basis and combusts more than 90% natural gas on a heat input basis on a 12-operating month rolling average basis.	50 kg CO_2 per gigajoule (GJ) of heat input (120 lb CO_2/MMBtu).

"Design efficiency" is defined in the rule as "the rated overall net efficiency (e.g., electric plus useful thermal output) on a lower heating value basis at the base load rating, at ISO conditions …."

"Potential electric output" is defined in the rule as "33 percent or the base load rating design efficiency at the maximum electric production rate …, whichever is greater, multiplied by the base load rating (expressed in MMBtu/h) of the EGU, multiplied by 106 Btu/ MMBtu, divided by 3,413 Btu/KWh, divided by 1,000 kWh/MWh, and multiplied by 8,760 h/yr…"

Based on the current ISO heat rate of 8,317 Btu/kWh (electrical) (LHV) and a conversion factor of 3412.1416 Btu/kWh (thermal), it takes 2.4375 kWh (thermal) input to produce 1 kWh (electrical) output (8317 Btu/kWh ÷ 3412.1416 Btu/kWh = 2.4375). The base load rating design efficiency for the P3 CTG is therefore 1 kWh (electrical) / 2.4375 kWh (thermal) = 41%.

[2] To better coordinate commissioning, retirement, decommissioning, and demolition activities, the specific sequencing of events will be retirement of MGS Unit 2 prior to completion of commissioning of P3, retirement of MGS Unit 1 by the applicable OTC compliance deadline of December 31, 2020, and decommissioning and demolition of MGS Units 1 and 2 thereafter.

The percentage electric sales threshold that distinguishes base load and non-base load units is based on the specific turbine's design efficiency (commonly known as "the sliding-scale approach") and varies from 33 to 50 percent. Specifically, all units that have annual average electric sales (expressed as a capacity factor) greater than their net lower heating value (LHV) design efficiencies (as a percentage of potential electric output) are base load units. All units that have annual average electric sales (expressed as a capacity factor) less than or equal to their net LHV design efficiencies are non-base load units. As discussed above, it is expected that on an annual average basis the new P3 CTG would supply less than one-third of its potential electric output to a utility power distribution system. Because this expected potential annual average electric sales rate is less than the 41% design efficiency, the new P3 CTG would be a non-base load unit under the final CPS.

As a non-base load unit, under the final CPS the potential electric output for P3 is calculated as follows:

Potential electric output =

$$\text{Design efficiency (\%)} \times \text{Heat Input Rate, MMBtu/hr} \times \frac{10^6 \text{ Btu}}{\text{MMBtu}} \times \frac{1 \text{ kWh}}{3412.1416 \text{ Btu}} \times \frac{1 \text{ MWh}}{1{,}000 \text{ kWh}} \times 8{,}760 \text{ hrs/yr}$$

= 0.41 * 2,567.81 MMBtu/hr * 10^6 Btu/MMBtu * 1 kWh/3412.1416 Btu * 1 MWh/1000 kWh * 8,760 hrs/yr

= 308.55 MWh * 8,760 hrs/yr = 2,702,862 MW per year

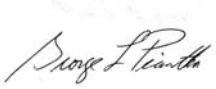
Under the CPS, as long as the P3 CTG has net electric sales of less than 0.41 * 2,702,862 MW, or 1,108,173 MW per year, it will be subject to the 120 lb CO_2/MMBtu limit for non-base load gas turbines. As discussed above, the new P3 CTG is expected to operate with an annual capacity factor of approximately 25%. With a full load net nominal output of approximately 262 MW, the P3 unit would supply a maximum of approximately 25% x 8760 hrs/year x 262 MW/hr = 573,780 MW per year to a utility power distribution system. Since this output is less than the allowable level of 1,108,173 MW per year, the P3 CTG would be a non-base load unit under the final CPS and would be subject to the Best System of Emission Reduction (BSER) established for that subcategory.

In the final CPS, EPA determined that the BSER for non-base load natural gas-fired units is the use of clean fuels, specifically natural gas with a small allowance for distillate oil. EPA concluded that it did not have sufficient information to set a meaningful output-based standard for non-base load natural gas-fired combustion turbines. The input-based standard requires non-base load units to burn fuels with an average emission rate of 120 lb CO_2/MMBtu or less. As noted by EPA, this standard is readily achievable because the CO_2 emission rate of natural gas is 117 lb CO_2/MMBtu. Owners and operators of non-base load natural gas-fired combustion turbines burning fuels with consistent chemical compositions that meet the clean fuels requirement (e.g., natural gas, ethane, ethylene, propane, naphtha, jet fuel kerosene, distillate oils 1 and 2, and biodiesel) will only need to maintain records that they burned these fuels in the combustion turbine. No additional recordkeeping or reporting will be required. As the P3 CTG would burn natural gas, it would comply with the final CPS by maintaining appropriate records.

Moreover, the P3 CTG will have a CO_2 emission rate of 53.060 kg/MMBtu of natural gas, based on the 40 CFR 98, Table C-1, CO_2 emission factor for natural gas combustion. This is equivalent to 116.98 lb/MMBtu, which is below the 120 lb/MMBtu limit in the NSPS.

If you have any questions or comments, please do not hesitate to contact me at (760) 710-2156.

Sincerely,



George L. Piantka, PE
Sr. Director, Regulatory Environmental Services
NRG Energy, Inc.

Enclosures

cc: CEC Dockets
Leonard Scandura, SJVAPCD
Leland Villalvazo, SJVAPCD
Michael J. Carroll, Latham & Watkins
Anne Connell, AECOM

ATTACHMENT 1

UPDATED ATC/DOC APPLICATION EMISSION AND AIR QUALITY/PUBLIC HEALTH MODELING SUMMARY TABLES

Table 3 (Revised December 4, 2015) Maximum Hourly Emission Rates[a]: CTG			
Pollutant	**ppmv, dry at 15 percent oxygen**	**lb/MMBtu**	**lb/hr**
NO_X	2.5	9.1×10^{-3}	~~23.4~~ 23.1
SO_X (short-term)	n/a	2.1×10^{-3}	5.4
SO_X (long-term)	n/a	7.0×10^{-4}	1.8
CO	4.0	8.8×10^{-3}	~~22.8~~ 22.5
ROC	2.0	2.5×10^{-3}	6.5
$PM_{10}/PM_{2.5}$[b]	n/a	~~8.9~~ 9.2 $\times 10^{-3}$	~~10.6~~ 10.1

Notes:

a. Emission rates shown reflect the highest value at any operating load during normal operation (excluding startups/ shutdowns).
b. 100 percent of PM_{10} emissions assumed to be emitted as $PM_{2.5}$.

Table 4 (Revised December 4, 2015) CTG Startup and Shutdown Emission Rates			
	NO_X	**CO**	**ROC**
CTG Startup, lbs/hr	~~98.7~~ 98.6	~~178.4~~ 178.3	~~20.3~~ 20.2
CTG Shutdown, lbs/hr	~~22.7~~ 22.5	~~163.2~~ 163.0	30.2
CTG Startup/Shutdown/Restart, lbs/hr	143.2	412.2	52.2
Note: Startup and shutdown emission rates reflect the maximum hourly emissions during an hour in which a startup, shutdown—or both—occur.			

Table 5 (Revised December 4, 2015) Maximum Emissions From New Equipment					
	Pollutant				
Emissions/Equipment	**NO_X**	**CO**	**ROC**	**$PM_{10}/PM_{2.5}$**	**SO_X**
Maximum Hourly Emissions[a]					
CTG[a]	143.2	412.2	52.2	~~10.6~~ 10.1	5.4
Diesel Emergency Engine[b]	n/a	n/a	n/a	n/a	n/a
Gas Compressor	—	—	0.0	—	—
Total, pounds per hour	143.2	412.2	52.2	~~10.6~~ 10.1	5.4
Maximum Daily Emissions[a]					
CTG	~~859.2~~ 853.9	~~1730.5~~ 1725.2	~~306.1~~ 304.7	~~245.5~~ 234.9	~~130.6~~ 129.9
Diesel Emergency Engine	0.9	4.5	0.2	0.0	0.0
Gas Compressor	—	—	0.3	—	—
Total, pounds per day	~~860.1~~ 854.8	~~1735.0~~ 1729.7	~~306.6~~ 305.2	~~245.6~~ 235.0	~~130.6~~ 129.9
Maximum Annual Emissions[a]					
CTG	~~36.0~~ 32.1	~~57.4~~ 53.6	~~11.7~~ 10.6	~~12.8~~ 10.7	~~2.2~~ 1.9
Diesel Emergency Engine	0.1	0.4	0.0	0.0	0.0
Gas Compressor	—	—	0.0	—	—
Total, tons per year	~~36.1~~ 32.2	~~57.9~~ 54.1	~~11.8~~ 10.7	~~12.8~~ 10.7	~~2.2~~ 1.9

Notes:

a. Maximum hourly, daily, and annual CTG emission rates include emissions during startups/shutdowns.
b. The diesel emergency generator engine will not be operated during a CTG startup and/or shutdown. Consequently, n/a is shown for all pollutants.

Table 6 (Revised December 4, 2015) Emissions for Existing Units 1 and 2 (Representative 2-Year Average for Period From 1/1/10 To 12/31/14)					
	Pollutant (tons/year)				
Emissions/Equipment	**NO_X**	**CO**	**ROC**	**$PM_{10}/PM_{2.5}$**	**SO_X**
Unit 1	1.9	22.0	0.8	1.4	0.3
Unit 2	3.0	25.9	0.9	1.6	0.4
Total	4.9	~~47.9~~ 48.0	1.7	3.0	0.7

Table 7 (Revised December 4, 2015) Net Emissions Change for Proposed Project (PSD and CEQA)					
	Pollutant (tons/year)				
Emissions/Equipment	**NO_X**	**CO**	**ROC**	**$PM_{10}/PM_{2.5}$**	**SO_X**
Potential to Emit for New Equipment	~~36.1~~ 32.2	~~57.9~~ 54.1	~~11.8~~ 10.7	~~12.8~~ 10.7	~~2.2~~ 1.9
Reductions from Shutdown of ~~Existing Units 1 and 2~~ one MGS Boiler	~~4.9~~ 1.9	~~47.9~~ 22.0	~~1.7~~ 0.8	~~3.0~~ 1.4	~~0.7~~ 0.3
Net Emission Change	~~31.2~~ 30.3	~~10.0~~ 32.1	~~10.1~~ 9.9	~~9.8~~ 9.3	~~1.5~~ 1.6

Table 8 (Revised December 4, 2015) Net Emissions Change for Proposed Project (VCAPCD NSR)					
Emissions/Equipment	**Pollutant (tons/year)**				
	NO_X	**CO**	**ROC**	**$PM_{10}/PM_{2.5}$**	**SO_X**
Potential to Emit for New CTG	~~36.0~~ 32.1	~~57.4~~ 53.6	~~11.7~~ 10.6	~~12.8~~ 10.7	~~2.2~~ 1.9
Reductions from Shutdown of ~~Existing Units 1 and 2~~ one MGS Boiler[a]	~~4.9~~ 1.9	~~644.4~~ 322.2	~~23.2~~ 11.6	~~41.5~~ 20.8	~~10.0~~ 5.0
Net Emission Change	~~31.1~~ 30.3	~~-587.0~~ -268.6	~~-11.5~~ -1.0	~~-28.7~~ -10.1	~~-7.7~~ -3.1
Potential to Emit for New Emergency Generator Engine	0.1	0.4	0.0	0.0	0.0
Reductions from Shutdown of Existing Emergency Generator Engine	0.0	0.1	0.0	0.0	0.0
Net Emission Change	0.1	0.3	0.0	0.0	0.0
Facility-Wide Net Emission Change	~~31.2~~ 30.3	~~-586.7~~ -268.2	~~-11.5~~ -1.0	~~-28.7~~ -10.1	~~-7.7~~ -3.1

Note:

[a] As allowed under emission unit replacement calculations, emission reductions for CO, ROC, PM, and SO_X are based on potential to emit of one MGS boiler.

Table 9 (Revised December 4, 2015) Non-Criteria Pollutant Emissions for New Equipment	
Compound	**Emissions (tons/year)**
CTG	
Ammonia (not an HAP)	~~21.06~~ 18.41[a]
Propylene (not an HAP)	~~2.56~~ 2.43
Acetaldehyde	~~0.14~~ 0.13
Acrolein	0.02
Benzene	0.04
1,3-Butadiene	0.00
Ethylbenzene	~~0.11~~ 0.10
Formaldehyde	~~3.05~~ 2.89
Hexane	~~0.86~~ 0.81
Naphthalene	0.00
PAHs (other)	0.00
Propylene Oxide	~~0.10~~ 0.09
Toluene	~~0.44~~ 0.42
Xylene	~~0.22~~ 0.21
Subtotal HAPs	~~4.98~~ 4.72
Subtotal All	~~28.61~~ 25.55
Emergency Engine	
Diesel PM (not a HAP)	0.00
Acrolein	0.00
Subtotal HAPs	0.00
Subtotal All	0.00
Total HAPs (Proposed Project)	~~4.98~~ 4.72
Total All Proposed Project)	~~28.61~~ 25.55
Note: a. Based on the proposed ammonia slip level of 5 ppm, corrected.	

Table 10 (Revised December 4, 2015) Non-Criteria Pollutant Emissions for Existing Units 1, 2, and 3 (Maximum Potential to Emit)	
Compound	**Emissions (tons/year)**
Ammonia (not an HAP)	78.05
Benzene	0.03
Propylene (Not a HAP)	0.34
Propylene oxide	0.00
Formaldehyde	0.15
Hexane	0.05
Naphthalene	0.01
Dichlorobenzene	0.00
Toluene	~~0.14~~ 0.15
1,3-Butadiene	0.00
Acetaldehyde	0.02
Acrolein	0.01
Ethyl Benzene	0.04
PAHs (other)	0.00
Xylene	~~0.10~~ 0.11
Total HAPs (Existing Facility)	~~0.54~~ 0.56
Total All (Existing Facility)	~~78.93~~ 78.96

Table 11 (Revised December 4, 2015) New Equipment Greenhouse Gas Emissions						
Unit	**CO_2, metric tons/year**	**CH_4, metric tons/ year**	**N_2O, metric tons/ year**	**SF_6, metric tons/year**	**CO_2e, metric tons/year[a]**	**CO_2, metric tons/MWh**
New CTG	~~335,685~~ 291,148	~~6~~ 5	1	n/a	—	—
New Emergency Engine	72	0	0	n/a	—	—
Existing Unit 3 Gas Turbine	~~4,799~~ 4,783	0	0	n/a	—	—
New Circuit Breakers	n/a	n/a	n/a	4.20×10^{-4}	—	—
Total	~~340,557~~ 296,003	6	1	0	~~340,918~~ 296,318	0.49

Notes:

a. Includes CH_4, N_2O, and SF_6.

