

EMISSION CALCULATIONS

Table B-1. PSD Applicability Evaluation

Pollutant	Emissions (tpy)				PSD Review Required? ¹
	Baseline Actual Emissions (BAE)	Projected Actual Emissions (PAE)	Net Emissions Increase (NEI)	PSD Significant Emission Rate (SER)	
NO _x	4.98	238	232.65	40	Yes
CO	1.35	117	116.04	100	Yes
VOC	-	2.78	2.78	40	No
SO ₂	0.02	1.55	1.53	40	No
PM	-	3.10	3.10	25	No
PM ₁₀	-	3.10	3.10	15	No
PM _{2.5}	-	3.10	3.10	10	No
CO ₂ e ²	1,310.0	54,299	52,989	75,000	No

¹ Ozone PSD Review is required if NO_x OR VOC exceed their respective SER

² GHG (CO₂e) SER according to 40 CFR 51.166(b)(48)

EMISSION CALCULATIONS

Table B-2a. Site-Wide Potential Emissions - Post Project

Pollutant	Estimated Potential Emissions (tpy)					Major Source Thresholds (tpy)		Major Source?	
	Turbine A-1, A-2, or A-3	Turbine A-1, A-2, or A-3	Emergency Generator	Fugitives	Total	Title V	PSD	Title V	PSD
NOx	180.68	180.68	1.11	-	362	100	250	Yes	Yes
CO	57.59	57.59	2.22	-	117	100	250	Yes	No
VOC	0.48	0.48	0.55	1.27	2.78	100	250	No	No
SO ₂	0.77	0.77	0.001	-	1.55	100	250	No	No
PM/PM ₁₀ /PM _{2.5}	1.50	1.50	0.09	-	3.10	100	250	No	No
Max HAP	0.16	0.16	0.07	0.10	0.16	10	-	No	No
Total HAPs	0.23	0.23	0.11	0.10	0.67	25	-	No	No
CO ₂ e	26,649	26,649	230	771	54,299	100,000	75,000	No	No

EMISSION CALCULATIONS

Table B-2b. Site-Wide Potential Emissions - Change

Pollutant	Estimated Potential Emissions (tpy)		
	Pre-Project	Post-Project	Change
NOx	361	362	1.11
CO	115	117	2.22
VOC	2.22	2.78	0.55
SO ₂	1.55	1.55	0.00
PM/PM ₁₀ /PM _{2.5}	3.00	3.10	0.09
Max HAP	0.16	0.16	0.00
Total HAPs	0.56	0.67	0.11
CO ₂ e	54,069	54,299	230

EMISSION CALCULATIONS

Table B-2c.i. Potential to Emit - Turbines - Unit Details

Unit	A-1, A-2, or A-3	
Make & Model	GE / M3002-RA	
Type	Natural Gas Fired Turbine	
Rating ¹	4,976	hp
BSFC	10,442	Btu/hp-hr
Heat Input	51.96	MMBtu/hr
Annual Operating Hours	8,760	hours

¹ Site horsepower at 80 deg F.

Table B-2c.ii. Potential to Emit - Turbines - Emissions - Criteria Pollutants

Pollutant	Emission Factor		Basis	Emission Rate	
	Value	Units		(lb/hr)	(tpy)
NO _x	41.25	lb/hr	2013 Air Permit Renewal Application	41.25	180.68
CO	13.15	lb/hr	2013 Air Permit Renewal Application	13.15	57.59
VOC	0.0021	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for stationary gas turbines	0.11	0.48
SO ₂	0.0034	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for stationary gas turbines	0.18	0.77
PM	0.0066	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for stationary gas turbines	0.34	1.50
PM ₁₀	0.0066	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for stationary gas turbines	0.34	1.50
PM _{2.5}	0.0066	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for stationary gas turbines	0.34	1.50

Table B-2c.iii. Potential to Emit - Turbines - Emissions - Hazardous Air Pollutants (HAPs)