Table 12 (Revised December 4, 2015) Net Emission Change and PSD Applicability			
Pollutant	**Facility Net Increase (TPY)**	**PSD Significance Levels (TPY)**	**Are Increases Significant?**
NO_X	~~31.2~~ 30.3	40	No
SO_2	~~1.5~~ 1.6	40	No
ROC	~~10.1~~ 9.9	N/A[a]	N/A
CO	~~10.0~~ 32.1	100	No
PM_{10}	~~9.8~~ 9.3	15	No
$PM_{2.5}$	~~9.8~~ 9.3	10	No

Notes:

a. Because the project area is classified as a federal nonattainment for ozone, this pollutant is not subject to PSD review.

Table E-1 (Revised December 4, 2015) Normal Operation Air Quality Modeling Results for P3					
		Modeled Maximum Concentrations (µg/m^3)			
Pollutant	Averaging Time	Normal Operations AERMOD	Startup/ Shutdown AERMOD	Fumigation ~~SCREEN3~~ AERSCREEN	Shoreline Fumigation ~~SCREEN3~~ AERSCREEN
New CTG					
NO_2	1-hour	~~1.2~~ **1.5**	~~9.7~~ **12.9**	~~6.1~~ **15.1**	~~37.3~~ **63.1**
	98th Percentile	~~0.7~~ **1.1**	~~5.8~~ **8.6**	-	-
	Annual	0.0	N/A[a]	N/A[c]	N/A[c]
SO_2	1-hour	~~0.3~~ **0.4**	N/A[a]	~~0.2~~ **0.4**	~~1.4~~ **1.3**
	3-hour	0.2	N/A[a]	~~0.2~~ **0.4**	~~0.7~~ **0.8**
	24-hour	0.0	N/A[a]	~~0.0~~ **0.2**	~~0.1~~ **0.2**
	Annual	0.0	N/A[a]	N/A[c]	N/A[c]
CO	1-hour	~~1.4~~ **1.7**	~~33.2~~ **41.7**	~~17.6~~ **43.4**	~~107.3~~ **181.6**
	8-hour	0.4	~~10.4~~ **11.1**	~~10.7~~ **24.0**	~~22.5~~ **42.1**
$PM_{2.5}/PM_{10}$	24-hour	0.1	N/A[b]	~~0.2~~ **0.3**	~~0.2~~ **0.4**
	Annual	0.0	N/A[b]	N/A[c]	N/A[c]
New Emergency Generator Engine					
NO_2	1-hour	~~28.2~~ **30.4**	N/A[d]	~~N/A[e]~~ **14.0**	N/A[e]
	98th percentile	~~23.9~~ **23.8**	N/A[d]	~~N/A[e]~~ -	N/A[e]
	Annual	0.0	N/A[d]	~~N/A[e]~~ **N/A[c]**	N/A[e]
SO_2	1-hour	0.3	N/A[d]	~~N/A[e]~~ **0.1**	N/A[e]

Table E-1 (Revised December 4, 2015) Normal Operation Air Quality Modeling Results for P3					
Pollutant	**Averaging Time**	**Modeled Maximum Concentrations (µg/m^3)**			
		Normal Operations AERMOD	**Startup/ Shutdown AERMOD**	**Fumigation ~~SCREEN3~~ AERSCREEN**	**Shoreline Fumigation ~~SCREEN3~~ AERSCREEN**
	3-hour	~~0.2~~ **0.1**	N/A[d]	~~N/A~~[e] **0.1**	N/A[e]
	24-hour	0.0	N/A[d]	~~N/A~~[e] **0.0**	N/A[e]
	Annual	0.0	N/A[d]	~~N/A~~[e] N/A[c]	N/A[e]
CO	1-hour	~~179.9~~ **176.7**	N/A[d]	~~N/A~~[e] **73.0**	N/A[e]
	8-hour	~~8.7~~ **9.1**	N/A[d]	~~N/A~~[e] **20.3**	N/A[e]
$PM_{2.5}/PM_{10}$	24-hour	0.0	N/A[d]	~~N/A~~[e] **0.0**	N/A[e]
	Annual	0.0	N/A[d]	~~N/A~~[e] **N/A[c]**	N/A[e]
Existing Unit 3					
NO_2	1-hour	~~116.6~~ **162.5**	N/A	~~N/A~~[e] **177.0**	~~N/A~~[e] **211.4**
	98th percentile	~~67.6~~ **102.3**	N/A	~~N/A~~[e] -	~~N/A~~[e] -
	Annual	0.0	N/A	~~N/A~~[e] **N/A[c]**	~~N/A~~[e] **N/A[c]**
SO_2	1-hour	0.4	N/A	~~N/A~~[e] **0.3**	~~N/A~~[e] **0.4**
	3-hour	0.2	N/A	~~N/A~~[e] **0.2**	~~N/A~~[e] **0.3**
	24-hour	0.0	N/A	~~N/A~~[e] **0.1**	~~N/A~~[e] **0.1**
	Annual	0.0	N/A	~~N/A~~[e] **N/A[c]**	~~N/A~~[e] **N/A[c]**
CO	1-hour	~~86.1~~ **72.8**	N/A	~~N/A~~[e] **53.5**	~~N/A~~[e] **82.1**
	8-hour	~~21.9~~ **21.0**	N/A	~~N/A~~[e] **37.4**	~~N/A~~[e] **41.2**
$PM_{2.5}/PM_{10}$	24-hour	0.7	N/A	~~N/A~~[e] **1.6**	~~N/A~~[e] **1.6**

Table E-1 (Revised December 4, 2015) Normal Operation Air Quality Modeling Results for P3					
Pollutant	Averaging Time	Modeled Maximum Concentrations (µg/m^3)			
		Normal Operations AERMOD	Startup/ Shutdown AERMOD	Fumigation ~~SCREEN3~~ AERSCREEN	Shoreline Fumigation ~~SCREEN3~~ AERSCREEN
	Annual	0.0	N/A	~~N/A[e]~~ **N/A[c]**	~~N/A[e]~~ **N/A[c]**

Table E-1 (Revised December 4, 2015) Normal Operation Air Quality Modeling Results for P3 (Continued)					
Pollutant	Averaging Time	Modeled Maximum Concentrations (µg/m^3)			
		Normal Operations AERMOD	Startup/ Shutdown AERMOD	Fumigation ~~SCREEN3~~ AERSCREEN	Shoreline Fumigation ~~SCREEN3~~ AERSCREEN
One Existing MGS Boiler					
NO_2	**1-hour**	**3.2**	**N/A**	**4.5**	**19.8**
	98th percentile	**1.7**	**N/A**	**-**	**-**
	Annual	**0.0**	**N/A**	**N/A[c]**	**N/A[c]**
SO_2	**1-hour**	**0.5**	**N/A**	**0.6**	**2.5**
	3-hour	**0.2**	**N/A**	**0.4**	**1.3**
	24-hour	**0.1**	**N/A**	**0.2**	**0.2**
	Annual	**0.0**	**N/A**	**N/A[c]**	**N/A[c]**
CO	**1-hour**	**30.1**	**N/A**	**37.2**	**163.8**
	8-hour	**9.9**	**N/A**	**20.7**	**37.3**
$PM_{2.5}$/PM_{10}	**24-hour**	**0.4**	**N/A**	**0.7**	**0.9**
	Annual	**0.0**	**N/A**	**N/A[c]**	**N/A[c]**
Combined Impacts New Equipment					
NO_2	1-hour	~~28.2~~ **30.5**	N/A[f]	~~N/A[f]~~ **15.1[g]**	~~N/A[f]~~ **63.1[g]**
	98th percentile	~~23.9~~ **23.8**	N/A[f]	N/A[f]	N/A[f]
	Annual	0.0	N/A[f]	~~N/A[f]~~ **N/A[c]**	~~N/A[f]~~ **N/A[c]**
SO_2	1-hour	~~0.3~~ **0.4**	N/A[f]	~~N/A[f]~~ **0.4[g]**	~~N/A[f]~~ **1.3[g]**
	3-hour	0.2	N/A[f]	~~N/A[f]~~ **0.4[g]**	~~N/A[f]~~ **0.8[g]**

Table E-1 (Revised December 4, 2015) Normal Operation Air Quality Modeling Results for P3 (Continued)					
Pollutant	**Averaging Time**	**Modeled Maximum Concentrations (µg/m³)**			
		Normal Operations AERMOD	**Startup/ Shutdown AERMOD**	**Fumigation ~~SCREEN3~~ AERSCREEN**	**Shoreline Fumigation ~~SCREEN3~~ AERSCREEN**
	24-hour	0.0	N/A[f]	~~N/A[f]~~ **0.2[g]**	~~N/A[f]~~ **0.2[g]**
	Annual	0.0	N/A[f]	~~N/A[f]~~ **N/A[c]**	~~N/A[f]~~ **N/A[c]**
CO	1-hour	~~179.9~~ **176.7**	N/A[f]	~~N/A[f]~~ **73.0[g]**	~~N/A[f]~~ **181.6[g]**
	8-hour	~~8.7~~ **9.1**	N/A[f]	~~N/A[f]~~ **24.0[g]**	~~N/A[f]~~ **42.1[g]**
$PM_{2.5}/PM_{10}$	24-hour	0.1	N/A[f]	~~N/A[f]~~ **0.3[g]**	~~N/A[f]~~ **0.4[g]**
	Annual	0.0	N/A[f]	~~N/A[f]~~ **N/A[c]**	~~N/A[f]~~ **N/A[c]**
Combined Impacts New Equipment, Unit 3, and One MGS Boiler					
NO_2	1-hour	~~116.7~~ **162.5**	~~116.7~~ **162.5**	~~6.1~~ **177.0[g]**	~~37.3~~ **211.4[g]**
	98th percentile	~~67.6~~ **103.5**	~~67.6~~ **106.3**	-	-
	Annual	0.0	N/A[a]	N/A[c]	N/A[c]
SO_2	1-hour	~~0.4~~ **0.7**	N/A[b]	~~0.2~~ **0.6[g]**	~~1.4~~ **2.5[g]**
	3-hour	~~0.3~~ **0.4**	N/A[b]	~~0.2~~ **0.4[g]**	~~0.7~~ **1.3[g]**
	24-hour	~~0.0~~ **0.1**	N/A[b]	~~0.0~~ **0.2[g]**	~~0.1~~ **0.2[g]**
	Annual	0.0	N/A[a]	N/A[c]	N/A[c]
CO	1-hour	~~179.9~~ **176.7**	~~86.1~~ **72.8**	~~17.6~~ **73.0[g]**	~~107.3~~ **181.6[g]**
	8-hour	~~22.0~~ **25.8**	~~22.0~~ **21.1**	~~10.7~~ **37.4[g]**	~~22.5~~ **42.1[g]**

Table E-1 (Revised December 4, 2015) Normal Operation Air Quality Modeling Results for P3 (Continued)					
		Modeled Maximum Concentrations (µg/m^3)			
Pollutant	**Averaging Time**	**Normal Operations AERMOD**	**Startup/ Shutdown AERMOD**	**Fumigation ~~SCREEN3~~ AERSCREEN**	**Shoreline Fumigation ~~SCREEN3~~ AERSCREEN**
$PM_{2.5}/PM_{10}$	24-hour	~~0.7~~ **1.0**	N/A[b]	~~0.2~~ **1.6[g]**	~~0.2~~ **1.6[g]**
	Annual	0.0	N/A[b]	N/A[c]	N/A[c]

Notes:

a. Not applicable, because startup/shutdown emissions are included in the modeling for annual average.
b. Not applicable, because emissions are not elevated above normal operation levels during startups/shutdowns.
c. Not applicable, because inversion breakup is a short-term phenomenon and as such is evaluated only for short-term averaging periods.
d. Not applicable, because engine will not operate during CTG startups/shutdowns.
e. Not applicable, ~~this type of modeling is not performed for small combustion sources with relatively short stacks~~ the AERSCREEN model does not provide a result for this stack because the plume height is below the TIBL Height.
f. Impacts are the same as shown for CTG.
g. The AERSCREEN model is a single stack model that is not capable of modeling combined impacts from multiple stacks. Therefore, the results shown are the maximum from the various individual sources modeled.

Table E-2 (Revised December 4, 2015)
Maximum Background Concentrations
Project Area, 2012 ~~1~~ – 2014 ~~3~~ (µg/m³)

Pollutant	Averaging Time	2011~~1~~2	2012~~3~~	2013~~4~~
NO_2 (Oxnard)	1-hour	~~**169.5**~~ **107.4**	~~107.4~~ 75.3	~~75.3~~ 73.4
	Fed. 1-hour[a]	~~**67.8**~~ **67.8**	~~**67.8**~~ 64.0	~~64.0~~ 60.2
	Annual	~~**13.2**~~ **13.2**	~~**13.2**~~ **13.2**	~~**13.2**~~ 11.6
SO_2 (Santa Barbara – UCSB)	1-hour	~~**7.9**~~ 5.2	~~5.2~~ 5.2	~~5.2~~ **10.5**
	Fed. 1-hour[b]	~~**7.9**~~ **7.9**	~~**7.9**~~ 5.2	~~5.2~~ 4.4
	24-hour	~~**2.6**~~ 2.6	~~**2.6**~~ **5.2**	~~**2.6**~~ 0.8
	Annual	~~0.0~~ —[c]	~~—~~[c] —[c]	~~—~~[c] —[c]
CO (Santa Barbara – East Canon Perdido)	1-hour	~~**2,875**~~ 2,415	~~2,415~~ 2,875	~~**2,875**~~ **4,582**
	8-hour	~~**2,185**~~ 1,035	~~1,035~~ **1,265**	~~1,265~~ **1,265**
PM_{10} (Oxnard)	24-hour	~~51.7~~ **56.9**	~~**56.9**~~ 46.7	~~46.7~~ 51.3
	Annual	~~21.6~~ 20.4	~~20.4~~ 23.6	~~**23.6**~~ **25.0**
$PM_{2.5}$ (Oxnard)	24-hour[d]	~~**18.3**~~ 15.9	~~15.9~~ 16.6	~~16.6~~ **18.1**
	Annual	~~8.9~~ 9.0	~~**9.0**~~ 9.0	~~**9.0**~~ **9.1**

Source: California Air Quality Data, CARB, n.d.; and USEPA AIRData website *www.epa.gov/air/data/*. Reported values have been rounded to the nearest tenth of a µg/m³ except for PM_{10} which were already rounded to the nearest integer.