Pollutant	Emission Factor		Basis	Emission Rate	
	Value	Units		(lb/hr)	(tpy)
1,3-Butadiene	4.30E-07	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for natural gas-fired stationary gas turbines	2.23E-05	9.79E-05
Acetaldehyde	4.00E-05	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for natural gas-fired stationary gas turbines	2.08E-03	9.10E-03
Acrolein	6.40E-06	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for natural gas-fired stationary gas turbines	3.33E-04	1.46E-03

EMISSION CALCULATIONS

Benzene	1.20E-05	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for natural gas-fired stationary gas turbines	6.24E-04	2.73E-03
Ethylbenzene	3.20E-05	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for natural gas-fired stationary gas turbines	1.66E-03	7.28E-03
Formaldehyde	7.10E-04	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for natural gas-fired stationary gas turbines	3.69E-02	1.62E-01
Naphthalene	1.30E-06	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for natural gas-fired stationary gas turbines	6.75E-05	2.96E-04
PAH	2.20E-06	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for natural gas-fired stationary gas turbines	1.14E-04	5.01E-04
Propylene Oxide	2.90E-05	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for natural gas-fired stationary gas turbines	1.51E-03	6.60E-03
Toluene	1.30E-04	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for natural gas-fired stationary gas turbines	6.75E-03	2.96E-02
Xylene	6.40E-05	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for natural gas-fired stationary gas turbines	3.33E-03	1.46E-02
			Max	0.04	0.16
			Total	0.05	0.23

EMISSION CALCULATIONS

Table B-2d.i. Potential to Emit - Emergency Generator - Unit Details

Unit	Aux-1	
Make & Model	TBD	
Type	Natural Gas Backup Generator	
Rating	750	kW
	1,006	hp
	7.86	MMBtu/hr
BSFC¹	7,053	Btu/hp-hr
	10,476	Btu/kW-hr
Annual Operating Hours²	500	hours

¹ Heat rate per site specific technical data report.

² Proposed annual hours of operation per EPA memorandum

"Calculating Potential to Emit (PTE) for Emergency Generators", John S. Seitz, September 6, 1995:

Table B-2d.ii. Potential to Emit - Emergency Generator - Emissions - Criteria Pollutants

Pollutant ¹	Emission Factor ^{2,3}	Unit	Emission Rate	
			(lb/hr)	(tpy)
NO _x	2.0	g/HP-hr	4.43	1.11
CO	4.0	g/HP-hr	8.87	2.22
VOC	1.00	g/HP-hr	2.22	0.55
SO ₂	5.88E-04	lb/MMBtu	0.0046	0.0012
PM	4.83E-02	lb/MMBtu	0.38	0.095
PM ₁₀	4.83E-02	lb/MMBtu	0.38	0.095
PM _{2.5}	4.83E-02	lb/MMBtu	0.38	0.095

¹ Assumes PM = PM₁₀ = PM_{2.5}

² Emission factors for NO_x, CO, and VOC per 40 CFR Part 60 Subpart JJJJ (*Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*) Table 1

³ Emission factors for SO₂ and PM/PM₁₀/PM_{2.5} per AP-42 Section 3.2 (*Natural Gas-fired Reciprocating Engines*), Table 3.2-1, Table 3.2-2, and Table 3.3-3. For AP-42 emission factor selection, the worst-case factor from either 2-stroke lean-burn engines, 4-stroke lean-burn engines, or 4-stroke rich-burn engines for each pollutant was selected.

Table B-2d.iii. Potential to Emit - Emergency Generator - Emissions - Hazardous Air Pollutants (HAPs)