Notes: With the exception of federal 1-hour NO_2, federal 1-hr SO_2, and 24-hr $PM_{2.5}$, **bolded** values are the highest during the 3 years and are used to represent background concentrations.

a. Federal 1-hour NO_2 is shown as the 3-year average 98th percentile, because that is the basis of the federal standard.
b. Federal 1-hour SO_2 is shown as the 3-year average 99th percentile, because that is the basis of the federal standard.
c. There were insufficient data to determine annual SO_2 for 2012, 2013 and 2014.
d. 24-hour average $PM_{2.5}$ concentrations shown are 3-year average 98th percentile values, rather than highest values, because compliance with the ambient air quality standards is based on 98th percentile readings.

Table E-3 (Revised December 4, 2015) Modeled Maximum Proposed Project Impacts (Normal Operation)						
Pollutant	**Averaging Time**	**Maximum Project Impact ($\mu g/m^3$)**	**Background ($\mu g/m^3$)**	**Total Impact ($\mu g/m^3$)**	**State Standard ($\mu g/m^3$)**	**Federal Standard ($\mu g/m^3$)**
Impacts for New Equipment						
NO_2	1-hour	~~37.3~~ **63.1**	~~169.5~~ **107.4**	~~207~~ **171**	339	—
	98th percentile	~~23.9~~ **23.8**	~~67.8[a]~~ **67.1[a]**	~~69.3~~ **72.6[d]**	—	188
	Annual	0.0	13.2	13	57	100
SO_2	1-hour	~~1.4~~ **1.3**	~~7.9~~ **10.5**	~~9~~ **12**	655	—
	99th percentile	~~1.4~~ **1.3**	~~7.9[c]~~ **10.5[c]**	~~9~~ **12**	—	196
	24-hour	~~0.1~~ **0.2**	5.2	5	105	
CO	1-hour	~~179.9~~ **181.6**	~~2,875.0~~ **4,582.0**	~~3,055~~ **4,764**	23,000	40,000
	8-hour	~~22.5~~ **42.1**	~~2,185.0~~ **1,265.0**	~~2,208~~ **1,307**	10,000	10,000
PM_{10}	24-hour	~~0.2~~ **0.4**	56.9	57	50	150
	Annual	0.0	~~23.6~~ **25.0**	~~24~~ **25**	20	—
$PM_{2.5}$	24-hour	~~0.2~~ **0.4**	~~18.3[b]~~ **18.1[b]**	19	—	35
	Annual	0.0	~~9.0~~ **9.1**	9	12	12
Impacts for New Equipment, Unit 3 and One MGS Boiler						
NO_2	1-hour	~~116.7~~ **211.4**	~~169.5~~ **107.4**	~~286~~ **319**	339	—
	98th percentile	~~67.6~~ **106.3**	~~67.8[a]~~ **67.1[a]**	~~92~~ **137[d]**	—	188
	Annual	0.0	13.2	13	57	100
SO_2	1-hour	~~1.4~~ **2.5**	~~7.9~~ **10.5**	~~9~~ **13**	655	—
	99th percentile	~~1.4~~ **2.5**	~~7.9[c]~~ **10.5[c]**	~~9~~ **13**	—	196
	24-hour	~~0.1~~ **0.2**	5.2	5	105	

Table E-3 (Revised December 4, 2015) Modeled Maximum Proposed Project Impacts (Normal Operation)						
Pollutant	**Averaging Time**	**Maximum Project Impact ($\mu g/m^3$)**	**Background ($\mu g/m^3$)**	**Total Impact ($\mu g/m^3$)**	**State Standard ($\mu g/m^3$)**	**Federal Standard ($\mu g/m^3$)**
CO	1-hour	~~179.9~~ **181.6**	~~2,875.0~~ **4,582.0**	~~3,055~~ **4,764**	23,000	40,000
	8-hour	~~22.5~~ **42.1**	~~2,185.0~~ **1,265.0**	~~2,208~~ **1,307**	10,000	10,000
PM_{10}	24-hour	~~0.7~~ **1.6**	56.9	~~58~~ **59**	50	150
	Annual	0.0	~~23.6~~ **25.0**	~~24~~ **25**	20	—
$PM_{2.5}$	24-hour	~~0.7~~ **1.6**	~~18.3~~[b] **18.1**[b]	~~19~~ **20**	—	35
	Annual	0.0	~~9.0~~ **9.1**	9	12	12

Notes:

a. 1-hour NO_2 background concentration is shown as the 3-year average of the 98th percentile, because that is the basis of the federal standard.
b. 24-hour $PM_{2.5}$ background concentration reflects 3-year average of the 98th percentile values, based on form of standard.
c. 1-hour SO_2 background concentration reflects 3-year average of the 99th percentile values, based on form of standard.
d. Based on AERMOD results which includes the ambient background NO_2 levels.

Table E-4 (Revised December 4, 2015) Modeled Maximum Proposed Project Impacts (Commissioning Period)						
Pollutant	**Averaging Time**	**Maximum Project Impact[a] ($\mu g/m^3$)**	**Background ($\mu g/m^3$)**	**Total Impact ($\mu g/m^3$)**	**State Standard ($\mu g/m^3$)**	**Federal Standard ($\mu g/m^3$)**
NO_2	1-hour	~~116.8~~ **162.5**	~~169.5~~ **107.4**	~~286~~ **270**	339	—
	98th percentile	~~70.5~~ **108.5**	~~67.8[b]~~ **67.1[b]**	~~95~~ **141[e]**	—	188
SO_2	1-hour	1.0	~~7.9~~ **10.5**	~~9~~ **12**	655	—
	99th percentile	1.0	~~7.9[c]~~ **10.5[c]**	~~9~~ **12**	—	196
	24-hour	0.2	5.2	5	105	—
CO	1-hour	~~198.6~~ **226.6**	~~2,875~~ **4,582**	~~3,094~~ **4,809**	23,000	40,000
	8-hour	~~67.0~~ **64.4**	~~2,185~~ **1,265**	~~2,252~~ **1329**	10,000	10,000
PM_{10}	24-hour	1.0	56.9	58	50	150
$PM_{2.5}$	24-hour	1.0	~~18.3[d]~~ **18.1[d]**	19	—	35

Notes:

a. Includes impacts from existing MGS Units 1, 2, and 3.
b. One-hour NO_2 background concentration is shown as the 98th percentile, because that is the basis of the federal standard.
c. One-hour SO_2 background concentration reflects 3-year average of the 99th percentile values based on form of standard.
d. 24-hr $PM_{2.5}$ background concentration reflects 3-year average of the 98th percentile values based on form of standard.
e. Based on AERMOD results which includes the ambient background NO_2 levels.

Table E-5 (Revised December 4, 2015) Comparison of Maximum Modeled Impacts and PSD Significant Impact Levels				
Pollutant	**Averaging Time**	**Significant Impact Level, µg/m³**	**Maximum Modeled Impact for P3, µg/m³**	**Exceed Significant Impact Level?**
NO_2	1-Hour	7.5[a]	~~28.2~~ **30.5**	Yes
	Annual	1	0.0	No
SO_2	1-Hour	7.8[b]	~~0.3~~ **0.4**	No
	3-Hour	25	0.2	No
	24-Hour	5	0.0	No
	Annual	1	0.0	No
CO	1-Hour	2000	~~179.9~~ **176.7**	No
	8-Hour	500	~~8.7~~ **9.1**	No
PM_{10}	24-Hour	5	0.1	No
	Annual	1	0.0	No
$PM_{2.5}$[c]	24-Hour	1.2	0.1	No
	Annual	0.3	0.0	No

Notes:

a. USEPA has not yet defined SILs for 1-hour NO_2 and SO_2 impacts. However, USEPA has suggested that, until SILs have been promulgated, interim values of 4 ppb (7.5 µg/m³) for NO_2 and 3 ppb (7.8 µg/m³) for SO_2 may be used (USEPA [2010c]; USEPA [2010d]). These values will be used in this analysis as interim SILs.

b. USEPA (2010e), p. 64891.

c. In January 2013, the D.C. Circuit Court of Appeals ruled that the $PM_{2.5}$ SILs could not be used as a definitive exemption from the requirements to perform $PM_{2.5}$ preconstruction monitoring or a $PM_{2.5}$ increments analysis or AQIA. However, USEPA's March 2013 interpretation of the Court's decision indicated that the SILs can be used as guidance.

Table F-3 (Revised December 4, 2015) Summary of Potential Health Risks				
Receptor	**Carcinogenic Risk (per million)**	**Cancer Burden**	**Acute Health Hazard Index**	**Chronic/8-hr Chronic Health Hazard Indices**
New Equipment Normal Operation (CTG/emergency engine) and Unit 3 and One MGS Boiler				
Maximally Exposed Individual (MEI) at PMI	~~1.2 × 10^{-6}~~[a] **1.3 × 10^{-6}**[a]	0[c]	~~1.6 × 10^{-2}~~ **1.3 × 10^{-2}**	~~2.1 × 10^{-4}/8.5 × 10^{-5}~~ **2.2 × 10^{-4}/8.8 × 10^{-5}**
Maximally Exposed Individual Resident (MEIR)	~~2.3 × 10^{-7}~~[a] **3.3 × 10^{-7}**[a]		~~6.1 × 10^{-3}~~ **6.2 × 10^{-3}**	~~8.9 × 10^{-5}/6.3 × 10^{-5}~~ **9.8 × 10^{-5}/6.4 × 10^{-5}**
Maximally Exposed Individual Worker (MEIW)	1.0 × 10^{-7}[b]		~~1.6 × 10^{-2}~~ **1.3 × 10^{-2}**	~~N/A[d]/8.5 × 10^{-5}~~ **N/A[d]/8.9 × 10^{-5}**
New CTG Startups/Shutdowns				
MEI (acute impact only)	N/A	N/A	~~2.1 × 10^{-2}~~ **2.4 × 10^{-2}**	N/A
New CTG Commissioning Period (includes impacts for existing MGS Units 1 through 3)				
MEI (acute impact only)	N/A	N/A	~~1.6 × 10^{-2}~~ **1.3 × 10^{-2}**	N/A
Significance Level	10	1.0	1.0	1.0

Notes:

a. Based on High Point Method, which results in the maximum cancer risk.
b. The worker is assumed to be exposed at the work location 8 hours per day, instead of 24; 245 days per year, instead of 365; and for 40 years, instead of 70.
c. Cancer burden is zero because offsite cancer risk above 1.0 per million only occurs in receptors located within existing transmission yard (a small area with no residential receptors).
d. Because of the exposure correction discussed in footnote b, a 70-year-based chronic health hazard index is not applicable to a worker.

ATTACHMENT 2

UPDATED ATC/DOC APPLICATION DETAILED EMISSION CALCULATIONS

Table B-1 (Revised December 4, 2015)
Puente Power Project
Performance Runs for Gas Turbine

Ambient Condition	Winter	Winter	ISO	ISO	Summer	Summer	Summer	Summer	Summer	Summer
Ambient Temperature (deg. F)	38.9	38.9	59	59	77.8	77.8	77.8	82	82	82
Relative Humidity, %	26%	26%	60%	60%	50%	50%	50%	31%	31%	31%
Load	Maximum	Minimum	Maximum	Minimum	Maximum	Maximum	Minimum	Maximum	Maximum	Minimum
Evap Cooling?	Off	Off	Off	Off	On	Off	Off	On	Off	Off
Output Summary										
Gross Output, MW	280	70	276	69	270	258	76	272	254	77
HHV Fuel Input, MMBtu/hr	2,572.07	1,080.07	2,552.16	1,057.38	2,507.74	2,417.99	1,093.67	2,521.81	2,384.57	1,101.53
Fuel Flow, scf/hr	2,523,252	1,059,268	2,502,903	1,037,111	2,459,944	2,371,766	1,072,608	2,473,510	2,337,851	1,080,295
Stack Parameters										
Stack Exhaust Flow, 1000s lb/hr	6,109.00	3,316.00	6,197.00	3,297.00	6,158.00	6,039.00	3,398.00	6,193.00	6,012.00	3,433.00
Stack Exhaust Temperature, Deg.F	900	900	900	900	900	900	900	900	900	900
Exhaust Composition, Vol %										
N2	75.50%	76.04%	74.94%	75.46%	74.31%	74.58%	75.02%	74.53%	74.93%	75.36%
O2	14.03%	15.57%	14.04%	15.50%	13.95%	14.11%	15.38%	14.00%	14.26%	15.48%
CO2	3.19%	2.48%	3.12%	2.44%	3.07%	3.02%	2.44%	3.07%	3.01%	2.44%
H2O	6.38%	4.99%	7.00%	5.69%	7.77%	7.39%	6.27%	7.50%	6.91%	5.82%
Ar	0.91%	0.91%	0.91%	0.90%	0.89%	0.89%	0.89%	0.89%	0.89%	0.91%
Molecular Weight	28.56	28.64	28.48	28.56	28.39	28.43	28.5	28.42	28.48	28.55
Stack Exhaust Flow, 1000s ACFM	3,530.67	1,922.03	3,587.69	1,915.87	3,576.29	3,485.05	1,977.90	3,592.25	3,482.77	1,995.01
Stack Emission Rates										
NOx, ppmvd@15% O2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
CO, ppmvd@15% O2	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
ROC as CH4, ppmvd@15% O2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
NH3, ppmvd@15% O2	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Particulates, lb/hr	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1
NOx, lb/hr	23.1	9.7	22.9	9.5	22.5	21.7	9.8	22.6	21.4	9.9
CO, lb/hr	22.5	9.4	22.3	9.2	21.9	21.2	9.5	22.1	20.9	9.6
ROC as CH4, lb/hr	6.4	2.7	6.4	2.6	6.3	6.1	2.7	6.3	6.0	2.8
NH3 Slip, lb/hr	17.1	7.2	17.0	7.0	16.7	16.1	7.3	16.8	15.9	7.3