Pollutant	Emission Factor ¹		Emission Rate	
	Value	Units	(lb/hr)	(tpy)
1,1,2,2-Tetrachloroethane	6.63E-05	lb/MMBtu	3.51E-04	8.77E-05
1,1,2-Trichloroethane	5.27E-05	lb/MMBtu	2.79E-04	6.97E-05
1,1-Dichloroethane	3.91E-05	lb/MMBtu	2.07E-04	5.17E-05
1,2-Dichloroethane	4.22E-05	lb/MMBtu	2.23E-04	5.58E-05
1,2-Dichloropropane	4.46E-05	lb/MMBtu	2.36E-04	5.90E-05
1,3-Butadiene	8.20E-04	lb/MMBtu	4.34E-03	1.08E-03
1,3-Dichloropropene	4.38E-05	lb/MMBtu	2.32E-04	5.79E-05
2,2,4-Trimethylpentane	8.46E-04	lb/MMBtu	4.48E-03	1.12E-03
Acetaldehyde	8.36E-03	lb/MMBtu	4.42E-02	1.11E-02
Acrolein	7.78E-03	lb/MMBtu	4.12E-02	1.03E-02
Benzene	1.94E-03	lb/MMBtu	1.03E-02	2.57E-03
Carbon Tetrachloride	6.07E-05	lb/MMBtu	3.21E-04	8.03E-05
Chlorobenzene	4.44E-05	lb/MMBtu	2.35E-04	5.87E-05
Chloroethane	1.87E-06	lb/MMBtu	9.89E-06	2.47E-06
Chloroform	4.71E-05	lb/MMBtu	2.49E-04	6.23E-05

EMISSION CALCULATIONS

Ethylbenzene	1.08E-04	lb/MMBtu	5.71E-04	1.43E-04
Ethylene Dibromide	7.34E-05	lb/MMBtu	3.88E-04	9.71E-05
Formaldehyde	5.52E-02	lb/MMBtu	2.92E-01	7.30E-02
Methanol	2.50E-03	lb/MMBtu	1.32E-02	3.31E-03
Methylene Chloride	1.47E-04	lb/MMBtu	7.78E-04	1.94E-04
Naphthalene	9.71E-05	lb/MMBtu	5.14E-04	1.28E-04
n-Hexane	1.11E-03	lb/MMBtu	5.87E-03	1.47E-03
PAH	1.34E-04	lb/MMBtu	7.09E-04	1.77E-04
Phenol	4.21E-05	lb/MMBtu	2.23E-04	5.57E-05
Styrene	5.48E-05	lb/MMBtu	2.90E-04	7.25E-05
Tetrachloroethane	2.48E-06	lb/MMBtu	1.31E-05	3.28E-06
Toluene	9.63E-04	lb/MMBtu	5.09E-03	1.27E-03
Vinyl Chloride	2.47E-05	lb/MMBtu	1.31E-04	3.27E-05
Xylenes	2.68E-04	lb/MMBtu	1.42E-03	3.54E-04
Max HAP			0.29	0.07
Total HAPs			0.43	0.11

³ Emission factors for HAPs per AP-42 Section 3.2 (*Natural Gas-fired Reciprocating Engines*), Table 3.2-1, Table 3.2-2, and Table 3.3-3. For AP-42 emission factor selection, the worst-case factor from either 2-stroke lean-burn engines, 4-stroke lean-burn engines, or 4-stroke rich-burn engines for each pollutant was selected.

EMISSION CALCULATIONS

Table B-2e. Potential to Emit - Fugitive Components - Emissions

Component	Component Count ¹	THC Emission Factor (lbs/hr-SRC) ²	Stream Content (wt%) ³				VOC Emissions		HAP Emissions		CH ₄ Emissions		CO ₂ Emissions		CO ₂ e ⁴ Emissions (tpy)
			VOC	HAP	CH ₄	CO ₂	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	
Valves	514	0.00992	4.00%	0.30%	97.00%	5.00%	0.20	0.89	0.015	0.067	4.95	21.66	0.25	1.12	542.74
Flanges	240	0.00086	4.00%	0.30%	97.00%	5.00%	0.0083	0.036	0.00062	0.0027	0.20	0.88	0.010	0.045	21.96
Connections	1,474	0.00044	4.00%	0.30%	97.00%	5.00%	0.026	0.11	0.0019	0.0085	0.63	2.76	0.032	0.14	69.17
Open-ended lines	28	0.00441	4.00%	0.30%	97.00%	5.00%	0.0049	0.022	0.00037	0.0016	0.12	0.52	0.0062	0.027	13.14
Others	60	0.01940	4.00%	0.30%	97.00%	5.00%	0.047	0.20	0.0035	0.015	1.13	4.95	0.058	0.25	123.89
Totals							0.29	1.27	0.022	0.10	7.03	30.77	0.36	1.59	770.91

¹ Component counts default values obtained from GRI-HAPCalc Version 3.01 for a "typical" compressor station, doubled as a conservative measure

The GRI HAP Calc Version 3.01 for a "typical" compressor station assumes six turbines and six reciprocating engines.