Table B-2 (Revised December 4, 2015)
Puente Power Project
Gas Turbine Hourly Emissions - Startup/Shutdown Emissions

Gas Turbine - Hourly Startup Emissions											
	Time (minutes)	NOx Emissions (lbs/hr)	CO Emissions (lbs/hr)	ROC Emissions (lbs/hr)	PM10 Emissions (lbs/hr)	SOx Emissions (lbs/hr)	NOx Emissions (lbs)	CO Emissions (lbs)	ROC Emissions (lbs)	PM10 Emissions (lbs)	SOx Emissions (lbs)
Maximum Startup Emissions	30	N/A	N/A	N/A	N/A	5.4	87.0	167.0	17.0	3.7	2.7
Maximum Normal Operation Emissions	30	23.1	22.5	6.4	10.1	5.4	11.6	11.3	3.2	5.1	2.7
Total =	60						98.6	178.3	20.2	8.8	5.4

Gas Turbine - Hourly Shutdown Emissions											
	Time (minutes)	NOx Emissions (lbs/hr)	CO Emissions (lbs/hr)	ROC Emissions (lbs/hr)	PM10 Emissions (lbs/hr)	SOx Emissions (lbs/hr)	NOx Emissions (lbs)	CO Emissions (lbs)	ROC Emissions (lbs)	PM10 Emissions (lbs)	SOx Emissions (lbs)
Maximum Shutdown Emissions	12	N/A	N/A	N/A	N/A	5.4	4.0	145.0	25.0	1.5	1.1
Maximum Normal Operation Emissions	48	23.1	22.5	6.4	10.1	5.4	18.5	18.0	5.2	8.1	4.3
Total =	60						22.5	163.0	30.2	9.6	5.4

Gas Turbine - Hourly Startup/Shutdown/Restart Emissions											
	Time (minutes)	NOx Emissions (lbs/hr)	CO Emissions (lbs/hr)	ROC Emissions (lbs/hr)	PM10 Emissions (lbs/hr)	SOx Emissions (lbs/hr)	NOx Emissions (lbs)	CO Emissions (lbs)	ROC Emissions (lbs)	PM10 Emissions (lbs)	SOx Emissions (lbs)
Maximum Startup Emissions	30	N/A	N/A	N/A	N/A	5.4	87.0	167.0	17.0	3.7	2.7
Maximum Shutdown Emissions	12	N/A	N/A	N/A	N/A	5.4	4.0	145.0	25.0	1.5	1.1
Maximum Restart Emissions*	18	N/A	N/A	N/A	N/A	5.4	52.2	100.2	10.2	2.2	1.6
Total =	60						143.2	412.2	52.2	7.4	5.4

Note: * Calculated based on maximum startup emissions reduced for 18 minute period.

TABLE B-3

GE 7HA.01 SIMPLE CYCLE CTG

OPERATION EMISSIONS

(Revised December 4, 2015)

October 28, 2015

To: NRG Puente Power Team

Subject: NRG Puente Power
GE IPS: 976085
GE PM10 Emission Guarantee

The NRG Puente Power Plant, will utilize the 7HA.01 gas turbine technology installed in a simple cycle configuration equipped with an air attemperated simple cycle SCR and CO catalyst. For this installation, GE is offering a Particulate Matter emission guarantee of 10.1 lbs/hr as measured at the emission sampling ports located at the turbine stack exit. This guarantee shall apply for the entire load range from minimum emission compliant load (MECL) through base load operation and across the guarantee ambient temperature range of 38.9 to 82 deg F.

Regards,

Andrew Dicke
GE Power and Water
Emissions and Permitting Application Engineer

Table B-4 (Revised December 4, 2015)
Puente Power Project
Gas Turbine Commissioning Schedule

							Total Emissions						Calculated Hourly Emissions (lbs/hr)				
Day	Activity	Duration (hr)	GT Load (%)	No. of GT Shutdowns	Daily Fuel Consumption (MMSCF-HHV)	Daily Energy Production (MWh)	NOx (lbs)	CO (lbs)	ROC (lbs)	PM10 (lbs)	SOx (lbs)	SCR (Y/N)	Nox	CO	ROC	PM10*	SOx*
1	GT Testing (1st Fire, FSNL)	8	0	1	4.8	0.0	1076.5	15783.7	1312.9	85.2	9.9	N	134.6	1,973.0	164.1	10.1	5.4
2	GT Testing (FSNL, Excitation Test, Dummy Synch Checks)	8	0	1	4.8	0.0	1076.5	15783.7	1312.9	85.2	9.9	N	134.6	1,973.0	164.1	10.1	5.4
3	GT Testing / Initial 4 Hour Run / Overspeed Testing	8	0-50	1.0	13.9	1,091.3	1560.2	6163.1	544.6	86.9	28.5	N	195.0	770.4	68.1	10.1	5.4
4	Base Load Run-In Lean-Lean for Strainer Cleaniliness	10	100	1.0	27.6	2,750.0	2443.7	830.2	107.8	111.2	56.6	N	244.4	83.0	10.8	10.1	5.4
5	GT Testing / DLN Tuning	8	0-50	1.0	13.9	1,091.3	1560.2	6163.1	544.6	86.9	28.5	N	195.0	770.4	68.1	10.1	5.4
6	GT Testing / DLN Tuning	8	0-50	1.0	13.9	1,091.3	1560.2	6163.1	544.6	86.9	28.5	N	195.0	770.4	68.1	10.1	5.4
7	GT Testing / DLN Tuning	8	50-75	1.0	18.3	1,652.2	1174.0	498.5	58.0	88.3	37.4	N	146.8	62.3	7.3	10.1	5.4
8	GT Testing / DLN Tuning	8	50-75	1.0	18.3	1,652.2	1174.0	498.5	58.0	88.3	37.4	N	146.8	62.3	7.3	10.1	5.4
9	GT Testing / DLN Tuning	8	75-100	1.0	22.4	2,214.8	1970.8	726.5	94.6	90.0	45.9	N	246.3	90.8	11.8	10.1	5.4
10	GT Testing / DLN Tuning	8	75-100	1.0	22.4	2,214.8	1970.8	726.5	94.6	90.0	45.9	N	246.3	90.8	11.8	10.1	5.4
11	No Operation	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N					
12	Load Catalyst	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N					
13	Load Catalyst	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N					
14	Load Catalyst	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N					
15	Load Catalyst	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N					
16	GT Base Load / Commissioning of Ammonia system	16	50-100	1.0	43.3	4,355.6	457.4	680.5	147.3	174.8	88.7	Y	28.6	42.5	9.2	10.1	5.4
17	GT Load Test	12	100	1.0	32.9	3,285.2	362.8	588.4	121.0	132.4	67.3	Y	30.2	49.0	10.1	10.1	5.4
18	No Operation	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Y					
19	Install Emissions Test Equipment	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Y					
20	Emissions Tuning / Drift Test	12	50-100	1.0	32.9	3,285.2	362.8	588.4	121.0	132.4	67.3	Y	30.2	49.0	10.1	10.1	5.4
21	Emissions Tuning / Drift Test	12	50-100	1.0	32.9	3,285.2	362.8	588.4	121.0	132.4	67.3	Y	30.2	49.0	10.1	10.1	5.4
22	Pre-performance Testing / Drift Test	16	100	1.0	43.3	4,355.6	457.4	680.5	147.3	174.8	88.7	Y	28.6	42.5	9.2	10.1	5.4
23	Pre-performance Testing / Drift Test	16	100	1.0	43.5	4,386.6	469.4	616.5	140.3	174.8	89.2	Y	29.3	38.5	8.8	10.1	5.4
24	Pre-performance Testing / Drift Test	16	100	1.0	43.5	4,386.6	469.4	616.5	140.3	174.8	89.2	Y	29.3	38.5	8.8	10.1	5.4
25	RATA / Pre-performance Testing / Source Testing	16	100	1.0	43.3	4,355.6	457.4	680.5	147.3	174.8	88.7	Y	28.6	42.5	9.2	10.1	5.4
26	RATA / Pre-performance Testing / Source Testing	16	100	1.0	43.5	4,386.6	469.4	616.5	140.3	174.8	89.2	Y	29.3	38.5	8.8	10.1	5.4
27	Pre-performance Testing / Source Testing	16	100	1.0	43.5	4,386.6	469.4	616.5	140.3	174.8	89.2	Y	29.3	38.5	8.8	10.1	5.4
28	Pre-performance Testing / Source Testing	16	50-100	1.0	43.5	4,386.6	469.4	616.5	140.3	174.8	89.2	Y	29.3	38.5	8.8	10.1	5.4
29	Remove Emissions Test Equipment	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Y					
30	Torque Exhaust Bolts & Remove A179 Strainers	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Y					
31	Torque Exhaust Bolts & Remove A179 Strainers	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Y					
32	Torque Exhaust Bolts & Remove A179 Strainers	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Y					
33	Water Wash & Performance preparation	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Y					
34	Water Wash & Performance preparation	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Y					
35	Water Wash & Performance preparation	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Y					
36	Performance/Reliability Testing	24	100	0.0	64.4	6,525.3	654.5	655.7	167.9	258.1	131.8	Y	27.3	27.3	7.0	10.1	5.4
37	Performance/Reliability Testing	24	100	1.0	62.7	6,424.3	571.5	697.7	182.9	255.9	128.3	Y	23.8	29.1	7.6	10.1	5.4
38	No Operation	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Y					
39	SCE 72 Hour Test - Day 1	24	50-100	0.0	64.4	6,525.3	654.5	655.7	167.9	258.1	131.8	Y	27.3	27.3	7.0	10.1	5.4
40	SCE 72 Hour Test - Day 2	24	50-100	0.0	62.6	6,422.3	567.5	552.7	157.9	254.4	128.2	Y	23.6	23.0	6.6	10.1	5.4
41	SCE 72 Hour Test - Day 3	24	50-100	1.0	62.7	6,424.3	571.5	697.7	182.9	255.9	128.3	Y	23.8	29.1	7.6	10.1	5.4
	Total GT operation hours =	366					23,393.9 11.7	63,485.9 31.7	7,038.4 3.5	3,976.9 2.0	1,890.8 0.9	max =	246.3	1,973.0	164.1	10.1	5.4

Table B-8 (Revised December 4, 2015)
Puente Power Project
Hourly Emissions

Hourly Mass Emission Rates, lbs/hr (Commissioning Period)						
	NOx	CO	ROC	PM10	SOx	NH3(1)
New GT Normal Operation	23.11	22.51	6.45	10.10	5.41	17.12
New GT Startups	98.56	178.26	20.22	8.75	5.41	17.12
New GT Shutdowns	22.49	163.01	30.16	9.58	5.41	17.12
New GT Startup/Shutdown/Restart	143.20	412.20	52.20	7.42	5.41	17.12
New GT Commissioning	246.35	1972.96	164.12	10.10	5.41	17.12
New GT Maximum =	246.35	1972.96	164.12	10.10	5.41	17.12
New Emergency Generator Engine	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A
New Natural Gas Compressor	N/A	N/A	0.01	N/A	N/A	N/A
Existing Unit 3(3)	1104.41	276.10	18.07	48.53	1.43	
Existing Boiler (one unit)(3)	9.15	75.81	2.66	4.74	1.14	8.91
Total New Equipment =	**246.35**	**1972.96**	**164.13**	**10.10**	**5.41**	**17.12**
Total Emergency Engine =	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A
Total Entire Facility =	**1359.91**	**2324.87**	**184.85**	**63.37**	**7.98**	**26.03**

Hourly Mass Emission Rates, lbs/hr (Non-Commissioning Period)						
	NOx	CO	ROC	PM10	SOx	NH3(1)
New GT Normal Operation	23.11	22.51	6.45	10.10	5.41	17.12
New GT Startups	98.56	178.26	20.22	8.75	5.41	17.12
New GT Shutdowns	22.49	163.01	30.16	9.58	5.41	17.12
New GT Startup/Shutdown/Restart	143.20	412.20	52.20	7.42	5.41	17.12
New GT Maximum =	143.20	412.20	52.20	10.10	5.41	17.12
New Emergency Generator Engine	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A
New Natural Gas Compressor	N/A	N/A	0.01	N/A	N/A	N/A
Existing Unit 3(3)	1104.41	276.10	18.07	48.53	1.43	
Existing Boiler (one unit)(3)	9.15	75.81	2.66	4.74	1.14	8.91
Total New Equipment =	**143.20**	**412.20**	**52.21**	**10.10**	**5.41**	**17.12**
Total Emergency Engine =	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A
Total Entire Facility =	1256.76	764.11	72.94	63.37	7.98	26.03

Notes:
(1) Set startup/shutdown hourly emission rate to 100% load normal emission level to determine worst case hourly emissions for AQ modeling purposes.
(2) Emergency engine will not be operated during commissioning testing of new gas turbine and/or during startups/shutdowns of new gas turbine.
(3) Based on hourly emission limits in Title V permit for this unit.