² THC emission factors from Table 2-4 of EPA-453/R-95-017, Protocol for Equipment Leak Emission Estimates (November, 1995).

The THC emissions factors were multiplied by the VOC weight percent and HAP weight percent to calculate VOC lb/hr and HAP lb/hr.

The THC emissions factors were multiplied by the CO₂ weight percent and CH₄ weight percent to calculate CO₂ lb/hr and CH₄ lb/hr.

³ Stream content calculated using the stream data contained in Table B-2g.

VOC content was estimated from gas analysis, and an additional safety margin was applied. VOC wt% was assumed to be 4% in calculation rather than as shown on Gas Analysis Spreadsheet.

HAP content was estimated from gas analysis, and an additional safety margin was applied. HAP wt% was assumed to be 0.3% in calculation rather than as shown on Gas Analysis Spreadsheet.

Methane content was estimated from gas analysis, and an additional safety margin was applied. Methane wt% was assumed to be 97% in calculation rather than as shown on Gas Analysis Spreadsheet.

CO₂ content was estimated from gas analysis, and an additional safety margin was applied. CO₂ wt% was assumed to be 5% in calculation rather than as shown on Gas Analysis Spreadsheet.

⁴ CO₂e is calculated using the GWPs in the Table B-2f.

EMISSION CALCULATIONS

Table B-2f. Potential to Emit - Greenhouse Gases

Unit Description	Hours of Operation (hr/yr)	Rating (hp)	BSFC (Btu/hp-hr)	Max Heat Rate (HHV) (MMBtu/hr)	Annual Heat Input (HHV) (MMBtu/yr)	GHG Emissions ¹						
						CO ₂		CH ₄		N ₂ O		CO ₂ e ²
						(kg/MMBtu)	(tpy)	(kg/MMBtu)	(tpy)	(kg/MMBtu)	(tpy)	(tpy)
Natural Gas Fired Turbine - GE / M3002-RA (A-1, A-2, or A-3)	8,760	4,976	10,442	51.96	455,164	53.06	26,621	1.00E-03	0.50	1.00E-04	0.050	26,649
4976 - Natural Gas Fired Turbine (GE / M3002-RA)	8,760	4,976	10,442	51.96	455,164	53.06	26,621	1.00E-03	0.50	1.00E-04	0.050	26,649
Emergency Generator	500			7.86	3,929	53.06	230	1.00E-03	0.00	1.00E-04	0.000	230
Fugitives							1.59		30.77			771
Total				111.78	914,257		53,474		31.78		0.10	54,299

¹ Emissions of CO₂ and CH₄ and N₂O per 40 CFR 98 Subpart C Tables C-1 and C-2.

² CO₂e based on multiplying CO₂ and CH₄ and N₂O by the Global Warming Potentials contained in 40 CFR 98 Subpart A as follows:

CO ₂	1
CH ₄	25
N ₂ O	298

EMISSION CALCULATIONS

Table B-2g. Potential to Emit - Gas Analysis

Component	VOC or HAP ?	Molecular Weight (lb/lb-mol)	Density ¹ (lb/scf)	Mole Percent (%)	Molecular Weight x Mole Percent (lb/lb-mol)	Weight Percent ² (%)	Weight of Component per Volume of Gas ³ (lb/scf)
Nitrogen	No	28.01	0.07	1.57%	0.44	2.63%	1.13E-03
Carbon Dioxide	No	44.01	0.11	0.11%	0.05	0.28%	1.20E-04
Methane	No	16.04	0.04	94.83%	15.21	90.67%	3.88E-02
Ethane	No	30.07	0.08	3.29%	0.99	5.89%	2.52E-03
Propane	VOC	44.10	0.11	0.18%	0.078	0.46%	1.99E-04
i-Butane	VOC	58.12	0.15	0.006%	0.0034	0.020%	8.75E-06
n-Butane	VOC	58.12	0.15	0.011%	0.0062	0.037%	1.58E-05
Pentane	VOC	72.15	0.18	0.0018%	0.0013	0.008%	3.31E-06
Hexane	VOC/HAP	86.18	0.22	0.0002%	0.0002	0.001%	4.40E-07
			Total	100%	16.78	100%	0.043