Table B-9 (Revised December 4, 2015)
Puente Power Project
Daily Emissions

Daily Emission Rates, lbs/day (Commissioning Period)													
	Operating	Hourly Emission Rate (lbs/hr)						Daily Emissions (lbs/day)					
	Hours	NOx	CO	ROC	PM10	SOx	NH3	NOx	CO	ROC	PM10	SOx	NH3
New GT Normal Operation	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 GT Startups	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 GT Shutdowns	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 GT Commissioning	various	various	various	various	various	various	various	2,443.7	15,783.7	1,312.9	258.1	129.9	411.0
New GT Total =								**2,443.7**	**15,783.7**	**1,312.9**	**258.1**	**129.9**	**411.0**
New Emergency Generator Engine	0	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 Natural Gas Compressor	24									0.3			
Existing Unit 3(2)	10	1104.41	276.10	18.07	48.53	1.43	0.00	11044.1	2761.0	180.7	485.3	14.3	0.0
Existing Boiler (one unit)(3)	24	9.15	75.81	2.66	4.74	1.14	8.91	219.6	1819.4	63.7	113.8	27.2	213.8
Total New Equipment =								**2,443.7**	**15,783.7**	**1,313.2**	**258.1**	**129.9**	**411.0**
Total Emergency Engine =								N/A	N/A	N/A	N/A	N/A	N/A
Total Entire Facility =								**13,707.4**	**20,364.1**	**1,557.6**	**857.2**	**171.5**	**624.8**

Daily Emission Rates, lbs/day (Non-Commissioning Period)													
	Operating	Hourly Emission Rate (lbs/hr)						Daily Emissions (lbs/day)					
	Hours	NOx	CO	ROC	PM10	SOx(1)	NH3(1)	NOx	CO	ROC	PM10	SOx	NH3
New GT Normal Operation	16	23.11	22.51	6.45	10.10	5.41	17.12	369.8	360.2	103.1	161.6	86.6	274.0
New GT Startups	4	98.56	178.26	20.22	8.75	5.41	17.12	394.2	713.0	80.9	35.0	21.7	68.5
New GT Shutdowns	4	22.49	163.01	30.16	9.58	5.41	17.12	90.0	652.0	120.6	38.3	21.7	68.5
New GT Total =								**853.9**	**1725.2**	**304.7**	**234.9**	**129.9**	**411.0**
New Emergency Generator Engine	1	0.86	4.48	0.24	0.04	0.01		0.9	4.5	0.2	0.0	0.0	
New Natural Gas Compressor	24									0.3			
Existing Unit 3(2)	10	1104.41	276.10	18.07	48.53	1.43		11044.1	2761.0	180.7	485.3	14.3	
Existing Boiler (one unit)(3)	24	9.15	75.81	2.66	4.74	1.14	8.91	219.6	1819.4	63.7	113.8	27.2	213.8
Total New Equipment =								**854.8**	**1,729.7**	**305.2**	**235.0**	**129.9**	**411.0**
Total Emergency Engine =								**0.9**	**4.5**	**0.2**	**0.0**	**0.0**	
Total Entire Facility =								**12,118.5**	**6,310.1**	**549.6**	**834.0**	**171.5**	**624.8**

Notes:
(1) Set startup/shutdown hourly emission rate to 100% load normal emission level to determine worst case daily emissions for AQ modeling purposes.
(2) Based on maximum number of actual hours of operation per day during period from 2010 to 2014 and Title V hourly emission limits for this unit.
(3) Based on Title V hourly emission limits for this unit.

Table B-10 (Revised December 4, 2015)
Puente Power Project
Annual Emissions - Commissioning Year

	Hours per Year	NOx (lbs/hr)	CO (lbs/hr)	ROC (lbs/hr)	PM10 (lbs/hr)	SOx(1) (lbs/hr)	NH3(1) (lbs/hr)	NOx (lbs/year)	CO (lbs/year)	ROC (lbs/year)	PM10 (lbs/year)	SOx (lbs/year)	NH3 (lbs/year)
New GT Commissioning	366	various	various	various	various	various	17.12	23,394	63,486	7,038	3,977	1,891	6,267
New GT Start-Up	200	98.56	178.26	20.22	8.75	1.79	17.12	19,711	35,651	4,045	1,750	358	3,425
New GT Normal Operation	725	22.90	22.31	6.39	10.10	1.79	17.12	16,603	16,175	4,630	7,323	1,298	12,414
New GT Shutdown	200	22.49	163.01	30.16	9.58	1.79	17.12	4,498	32,602	6,031	1,916	358	3,425
New GT Total =	**1,491**							**64,205**	**147,913**	**21,744**	**14,965**	**3,905**	**25,531**
New Emergency Generator Engine	200	0.86	4.48	0.24	0.04	0.01	0.00	172	896	49	8	2	
New Natural Gas Compressor										96			
Existing Unit 3(2)								4,119	10,228	669	1,798	53	n/a
Existing Boiler (one unit)(2)								6,073	51,890	1,816	3,243	778	5,913
Total New Equipment Annual Emissions (lb/year) =								**64,377**	**148,810**	**21,889**	**14,973**	**3,907**	**25,531**
Total New Equipment Annual Emissions (tons/year) =								**32.2**	**74.4**	**10.9**	**7.5**	**2.0**	**12.8**
Total New Gas Turbine Annual Emissions (tons/year) =								**32.1**	**74.0**	**10.9**	**7.5**	**2.0**	**12.8**
Total New Emergency Engine Annual Emissions (tons/year) =								**0.1**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**
Total New Gas Compressor Annual Emissions (tons/year) =										**0.0**			
Total Entire Facility Annual Emissions (tons/year) =								**37.3**	**105.5**	**12.2**	**10.0**	**2.4**	**15.7**

Notes:

(1) Set hourly startup/shutdown emission rate to 100% load normal emission level to determine worst case annual emissions for AQ modeling purposes.

(2) Based on 2-year average of actual annual emissions during 2012 and 2013.

Table B-11 (Revised December 4, 2015)
Puente Power Project
Annual Emissions - Non-Commissioning Year

	Hours per Year	NOx (lbs/hr)	CO (lbs/hr)	ROC (lbs/hr)	PM10 (lbs/hr)	SOx(1) (lbs/hr)	NH3(1) (lbs/hr)	NOx (lbs/year)	CO (lbs/year)	ROC (lbs/year)	PM10 (lbs/year)	SOx (lbs/year)	NH3 (lbs/year)
New GT Start-Up	200	98.56	178.26	20.22	8.75	1.79	17.12	19,711	35,651	4,045	1,750	358	3,425
New GT Normal Operation	1,750	22.90	22.31	6.39	10.10	1.79	17.12	40,075	39,043	11,176	17,675	3,134	29,966
New GT Shutdown	200	22.49	163.01	30.16	9.58	1.79	17.12	4,498	32,602	6,031	1,916	358	3,425
New GT Total =	**2,150**							**64,284**	**107,295**	**21,251**	**21,341**	**3,850**	**36,815**
New Emergency Generator Engine	200	0.86	4.48	0.24	0.04	0.01		172	896	49	8	2	
New Natural Gas Compressor										96			
Existing Unit 3(2)								4,119	10,228	669	1,798	53	n/a
Existing Boiler (one unit)(2)								6,073	51,890	1,816	3,243	778	5,913
Total New Equipment Annual Emissions (lb/year) =								**64,455**	**108,192**	**21,396**	**21,349**	**3,852**	**36,815**
Total New Equipment Annual Emissions (tons/year) =								**32.2**	**54.1**	**10.7**	**10.7**	**1.9**	**18.4**
Total New Gas Turbine Annual Emissions (tons/year) =								**32.1**	**53.6**	**10.6**	**10.7**	**1.9**	**18.4**
Total New Emergency Engine Annual Emissions (tons/year) =								**0.1**	**0.4**	**0.0**	**0.0**	**0.0**	
Total New Gas Compressor Annual Emissions (tons/year) =										**0.0**			
Total Entire Facility Annual Emissions (tons/year) =								**37.3**	**85.2**	**11.9**	**13.2**	**2.3**	**21.4**

Notes:

(1) Set hourly startup/shutdown emission rate to 100% load normal emission level to determine worst case annual emissions for AQ modeling purposes.

(2) Based on 2-year average of actual annual emissions during 2012 and 2013.

Table B-12 (Revised December 4, 2015)
Puente Power Project
Hourly Emissions for Existing Units 1-3

Device	Unit 1	Unit 2	Unit 3 Gas Turbine
Fuel	Natural Gas	Natural Gas	Natural Gas
Maximum Power Rating (MW)	215	215	130
Maximum Heat Input (MMBtu/hr)	1990	1990	2510
Natural Gas F-factor (dscf/MMBtu)	8710	8710	8710
Natural Gas F-factor (wscf/MMBtu)	10610	10610	10610
Reference O2	3.0%	3.0%	15.0%
Actual O2	8.0%	6.6%	16.9%
Exhaust Temperature (F)	194	181	712
Exhaust Rate (dscfm @ ref. O2)	337,298	337,298	1,290,729
Exhaust Rate (wacfm @ actual O2)	705,090	623,512	5,122,144

	Emission Factors					
Pollutant	NOx (lb/MMscf)	CO (lb/MMscf)	ROC (lb/MMscf)	PM10 (lb/MMscf)	SOx (lb/MMscf)	NH3 (lb/MMscf)
Unit 1[1]	3.42	40.00	1.40	2.50	0.60	--
Unit 2[1]	4.68	40.00	1.40	2.50	0.60	--
Unit 3 Gas Turbine[2]	462.00	115.50	7.56	20.30	0.60	n/a

	Hourly Emissions[3]					
Unit	NOx (lbs/hr)	CO (lbs/hr)	ROC (lbs/hr)	PM10 (lbs/hr)	SOx (lbs/hr)	NH3 (lbs/hr)[4]
Unit 1	6.68	75.81	2.66	4.74	1.14	8.91
Unit 2	9.15	75.81	2.66	4.74	1.14	8.91
Unit 3 Gas Turbine	1104.41	276.10	18.07	48.53	1.43	n/a

Notes:
1. For NOx , based on a 2-Year average of CEMS data 2012 to 2013. CO, ROC, Sox, PM10 emission factors based on VCAPCD inventory factors.
2. Nox, CO, ROC, Sox, and PM10 emissions factors based on VCAPCD inventory factors.
3. Hourly emissions based on emission factors and maximum hourly heat input.
4. NH3 emissions based on Title V emission limits.

Table B-14 (Revised December 4, 2015)
Puente Power Project
Net Emission Changes For PSD Applicability Purposes
Based on Representative 2-year Average during Past 5 Years

	Emissions (tons/year)					
	NOx Emissions	CO Emissions	ROC Emissions	PM10 Emissions	PM2.5 Emissions	SOx Emissions
Emissions New Equipment =	32.2	54.1	10.7	10.7	10.7	1.9
Emission Reductions Shutdown one MGS Boiler[1] =	1.9	22.0	0.8	1.4	1.4	0.3
Net Emission Change =	30.3	32.1	9.9	9.3	9.3	1.6
Major Modification Thresholds[1] =	40	100	40	15	10	40
Major Modification?	no	no	no	no	no	no
Triggers PSD?	no	no	no	no	no	no

Notes:

1. Based on representative two-year average (2012 to 2013) emissions during the past 5-years (see 40 CFR 52.21.b.21.i).
2. Based on 40 CFR 52.21.b.2.i and 40 CFR 52.21.b.23.i.

Table B-15 (Revised December 4, 2015)
Puente Power Project
Net Emission Changes For NSR Applicability Purposes

	Emissions (tons/year)					
	NOx Emissions	CO Emissions	ROC Emissions	PM10 Emissions	PM2.5 Emissions	SOx Emissions
To Determine If Project is a Major Modification Under NSR Regulations						
Emissions New Equipment =	32.2	54.1	10.7	10.7	N/A	1.9
Emission Reductions Shutdown of one MGS Boiler	1.9	22.0	0.8	1.4	N/A	0.3
Net Emission Change =	30.3	32.1	9.9	9.3	N/A	1.6
Major Modification Thresholds[2] =	25	N/A	25	N/A	N/A	N/A
Major Modification?	Yes	N/A	No	N/A	N/A	N/A
To Determine ERC Requirements Under NSR Regulations (Using Replacement Emission Unit Approach)						
Emissions New GT =	32.1	53.6	10.6	10.7	N/A	1.9
Emission Reductions one MGS Boiler[3] =	1.9	322.2	11.6	20.8	N/A	5.0
Net Emission Change GT[4] =	30.3	-268.6	-1.0	-10.1	N/A	-3.1
Emissions New Emergency Generator Engine =	0.09	0.45	0.02	0.00	N/A	0.00
Emission Reductions Existing Generator Engine[5] =	0.00	0.12	0.01	0.00	N/A	0.00
Net Emission Change Engine[4] =	0.08	0.33	0.02	0.00	N/A	0.00
Facility-Wide Net Emission Change =	30.3	-268.2	-1.0	-10.1	N/A	-3.1
Is There An Emissions Increase?	Yes	N/A	No	No	N/A	No
ERC Requirement Triggered?	Yes	N/A	No	No	N/A	No
Offset Ratio[6] =	1.3	N/A	N/A	N/A	N/A	N/A
ERCs Required =	39.4	N/A	N/A	N/A	N/A	N/A
ERCs Controlled by Applicant =	52.7	N/A	N/A	N/A	N/A	N/A
Surplus/Shortfall =	-13.3	N/A	N/A	N/A	N/A	N/A

Notes:
1. Based on representative two-year average (2012 to 2013) emissions during the past 5-years.
2. Based on VCAPCD Rule 26.1.
3. For NOx, based on representative two-year average (2012 to 2013) emissions during the past 5-years. For CO, ROC, SOx, PM10 based on PTE levels using Title V permit annual emission limits with CO PTE corrected to a BACT level of 50 ppm @ 3% O2 (other pollutants meet current BACT levels).
4. VCAPCD Rule 26.6(D)(2) -for CO, SOx, and PM 10 emission increases for a replacement emissions unit calculated as the emissions unit's post-project potential to emit (adjusted to reflect current BACT) minus the emissions unit's pre-project potential to emit (adjusted to reflect current BACT). Because the project is a major modification for NOx, the NOx emission increase is calculated as the emissions unit's post-project potential to emit minus the unit pre-project actual emissions (per VCAPCD Rule 26.6(D)(7)(a)).
5. For NOx based on representative two-year average (2012 to 2013) emissions during the past 5-years. For CO, ROC, SOx, PM10 based on PTE corrected to current BACT levels assuming 200 hrs/year of operation (all types of operating including testing).
6. Per VCAPCD Rule 26.2(B)(2)(a).

Table B-16 (Revised December 4, 2015)
Puente Power Project
Greenhouse Gas Emissions Calculations

Unit	Total Number of Units	Per Unit Heat Input (MMBtu/hr)	Per Unit Gross Output (MW)	Operating Hours per year	Annual Fuel Use (MMBtu/yr)	Estimated Annual Gross MWh	Maximum Emissions, metric tonnes/yr				Facility-Wide Emissions, MT/yr CO2e	Facility-Wide Emissions, tons/yr CO2e	New GT CO2 MT/MWh	New GT CO2 lbs/MWh
							CO2	CH4	N2O	SF6				
New Gas Turbine	1	2,552	275.9	2,150	5,487,140	593,101	291,148	5	1	--				
New Emergency Generator Engine	1	4.9		200	976	n/a	72	0	0	--				
Existing Unit 3 Gas Turbine	1	2,510			90,144	n/a	4,783	0	0	--				
New circuit breakers	2	--		8760	0	n/a	--	--	--	4.2E-04				
Total =				--	5,578,260	593,101	296,003	6	1	4.2E-04				
CO2-Equivalent =							296,003	140	166	10	296,318	326,632	0.49	1,082

Fuel	Emission Factors, kg/MMBtu			Emission Factor
	CO2 (1)	CH4 (2)	N2O (2)	SF6 (4)
Natural Gas	*53.060*	*1.00E-03*	1.00E-04	n/a
Diesel Fuel	*73.960*	3.00E-03	6.00E-04	n/a
Global Warming Potential (3)	1	25	298	22,800

Notes:
1. 40 CFR 98, Table C-1 (revised 11/29/13).
2. 40 CFR 98, Table C-2 (revised 11/29/13).
3. 40 CFR 98, Table A-1 (revised 11/29/13).
4. Sulfur hexafluoride (SF6) will be used as an insulating medium in two circuit breakers. The SF6 contained in one of the circuit breakers is approximately 24 lbs and the remaining breaker will contain approximately 161 lbs. The IEC standard for SF6 leakage is less than 0.5%; the NEMA leakage standard for new circuit breakers is 0.1%. A maximum leakage rate of 0.5% per year is assumed.

Table B-17 (Revised December 4, 2015)
Puente Power Project
Nitrogen Emission Rates - New Equipment

New Gas Turbine		
NOx emission rate =	32.14	tpy
N/NO2 molecular weight ratio (14/46) =	0.304348	
N emission rate from NOx =	9.78	tpy
	0.28	g/s
NH3 emission rate =	18.41	tpy
N/NH3 molecular weight ratio (14/17) =	0.823529	
N emission rate from NH3 =	15.16	tpy
	0.44	g/s
Total N emission rate (N from NOx plus N from ammonia) =	24.94	tpy
Total N emission rate (N from NOx plus N from ammonia) =	0.72	g/s
Emergency Engine		
NOx emission rate =	0.09	tpy both units
N/NO2 molecular weight ratio (14/46) =	0.304348	
N emission rate from NOx =	0.03	tpy both units
	0.00	g/s both units
Total N emission rate for new GT, new/existing engines, existing Unit 3 (N from NOx plus N from ammonia) =	24.97	tpy

Table B-18 (Revised December 4, 2015)
Puente Power Project
Nitrogen Emission Rates - Existing Units 1 and 2

NOx emission rate for Units 1 and 2, 5-year avg. (tpy)=	3.21	tpy
NOx emission rate for Units 1 and 2, 10-year avg. (tpy)=	5.88	tpy
N/NO2 molecular weight ratio (14/46) =	0.304348	
N emission rate from NOx, 5-year avg. (tpy) =	0.98	tpy
N emission rate from NOx, 10-year avg. (tpy) =	1.79	tpy
NH3 emission rate for Units 1 and 2, 5-year avg. (tpy) =	3.72	tpy
NH3 emission rate for Units 1 and 2, 10-year avg. (tpy) =	6.56	tpy
N/NH3 molecular weight ratio (14/17) =	0.823529	
N emission rate from NH3, 5-year avg. (tpy) =	3.06	tpy
N emission rate from NH3, 10-year avg. (tpy) =	5.40	tpy
Total N emission rate for Units 1 and 2 (N from NOx plus N from ammonia), 5-yr avg. =	4.04	tpy
Total N emission rate for Units 1 and 2 (N from NOx plus N from ammonia), 10-yr avg. =	7.19	tpy

Table H-2 (Revised December 4, 2015)
Puente Power 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	38.9	188.0	57.30	22.0	6.71	3,530,670	1666.51	154.80	47.18	900.0	755.37
Winter/Minimum	38.9	188.0	57.30	22.0	6.71	1,922,025	907.21	84.27	25.69	900.0	755.37
ISO/Maximum	59.0	188.0	57.30	22.0	6.71	3,587,689	1693.42	157.30	47.95	900.0	755.37
ISO/Minimum	59.0	188.0	57.30	22.0	6.71	1,915,867	904.31	84.00	25.60	900.0	755.37
Summer Avg. Temp./Maximum w/cooling	77.8	188.0	57.30	22.0	6.71	3,576,286	1688.04	156.80	47.79	900.0	755.37
Summer Avg. Temp./Maximum w/o cooling	77.8	188.0	57.30	22.0	6.71	3,485,054	1644.98	152.80	46.57	900.0	755.37
Summer Avg. Temp./Minimum	77.8	188.0	57.30	22.0	6.71	1,977,905	933.59	86.72	26.43	900.0	755.37
Summer High Temp./Maximum w/cooling	82.0	188.0	57.30	22.0	6.71	3,592,251	1695.58	157.50	48.01	900.0	755.37
Summer High Temp./Maximum w/o cooling	82.0	188.0	57.30	22.0	6.71	3,482,773	1643.90	152.70	46.54	900.0	755.37
Summer High Temp./Minimum	82.0	188.0	57.30	22.0	6.71	1,995,011	941.66	87.47	26.66	900.0	755.37

	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	23.11	22.51	10.10	5.41		2.912	2.836	1.273	0.682		
Winter/Minimum	9.67	9.42	10.10	2.27		1.218	1.186	1.273	0.286		
ISO/Maximum	22.90	22.31	10.10	5.37		2.885	2.811	1.273	0.677		
ISO/Minimum	9.47	9.22	10.10	2.23		1.193	1.162	1.273	0.280		
Summer Avg. Temp./Maximum w/cooling	22.51	21.93	10.10	5.28		2.836	2.763	1.273	0.665		
Summer Avg. Temp./Maximum w/o cooling	21.71	21.15	10.10	5.09		2.735	2.665	1.273	0.641		
Summer Avg. Temp./Minimum	9.79	9.54	10.10	2.30		1.234	1.202	1.273	0.290		
Summer High Temp./Maximum w/cooling	22.64	22.06	10.10	5.31		2.853	2.780	1.273	0.669		
Summer High Temp./Maximum w/o cooling	21.40	20.85	10.10	5.02		2.696	2.627	1.273	0.632		
Summer High Temp./Minimum	9.87	9.61	10.10	2.32		1.243	1.211	1.273	0.292		

Table H-3 (Revised December 4, 2015)
Puente Power 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	1.620	0.380	1.578	0.202	0.391	0.037	0.069	0.022	0.005	0.010
Winter/Minimum	0.922	0.217	0.898	0.128	0.254	0.024	0.106	0.020	0.005	0.021
ISO/Maximum	1.588	0.373	1.547	0.197	0.387	0.036	0.068	0.022	0.005	0.010
ISO/Minimum	0.904	0.213	0.881	0.125	0.249	0.023	0.106	0.019	0.005	0.021
Summer Avg. Temp./Maximum w/cooling	1.564	0.367	1.523	0.194	0.380	0.036	0.068	0.021	0.005	0.010
Summer Avg. Temp./Maximum w/o cooling	1.536	0.360	1.497	0.192	0.369	0.035	0.070	0.021	0.005	0.010
Summer Avg. Temp./Minimum	0.919	0.216	0.895	0.128	0.255	0.024	0.103	0.019	0.005	0.020
Summer High Temp./Maximum w/cooling	1.569	0.368	1.529	0.194	0.382	0.036	0.068	0.021	0.005	0.010
Summer High Temp./Maximum w/o cooling	1.515	0.355	1.476	0.190	0.363	0.035	0.070	0.021	0.005	0.010
Summer High Temp./Minimum	0.921	0.217	0.898	0.128	0.256	0.024	0.102	0.019	0.005	0.020

Table H-4 (Revised December 4, 2015)
Puente Power Project
Emission Rates and Stack Parameters for Refined Modeling

						Emission Rates, g/s									Emission Rates, lb/hr			
	Stack Diam, m	Stack Height, m	Temp, deg K	Exhaust Flow, m3/s	Exhaust Velocity, m/s	NOx	SO2	CO	PM10	Stack Diam, ft	Stack Height, ft	Exh Temp, Deg F	Exh Flow Rate, ft3/m	Exhaust Velocity, ft/s	NOx	SO2	CO	PM10
Averaging Period: One hour NOx																		
New GT	6.7	57.3	755	1666.3	47.2	2.9119	n/a	n/a	n/a	22	188	900	3,530,670	155	23.11	n/a	n/a	n/a
New Generator Engine	0.2	21.3	957	1.5	82.4	0.1081	n/a	n/a	n/a	0.5	70	1263	3,185	270	0.86	n/a	n/a	n/a
Existing Unit 3 - Stack 1	3.9	16.5	651	604.3	50.0	34.7889	n/a	n/a	n/a	12.9	54	712	1,280,536	164	276.10	n/a	n/a	n/a
Existing Unit 3 - Stack 2	3.9	16.5	651	604.3	50.0	34.7889	n/a	n/a	n/a	12.9	54	712	1,280,536	164	276.10	n/a	n/a	n/a
Existing Unit 3 - Stack 3	3.9	16.5	651	604.3	50.0	34.7889	n/a	n/a	n/a	12.9	54	712	1,280,536	164	276.10	n/a	n/a	n/a
Existing Unit 3 - Stack 4	3.9	16.5	651	604.3	50.0	34.7889	n/a	n/a	n/a	12.9	54	712	1,280,536	164	276.10	n/a	n/a	n/a
Existing Boiler Stack - only one boiler operating	5.3	61.0	356	294.3	13.6	1.1530	n/a	n/a	n/a	17.3	200	181	623,512	44	9.15	n/a	n/a	n/a
Averaging Period: One hour CO and SOx																		
New GT	6.7	57.3	755	1666.3	47.2	n/a	0.6822	2.8363	n/a	22	188	900	3,530,670	155	n/a	5.41	22.51	n/a
New Generator Engine	0.2	21.3	957	1.5	82.4	n/a	0.0011	0.5648	n/a	0.5	70	1263	3,185	270	n/a	0.01	4.48	n/a
Existing Unit 3 - Stack 1	3.9	16.5	651	604.3	50.0	n/a	0.0450	8.6972	n/a	12.9	54	712	1,280,536	164	n/a	0.36	69.03	n/a
Existing Unit 3 - Stack 2	3.9	16.5	651	604.3	50.0	n/a	0.0450	8.6972	n/a	12.9	54	712	1,280,536	164	n/a	0.36	69.03	n/a
Existing Unit 3 - Stack 3	3.9	16.5	651	604.3	50.0	n/a	0.0450	8.6972	n/a	12.9	54	712	1,280,536	164	n/a	0.36	69.03	n/a
Existing Unit 3 - Stack 4	3.9	16.5	651	604.3	50.0	n/a	0.0450	8.6972	n/a	12.9	54	712	1,280,536	164	n/a	0.36	69.03	n/a
Existing Boiler Stack - only one boiler operating	5.3	61.0	356	294.3	13.6	n/a	0.1430	9.5521	n/a	17.3	200	181	623,512	44	n/a	1.14	75.81	n/a
Averaging Period: Three hours SOx																		
New GT	6.7	57.3	755	1666.3	47.2	n/a	0.6822	n/a	n/a	22	188	900	3,530,670	155	n/a	5.41	n/a	n/a
New Generator Engine	0.2	21.3	957	1.5	82.4	n/a	0.0004	n/a	n/a	0.5	70	1,263	3,185	270	n/a	2.81E-03	n/a	n/a
Existing Unit 3 - Stack 1	3.9	16.5	651	604.3	50.0	n/a	0.0450	n/a	n/a	12.9	54	712	1,280,536	164	n/a	0.36	n/a	n/a
Existing Unit 3 - Stack 2	3.9	16.5	651	604.3	50.0	n/a	0.0450	n/a	n/a	12.9	54	712	1,280,536	164	n/a	0.36	n/a	n/a
Existing Unit 3 - Stack 3	3.9	16.5	651	604.3	50.0	n/a	0.0450	n/a	n/a	12.9	54	712	1,280,536	164	n/a	0.36	n/a	n/a
Existing Unit 3 - Stack 4	3.9	16.5	651	604.3	50.0	n/a	0.0450	n/a	n/a	12.9	54	712	1,280,536	164	n/a	0.36	n/a	n/a
Existing Boiler Stack - only one boiler operating	5.3	61.0	356	294.3	13.6	n/a	0.1430	n/a	n/a	17.3	200	181	623,512	44	n/a	1.14	n/a	n/a