¹ Calculated using the Ideal Gas Law.

² Calculated as the individual component's (Molecular Weight x Mole Percent), divided by the total (Molecular Weight x Mole Percent).

³ Calculated as the density times the mole percent.

VOC Content	0.00023 lb/scf	0.53% VOC wt. %
HAP Content	0.00000 lb/scf	0.00% HAP wt. %
CO₂ Content	0.00012 lb/scf	0.28% CO ₂ wt. %
CH₄ Content	0.03883 lb/scf	90.67% CH ₄ wt. %

EMISSION CALCULATIONS

Table B-3a. Site-Wide Projected Actual Emissions - Post Project

Pollutant	Estimated Projected Actual Emissions (tpy)				Estimated Projected Actual Emissions (tpy)
	A-1, A-2, or A-3	A-1, A-2, or A-3	Emergency Generator ¹	Fugitives ¹	
NOx	118.26	118.26	1.11	-	238
CO	57.59	57.59	2.22	-	117
VOC ¹	0.48	0.48	0.55	1.27	2.78
SO ₂ ¹	0.77	0.77	0.0012	-	1.55
PM/PM ₁₀ /PM _{2.5} ¹	1.50	1.50	0.09	-	3.10
CO ₂ e ¹	26,649	26,649	230	771	54,299

¹ PAE conservatively assumed equal to PTE.

EMISSION CALCULATIONS

Table B-3b.i. Projected Actual Emissions - Turbines - Unit Details

Unit	A-1, A-2, or A-3	
Make & Model	GE / M3002-RA	
Type	Natural Gas Fired Turbine	
Rating ¹	4,976	hp
BSFC	10,442	Btu/hp-hr
Heat Input	51.96	MMBtu/hr
Annual Operating Hours	8,760	hours

¹ Site horsepower at 80 deg F.

Table B-3b.ii. Projected Actual Emissions - Turbines - Emissions - Criteria Pollutants

Pollutant	Emission Factor		Basis	Emission Rate	
	Value	Units		(lb/hr)	(tpy)
NO _x	27.00	lb/hr	Email from Weiwen Daly on October 31, 2019	27.00	118.26
CO	13.15	lb/hr	Source test data. Maximum measured CO emissions (lb/scf) with a 10% safety factor and maximum fuel rate (scfh) with a 10% safety factor.	13.15	57.59
VOC	0.0021	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for stationary gas turbines	0.11	0.48
SO ₂	0.0034	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for stationary gas turbines	0.18	0.77
PM	0.0066	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for stationary gas turbines	0.34	1.50
PM ₁₀	0.0066	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for stationary gas turbines	0.34	1.50
PM _{2.5}	0.0066	lb/MMBtu	AP-42 Section 3.1, dated April 2000, for stationary gas turbines	0.34	1.50

EMISSION CALCULATIONS

Table B-4a. Baseline Actual Emissions - Site-Wide

Year	Annual Emissions (tpy) ¹				Rolling 24-Month Average Emissions (tpy)			
	NOx	CO	SO ₂	GHG	NOx	CO	SO ₂	GHG
2010	2.21	0.79	0.01	848	-	-	-	-
2011	0.17	0.05	0.00	61	1.19	0.42	0.01	455
2012	5.76	1.35	0.02	1,310	2.97	0.70	0.01	686
2013	4.20	1.34	0.02	1,310	4.98	1.35	0.02	1,310
2014	0.00	0.00	0.00	0	2.10	0.67	0.01	655
2015	0.00	0.00	0.00	0	0.00	0.00	0.00	0
2016	0.00	0.00	0.00	0	0.00	0.00	0.00	0
2017	0.00	0.00	0.00	0	0.00	0.00	0.00	0
2018	0.00	0.00	0.00	0	0.00	0.00	0.00	0
2019	0.00	0.00	0.00	0	0.00	0.00	0.00	0
Representative 24-Month Average in Last 10 Years					4.98	1.35	0.02	1,310

¹ Pursuant to Table 3 of Air Quality Operating Permit #425, July 8, 2015.