Table H-4 (Revised December 4, 2015)
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	6.7	57.3	755	1666.3	47.2	n/a	n/a	2.8363	n/a	22	188	900	3,530,670	155	n/a	n/a	22.51	n/a
New Generator Engine	0.2	21.3	957	1.5	82.4	n/a	n/a	0.0706	n/a	0.5	70	1,263	3,185	270	n/a	n/a	0.56	n/a
Existing Unit 3 - Stack 1	3.9	16.5	651	604.3	50.0	n/a	n/a	8.6972	n/a	12.9	54	712	1,280,536	164	n/a	n/a	69.03	n/a
Existing Unit 3 - Stack 2	3.9	16.5	651	604.3	50.0	n/a	n/a	8.6972	n/a	12.9	54	712	1,280,536	164	n/a	n/a	69.03	n/a
Existing Unit 3 - Stack 3	3.9	16.5	651	604.3	50.0	n/a	n/a	8.6972	n/a	12.9	54	712	1,280,536	164	n/a	n/a	69.03	n/a
Existing Unit 3 - Stack 4	3.9	16.5	651	604.3	50.0	n/a	n/a	8.6972	n/a	12.9	54	712	1,280,536	164	n/a	n/a	69.03	n/a
Existing Boiler Stack - only one boiler operating	5.3	61.0	356	294.3	13.6	n/a	n/a	9.5521	n/a	17.3	200	181	623,512	44	n/a	n/a	75.81	n/a
Averaging Period: 24-hour SOx																		
New GT	6.7	57.3	755	1666.3	47.2	n/a	0.6822	n/a	n/a	22	188	900	3,530,670	155	n/a	5.41	n/a	n/a
New Generator Engine	0.2	21.3	957	1.5	82.4	n/a	0.0000	n/a	n/a	0.5	70	1,263	3,185	270	n/a	3.51E-04	n/a	n/a
Existing Unit 3 - Stack 1	3.9	16.5	651	604.3	50.0	n/a	0.0188	n/a	n/a	12.9	54	712	1,280,536	164	n/a	0.15	n/a	n/a
Existing Unit 3 - Stack 2	3.9	16.5	651	604.3	50.0	n/a	0.0188	n/a	n/a	12.9	54	712	1,280,536	164	n/a	0.15	n/a	n/a
Existing Unit 3 - Stack 3	3.9	16.5	651	604.3	50.0	n/a	0.0188	n/a	n/a	12.9	54	712	1,280,536	164	n/a	0.15	n/a	n/a
Existing Unit 3 - Stack 4	3.9	16.5	651	604.3	50.0	n/a	0.0188	n/a	n/a	12.9	54	712	1,280,536	164	n/a	0.15	n/a	n/a
Existing Boiler Stack - only one boiler operating	5.3	61.0	356	294.3	13.6	n/a	0.1430	n/a	n/a	17.3	200	181	623,512	44	n/a	1.14	n/a	n/a
Averaging Period: 24-hour PM10																		
New GT	6.7	57.3	755	904.2	25.6	n/a	n/a	n/a	1.2726	22	188	900	1,915,867	84	n/a	n/a	n/a	10.10
New Generator Engine	0.2	21.3	957	1.5	82.4	n/a	n/a	n/a	0.0002	0.5	70	1,263	3,185	270	n/a	n/a	n/a	1.60E-03
Existing Unit 3 - Stack 1	3.9	16.5	651	604.3	50.0	n/a	n/a	n/a	0.6370	12.9	54	712	1,280,536	164	n/a	n/a	n/a	5.06
Existing Unit 3 - Stack 2	3.9	16.5	651	604.3	50.0	n/a	n/a	n/a	0.6370	12.9	54	712	1,280,536	164	n/a	n/a	n/a	5.06
Existing Unit 3 - Stack 3	3.9	16.5	651	604.3	50.0	n/a	n/a	n/a	0.6370	12.9	54	712	1,280,536	164	n/a	n/a	n/a	5.06
Existing Unit 3 - Stack 4	3.9	16.5	651	604.3	50.0	n/a	n/a	n/a	0.6370	12.9	54	712	1,280,536	164	n/a	n/a	n/a	5.06
Existing Boiler Stack - only one boiler operating	5.3	61.0	356	294.3	13.6	n/a	n/a	n/a	0.5972	17.3	200	181	623,512	44	n/a	n/a	n/a	4.74

Table H-4 (Revised December 4, 2015)
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	6.7	57.3	755	1666.3	47.2	0.9246	0.0554	n/a	n/a	22	188	900	3,530,670	155	7.34	0.44	n/a	n/a
New Generator Engine	0.2	21.3	957	1.5	82.4	0.0025	0.0000	n/a	n/a	0.5	70	1,263	3,185	270	0.02	1.92E-04	n/a	n/a
Existing Unit 3 - Stack 1	3.9	16.5	651	604.3	50.0	0.0148	0.0002	n/a	n/a	12.9	54	712	1,280,536	164	0.12	0.00	n/a	n/a
Existing Unit 3 - Stack 2	3.9	16.5	651	604.3	50.0	0.0148	0.0002	n/a	n/a	12.9	54	712	1,280,536	164	0.12	0.00	n/a	n/a
Existing Unit 3 - Stack 3	3.9	16.5	651	604.3	50.0	0.0148	0.0002	n/a	n/a	12.9	54	712	1,280,536	164	0.12	0.00	n/a	n/a
Existing Unit 3 - Stack 4	3.9	16.5	651	604.3	50.0	0.0148	0.0002	n/a	n/a	12.9	54	712	1,280,536	164	0.12	0.00	n/a	n/a
Existing Boiler Stack - only one boiler operating	5.3	61.0	356	294.3	13.6	0.0873	0.0112	n/a	n/a	17.3	200	181	623,512	44	0.69	0.09	n/a	n/a
Averaging Period: Annual PM10																		
New GT	6.7	57.3	755	904.2	25.6	n/a	n/a	n/a	0.3070	22	188	900	1,915,867	84	n/a	n/a	n/a	2.44
New Generator Engine	0.2	21.3	957	1.5	82.4	n/a	n/a	n/a	0.0001	0.5	70	1,263	3,185	270	n/a	n/a	n/a	8.77E-04
Existing Unit 3 - Stack 1	3.9	16.5	651	604.3	50.0	n/a	n/a	n/a	0.0065	12.9	54	712	1,280,536	164	n/a	n/a	n/a	0.05
Existing Unit 3 - Stack 2	3.9	16.5	651	604.3	50.0	n/a	n/a	n/a	0.0065	12.9	54	712	1,280,536	164	n/a	n/a	n/a	0.05
Existing Unit 3 - Stack 3	3.9	16.5	651	604.3	50.0	n/a	n/a	n/a	0.0065	12.9	54	712	1,280,536	164	n/a	n/a	n/a	0.05
Existing Unit 3 - Stack 4	3.9	16.5	651	604.3	50.0	n/a	n/a	n/a	0.0065	12.9	54	712	1,280,536	164	n/a	n/a	n/a	0.05
Existing Boiler Stack - only one boiler operating	5.3	61.0	356	294.3	13.6	n/a	n/a	n/a	0.0466	17.3	200	181	623,512	44	n/a	n/a	n/a	0.37

Table H-5 (Revised December 4, 2015)
Puente Power 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	188	22	1,915,867	904.31	84.00	25.60	900.00	755.37	143.20	412.20	18.04	51.94
Existing Unit 3 - Stack 1	54	12.9	1,280,536	604	164	50	712	651	276.10	69.03	34.79	8.70
Existing Unit 3 - Stack 2	54	12.9	1,280,536	604	164	50	712	651	276.10	69.03	34.79	8.70
Existing Unit 3 - Stack 3	54	12.9	1,280,536	604	164	50	712	651	276.10	69.03	34.79	8.70
Existing Unit 3 - Stack 4	54	12.9	1,280,536	604	164	50	712	651	276.10	69.03	34.79	8.70
Existing Boiler Stack - only one boiler operating	200	17.3	623,512	294	44	14	181	356	9.15	75.81	1.15	9.55

Table H-6 (Revised December 4, 2015)
Puente Power 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	188	22	1,915,867	904	84	26	900	755	246.35	1972.96	10.10	5.41	31.04	248.59	1.27	0.68
Existing Unit 1 - normal operation			705,090						6.68	75.81	4.74	1.14	0.84	9.55	0.60	0.14
Existing Unit 2 - normal operation			623,512						9.15	75.81	4.74	1.14	1.15	9.55	0.60	0.14
Existing Units 1 and 2 - combined stack =	200	17.25	1,328,602	627	95	29	181	356	15.83	151.62	9.48	2.27	1.99	19.10	1.19	0.29
Existing Unit 3 - Stack 1	54	12.9	1,280,536	604	164	50	712	651	276.10	69.03	5.06	0.36	34.79	8.70	0.64	0.05
Existing Unit 3 - Stack 2	54	12.9	1,280,536	604	164	50	712	651	276.10	69.03	5.06	0.36	34.79	8.70	0.64	0.05
Existing Unit 3 - Stack 3	54	12.9	1,280,536	604	164	50	712	651	276.10	69.03	5.06	0.36	34.79	8.70	0.64	0.05
Existing Unit 3 - Stack 4	54	12.9	1,280,536	604	164	50	712	651	276.10	69.03	5.06	0.36	34.79	8.70	0.64	0.05

Table D-1 (Revised December 4, 2015)
Puente Power Project
Non-Criteria Pollutant Emission Calculations New Gas Turbine (Hourly Emissions)

Pollutant	Uncontrolled Emission Factor (lbs/MMBtu)	Basis	Normal Oper. Controlled Emission Factor (lbs/MMBtu)	Worst Case Startup/Shutdown VOC Emiss. Vs. Normal Operation VOC Emiss.(4) (lbs/hr)/(lbs/hr)	Startup/Shutdown Emission Factor(4) (lbs/MMBtu)	Commissioning Emission Factor(5) (lbs/MMBtu)	New GT Max. Firing Rate (MMBtu/hr)	New GT Normal Oper. Emissions (lbs/hr)	New GT Startup/Shutdown Emissions (lbs/hr)	New GT Commissioning Emissions (lbs/hr)
Ammonia	6.66E-03	Permit Limit(3)	6.66E-03	8.10	6.66E-03	6.66E-03	2,572	1.71E+01	1.71E+01	1.71E+01
Propylene	7.56E-04	0.5*CATEF(2)	3.78E-04	8.10	3.06E-03	7.56E-04	2,572	9.72E-01	7.87E+00	1.94E+00
Hazardous Air Pollutants (HAPs) - Federal										
Acetaldehyde	4.00E-05	0.5*AP-42(1)	2.00E-05	8.10	1.62E-04	4.00E-05	2,572	5.14E-02	4.17E-01	1.03E-01
Acrolein	6.42E-06	0.5*AP-42(1)	3.21E-06	8.10	2.60E-05	6.42E-06	2,572	8.26E-03	6.69E-02	1.65E-02
Benzene	1.20E-05	0.5*AP-42(1)	5.99E-06	8.10	4.85E-05	1.20E-05	2,572	1.54E-02	1.25E-01	3.08E-02
1,3-Butadiene	4.30E-07	0.5*AP-42(1)	2.15E-07	8.10	1.74E-06	4.30E-07	2,572	5.53E-04	4.48E-03	1.11E-03
Ethylbenzene	3.20E-05	0.5*AP-42(1)	1.60E-05	8.10	1.30E-04	3.20E-05	2,572	4.12E-02	3.33E-01	8.23E-02
Formaldehyde	9.00E-04	0.5*CATEF(2)	4.50E-04	8.10	3.64E-03	9.00E-04	2,572	1.16E+00	9.37E+00	2.31E+00
Hexane, n-	2.54E-04	0.5*CATEF(2)	1.27E-04	8.10	1.03E-03	2.54E-04	2,572	3.27E-01	2.65E+00	6.53E-01
Naphthalene	1.31E-06	0.5*AP-42(1)	6.53E-07	8.10	5.29E-06	1.31E-06	2,572	1.68E-03	1.36E-02	3.36E-03
Total PAHs (listed individually below)	6.43E-07	SUM	3.22E-07	8.10	2.60E-06	6.43E-07	2,572	8.27E-04	6.70E-03	1.65E-03
Acenaphthene	1.86E-08	0.5*CATEF(2)	9.32E-09	8.10	7.55E-08	1.86E-08	2,572	2.40E-05	1.94E-04	4.79E-05
Acenapthyene	1.44E-08	0.5*CATEF(2)	7.21E-09	8.10	5.84E-08	1.44E-08	2,572	1.85E-05	1.50E-04	3.71E-05
Anthracene	3.32E-08	0.5*CATEF(2)	1.66E-08	8.10	1.34E-07	3.32E-08	2,572	4.27E-05	3.46E-04	8.54E-05
Benzo(a)anthracene	2.22E-08	0.5*CATEF(2)	1.11E-08	8.10	8.99E-08	2.22E-08	2,572	2.85E-05	2.31E-04	5.71E-05
Benzo(a)pyrene	1.36E-08	0.5*CATEF(2)	6.82E-09	8.10	5.52E-08	1.36E-08	2,572	1.75E-05	1.42E-04	3.51E-05
Benzo(e)pyrene	5.34E-10	0.5*CATEF(2)	2.67E-10	8.10	2.16E-09	5.34E-10	2,572	6.87E-07	5.56E-06	1.37E-06
Benzo(b)fluoranthrene	1.11E-08	0.5*CATEF(2)	5.54E-09	8.10	4.49E-08	1.11E-08	2,572	1.42E-05	1.15E-04	2.85E-05
Benzo(k)fluoranthrene	1.08E-08	0.5*CATEF(2)	5.40E-09	8.10	4.37E-08	1.08E-08	2,572	1.39E-05	1.12E-04	2.78E-05
Benzo(g,h,i)perylene	1.34E-08	0.5*CATEF(2)	6.72E-09	8.10	5.44E-08	1.34E-08	2,572	1.73E-05	1.40E-04	3.46E-05
Chrysene	2.48E-08	0.5*CATEF(2)	1.24E-08	8.10	1.00E-07	2.48E-08	2,572	3.19E-05	2.58E-04	6.38E-05
Dibenz(a,h)anthracene	2.30E-08	0.5*CATEF(2)	1.15E-08	8.10	9.31E-08	2.30E-08	2,572	2.96E-05	2.40E-04	5.92E-05
Fluoranthene	4.24E-08	0.5*CATEF(2)	2.12E-08	8.10	1.72E-07	4.24E-08	2,572	5.45E-05	4.42E-04	1.09E-04
Fluorene	5.70E-08	0.5*CATEF(2)	2.85E-08	8.10	2.31E-07	5.70E-08	2,572	7.33E-05	5.94E-04	1.47E-04
Indeno(1,2,3-cd)pyrene	2.30E-08	0.5*CATEF(2)	1.15E-08	8.10	9.31E-08	2.30E-08	2,572	2.96E-05	2.40E-04	5.92E-05
Phenanthrene	3.08E-07	0.5*CATEF(2)	1.54E-07	8.10	1.25E-06	3.08E-07	2,572	3.96E-04	3.21E-03	7.92E-04
Pyrene	2.72E-08	0.5*CATEF(2)	1.36E-08	8.10	1.10E-07	2.72E-08	2,572	3.50E-05	2.83E-04	7.00E-05
Propylene oxide	2.90E-05	0.5*AP-42(1)	1.45E-05	8.10	1.17E-04	2.90E-05	2,572	3.73E-02	3.02E-01	7.46E-02
Toluene	1.31E-04	0.5*AP-42(1)	6.53E-05	8.10	5.29E-04	1.31E-04	2,572	1.68E-01	1.36E+00	3.36E-01
Xylene	6.40E-05	0.5*AP-42(1)	3.20E-05	8.10	2.59E-04	6.40E-05	2,572	8.23E-02	6.67E-01	1.65E-01

Notes:
(1) AP-42, Table 3.1-3, 4/00.
(2) From CARB CATEF database (converted from lbs/MMscf to lbs/MMBtu based on site natural gas HHV).
(3) Based on 5 ppm ammonia slip from SCR system.
(4) Controlled emission factor adjusted upward based on VOC emission ratio - as required by SDAPCD for the Pio Pico Energy Center and the Amended Carlsbad Energy Center Project.
(5) Based on uncontrolled emission factors - as required by SDAPCD for the Pio Pico Energy Center and the Amended Carlsbad Energy Center Project.

Table D-2 (Revised December 4, 2015)
Puente Power Project
Non-Criteria Pollutant Emissions New Gas Turbine (Annual Emissions)

Pollutant	New Gas Turbine Normal Operating Hours (hrs/yr)	New Gas Turbine Startup/Shutdown Hours (hrs/yr)	New Gas Turbine Commissioning Hours (hrs/yr)	New Gas Turbine(1) Annual Emissions (tons/yr)	New Gas Turbine Annual Commissioning Emissions (tons/yr)
Ammonia	1,750	400	366	18.41	3.13
Propylene	1,750	400	366	2.43	0.36
Hazardous Air Pollutants (HAPs) - Federal					
Acetaldehyde	1,750	400	366	0.128	0.019
Acrolein	1,750	400	366	0.021	0.003
Benzene	1,750	400	366	0.038	0.006
1,3-Butadiene	1,750	400	366	0.001	0.000
Ethylbenzene	1,750	400	366	0.103	0.015
Formaldehyde	1,750	400	366	2.887	0.424
Hexane, n-	1,750	400	366	0.815	0.120
Naphthalene	1,750	400	366	0.004	0.001
Total PAHs (listed individually below)	1,750	400	366	0.002	0.000
Acenaphthene	1,750	400	366	0.000	0.000
Acenapthyene	1,750	400	366	0.000	0.000
Anthracene	1,750	400	366	0.000	0.000
Benzo(a)anthracene	1,750	400	366	0.000	0.000
Benzo(a)pyrene	1,750	400	366	0.000	0.000
Benzo(e)pyrene	1,750	400	366	0.000	0.000
Benzo(b)fluoranthrene	1,750	400	366	0.000	0.000
Benzo(k)fluoranthrene	1,750	400	366	0.000	0.000
Benzo(g,h,i)perylene	1,750	400	366	0.000	0.000
Chrysene	1,750	400	366	0.000	0.000
Dibenz(a,h)anthracene	1,750	400	366	0.000	0.000
Fluoranthene	1,750	400	366	0.000	0.000
Fluorene	1,750	400	366	0.000	0.000
Indeno(1,2,3-cd)pyrene	1,750	400	366	0.000	0.000
Phenanthrene	1,750	400	366	0.001	0.000
Pyrene	1,750	400	366	0.000	0.000
Propylene oxide	1,750	400	366	0.093	0.014
Toluene	1,750	400	366	0.419	0.061
Xylene	1,750	400	366	0.205	0.030
Total (HAPs) =				4.72	0.69
Total (All) =				25.55	4.18

Notes:
(1) Includes startup/shutdown emissions.

Table D-4 (Revised December 4, 2015)
Puente Power Project
Non-Criteria Pollutant Emission Factors
MGS Existing Units 1 - 3

Pollutant	Boiler Emission Factors(1) lb/MMscf	Unit 3 GT Emission Factors(2) lb/MMscf	Unit 1 Max Firing Rate MMBtu/hr	Unit 2 Max Firing Rate MMBtu/hr	Unit 3 GT Max Firing Rate MMBtu/hr
Ammonia (not a HAP)	4.56E+00	0.00E+00	1990	1990	2510
Propylene (Not a HAP)	1.55E-02	7.70E-01	1990	1990	2510
Propylene oxide		2.95E-02	1990	1990	2510
Benzene	1.70E-03	1.22E-02	1990	1990	2510
Formaldehyde	3.60E-03	9.16E-01	1990	1990	2510
Hexane	1.30E-03	2.59E-01	1990	1990	2510
Naphthalene	3.00E-04	1.33E-03	1990	1990	2510
Dichlorobenzene			1990	1990	2510
Toluene	7.80E-03	1.33E-01	1990	1990	2510
1,3-Butadiene		4.38E-04	1990	1990	2510
Acetaldehyde	9.00E-04	4.07E-02	1990	1990	2510
Acrolein	8.00E-04	6.54E-03	1990	1990	2510
Ethyl Benzene	2.00E-03	3.26E-02	1990	1990	2510
PAHs (other)	1.00E-04	6.55E-04	1990	1990	2510
Xylene	5.80E-03	6.52E-02	1990	1990	2510

Notes:
(1) All boiler factors except ammonia from Ventura County APCD AB2588 emission factors for natural gas external combustion (greater than 100 MMBtu/hr), May 17, 2001.
Ammonia based on Title V permit NH3 hourly emission limit.
(2) A combination of AP-42 (Table 3.1-3, 4/00) and CARB CATEF database emission factors.

Table D-5 (Revised December 4, 2015)
Puente Power Project
Non-Criteria Pollutant Hourly Emissions
MGS Existing Units 1 - 3

Pollutant	Unit 1 Emissions lb/hr	Unit 2 Emissions lb/hr	Unit 3 GT Emissions lb/hr
Ammonia (not a HAP)	8.91E+00	8.91E+00	0.00E+00
Propylene (Not a HAP)	3.04E-02	3.04E-02	1.90E+00
Propylene oxide	0.00E+00	0.00E+00	7.28E-02
Benzene	3.32E-03	3.32E-03	3.01E-02
Formaldehyde	7.04E-03	7.04E-03	2.26E+00
Hexane	2.54E-03	2.54E-03	6.38E-01
Naphthalene	5.86E-04	5.86E-04	3.28E-03
Dichlorobenzene	0.00E+00	0.00E+00	0.00E+00
Toluene	1.52E-02	1.52E-02	3.28E-01
1,3-Butadiene	0.00E+00	0.00E+00	1.08E-03
Acetaldehyde	1.76E-03	1.76E-03	1.00E-01
Acrolein	1.56E-03	1.56E-03	1.61E-02
Ethyl Benzene	3.91E-03	3.91E-03	8.03E-02
PAHs (other)	1.95E-04	1.95E-04	1.61E-03
Xylene	1.13E-02	1.13E-02	1.61E-01

Table D-6 (Revised December 4, 2015)
Puente Power Project
Non-Criteria Pollutant Annual Emissions (maximum 2-year avg. over past 5-years)
MGS Existing Units 1 - 3

Pollutant	Unit 1 Annual Avg Firing Rate MMscf/yr	Unit 2 Annual Avg Firing Rate MMscf/yr	Unit 3 GT Annual Avg Firing Rate MMscf/yr	Unit 1 Annual Emissions tons/yr	Unit 2 Annual Emissions tons/yr	Unit 3 GT Annual Emissions tons/yr	Subtotal tons/yr
Ammonia (not a HAP)	1,102	1,297	89	2.511	2.956	0.000	5.467
Propylene (Not a HAP)	1,102	1,297	89	0.009	0.010	0.034	0.053
Propylene oxide	1,102	1,297	89	0.000	0.000	0.001	0.001
Benzene	1,102	1,297	89	0.001	0.001	0.001	0.003
Formaldehyde	1,102	1,297	89	0.002	0.002	0.041	0.045
Hexane	1,102	1,297	89	0.001	0.001	0.011	0.013
Naphthalene	1,102	1,297	89	0.000	0.000	0.000	0.000
Dichlorobenzene	1,102	1,297	89	0.000	0.000	0.000	0.000
Toluene	1,102	1,297	89	0.004	0.005	0.006	0.015
1,3-Butadiene	1,102	1,297	89	0.000	0.000	0.000	0.000
Acetaldehyde	1,102	1,297	89	0.000	0.001	0.002	0.003
Acrolein	1,102	1,297	89	0.000	0.001	0.000	0.001
Ethyl Benzene	1,102	1,297	89	0.001	0.001	0.001	0.004
PAHs (other)	1,102	1,297	89	0.000	0.000	0.000	0.000
Xylene	1,102	1,297	89	0.003	0.004	0.003	0.010
						Total (HAPs) =	0.095
						Total (All) =	5.615

Table D-7 (Revised December 4, 2015)
Puente Power Project
Non-Criteria Pollutant Emissions New Gas Turbine (Modeling Inputs)

Pollutant	For Acute Modeling Hourly Normal Oper. Emission Rate (g/sec)	For Acute Modeling Hourly Startup/Shutdown Emission Rate (g/sec)	For Acute Modeling Hourly Commissioning Emission Rate (g/sec)	For Chronic/Cancer Risk Modeling Annual Normal Oper. Emission Rate(1) (g/sec)	For Chronic/Cancer Risk Modeling Annual Commissioning Emission Rate(1) (g/sec)
Ammonia	2.16E+00	2.16E+00	2.16E+00	5.30E-01	9.01E-02
Propylene	1.23E-01	9.92E-01	2.45E-01	6.98E-02	1.02E-02
Hazardous Air Pollutants (HAPs) - Federal					
Acetaldehyde	6.48E-03	5.25E-02	1.30E-02	3.69E-03	5.42E-04
Acrolein	1.04E-03	8.42E-03	2.08E-03	5.92E-04	8.69E-05
Benzene	1.94E-03	1.57E-02	3.88E-03	1.11E-03	1.62E-04
1,3-Butadiene	6.97E-05	5.64E-04	1.39E-04	3.97E-05	5.82E-06
Ethylbenzene	5.19E-03	4.20E-02	1.04E-02	2.95E-03	4.33E-04
Formaldehyde	1.46E-01	1.18E+00	2.92E-01	8.31E-02	1.22E-02
Hexane, n-	4.12E-02	3.33E-01	8.23E-02	2.34E-02	3.44E-03
Naphthalene	2.12E-04	1.71E-03	4.23E-04	1.21E-04	1.77E-05
Total PAHs (listed individually below)	1.04E-04	8.44E-04	2.08E-04	5.94E-05	8.71E-06
Acenaphthene	3.02E-06	2.45E-05	6.04E-06	1.72E-06	2.52E-07
Acenapthyene	2.34E-06	1.89E-05	4.67E-06	1.33E-06	1.95E-07
Anthracene	5.38E-06	4.36E-05	1.08E-05	3.06E-06	4.50E-07
Benzo(a)anthracene	3.60E-06	2.91E-05	7.19E-06	2.05E-06	3.01E-07
Benzo(a)pyrene	2.21E-06	1.79E-05	4.42E-06	1.26E-06	1.85E-07
Benzo(e)pyrene	8.65E-08	7.01E-07	1.73E-07	4.93E-08	7.23E-09
Benzo(b)fluoranthrene	1.80E-06	1.45E-05	3.59E-06	1.02E-06	1.50E-07
Benzo(k)fluoranthrene	1.75E-06	1.42E-05	3.50E-06	9.97E-07	1.46E-07
Benzo(g,h,i)perylene	2.18E-06	1.76E-05	4.36E-06	1.24E-06	1.82E-07
Chrysene	4.02E-06	3.25E-05	8.04E-06	2.29E-06	3.36E-07
Dibenz(a,h)anthracene	3.73E-06	3.02E-05	7.45E-06	2.12E-06	3.11E-07
Fluoranthene	6.87E-06	5.56E-05	1.37E-05	3.91E-06	5.74E-07
Fluorene	9.24E-06	7.48E-05	1.85E-05	5.26E-06	7.72E-07
Indeno(1,2,3-cd)pyrene	3.73E-06	3.02E-05	7.45E-06	2.12E-06	3.11E-07
Phenanthrene	4.99E-05	4.04E-04	9.98E-05	2.84E-05	4.17E-06
Pyrene	4.41E-06	3.57E-05	8.81E-06	2.51E-06	3.68E-07
Propylene oxide	4.70E-03	3.81E-02	9.40E-03	2.68E-03	3.93E-04
Toluene	2.12E-02	1.71E-01	4.23E-02	1.21E-02	1.77E-03
Xylene	1.04E-02	8.40E-02	2.07E-02	5.91E-03	8.67E-04

Notes:
(1) Includes startup/shutdown emissions.

Table D-8 (Revised December 4, 2015)
Puente Power Project
Non-Criteria Pollutant Modeling Inputs
MGS Existing Units 1 - 3

Pollutant	Unit 1 Hourly Emiss. (g/sec)	Unit 2 Hourly Emiss. (g/sec)	Unit 3 GT Hourly Emiss. (g/sec)	Unit 1 Annual Emiss. (g/sec)	Unit 2 Annual Emiss. (g/sec)	Unit 3 GT Annual Emiss. (g/sec)
Ammonia (not a HAP)	1.12E+00	1.12E+00	0.00E+00	7.22E-02	8.50E-02	0.00E+00
Propylene (Not a HAP)	3.83E-03	3.83E-03	2.39E-01	2.46E-04	2.90E-04	9.80E-04
Propylene oxide	0.00E+00	0.00E+00	9.17E-03	0.00E+00	0.00E+00	3.76E-05
Benzene	4.19E-04	4.19E-04	3.79E-03	2.69E-05	3.17E-05	1.55E-05
Formaldehyde	8.87E-04	8.87E-04	2.85E-01	5.70E-05	6.72E-05	1.17E-03
Hexane	3.20E-04	3.20E-04	8.03E-02	2.06E-05	2.43E-05	3.29E-04
Naphthalene	7.39E-05	7.39E-05	4.13E-04	4.75E-06	5.60E-06	1.69E-06
Dichlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	1.92E-03	1.92E-03	4.13E-02	1.24E-04	1.46E-04	1.69E-04
1,3-Butadiene	0.00E+00	0.00E+00	1.36E-04	0.00E+00	0.00E+00	5.58E-07
Acetaldehyde	2.22E-04	2.22E-04	1.27E-02	1.43E-05	1.68E-05	5.19E-05
Acrolein	1.97E-04	1.97E-04	2.03E-03	1.27E-05	1.49E-05	8.32E-06
Ethyl Benzene	4.93E-04	4.93E-04	1.01E-02	3.17E-05	3.73E-05	4.15E-05
PAHs (other)	2.46E-05	2.46E-05	2.03E-04	1.58E-06	1.87E-06	8.34E-07
Xylene	1.43E-03	1.43E-03	2.02E-02	9.19E-05	1.08E-04	8.30E-05