Table D-1. Historic CO Source Test Data

Emission Unit ID	Test		Fuel Flow (scfh)	CO Emissions		Max CO Emissions (lb/hr)
	Date	Run		(lb/hr)	(lb/scf)	
A-1	2/1/2011	1	66,134	4.35	6.58E-05	
A-1	2/1/2011	2	66,134	4.49	6.79E-05	
A-1	2/1/2011	3	66,006	4.57	6.92E-05	
A-2	2/1/2011	1	53,208	8.71	1.64E-04	
A-2	2/1/2011	2	52,716	8.55	1.62E-04	
A-2	2/1/2011	3	52,469	8.62	1.64E-04	
A-3	2/1/2011	1	52,361	6.32	1.21E-04	
A-3	2/1/2011	2	51,484	7.02	1.36E-04	
A-3	2/1/2011	3	50,975	7.05	1.38E-04	
Maximum			66,134		1.64E-04	10.87
Maximum + 10% Safety Factor			72,747		1.81E-04	13.15

EMISSION CALCULATIONS

Table E-1a. Potential to Emit - SSM - Details

Emission Unit ID	Event	Volume Vented per Event¹ (Mscf/event)	Annual Events¹ (event/yr)	Annual Volume Vented (Mscf/yr)
A-1	Unit Blowdown	24	72	1,728
A-2	Unit Blowdown	24	72	1,728
A-3	Unit Blowdown	24	72	1,728
Station	Blowdown	289	6	1,733
Station	Pipeline Pigging	10	8	80
Total				6,997

¹ Facility estimates.

Table E-1b. Potential to Emit - SSM - Emissions

Pollutant	Content (lb/scf)	Emissions^{1,2} (tpy)
VOC	0.00023	0.80
HAP	0.00000	0.002
CO ₂	0.00012	0.42
CH ₄	0.03883	136
GHG	-	3,397

¹ The CO₂ and CH₄ emission factors are from Table B-2g (weight of component per volume of gas).

² GHG Tons = SSM CO₂ Emissions + (SSM CH₄ Emissions x GWP of 25)

EMISSION CALCULATIONS

Table B-REF. Gas Quality Report ¹

Stream	Tagname	Content (mole %)	Molecular Weight (lb/lbmol)	Weight in 100 Moles (lb)	Content (wt %)
1	C6Plus	0.0002%	86.18	0.02	0.001%
1	CO2	0.11%	44.01	4.71	0.28%
1	Ethane	3.29%	30.07	98.88	5.89%
1	IButane	0.006%	58.12	0.34	0.020%
1	IPentane	0.0010%	72.15	0.07	0.004%
1	Methane	94.83%	16.04	1,521.15	90.67%
1	NButane	0.011%	58.12	0.62	0.037%
1	NPentane	0.0008%	72.15	0.06	0.003%
1	Nitrogen	1.57%	28.01	44.11	2.63%
1	Propane	0.18%	44.10	7.80	0.46%
Totals		100%		1,677.76	100%

¹ Average of gas analyses performed 7/4/19 - 7/9/19 provided by Weiwen Daly, Kinder Morgan, via email on July 11, 2019.

Emission		Exhaust Height		Exhaust Diameter		Exhaust Velocity		Exhaust Temperature	
Model ID	Unit	(ft)	(m)	(ft)	(m)	(ft/sec)	(m/sec)	(deg F)	(deg K)
A1	GE M3002-RA	51	15.54	6	1.83	99.47	30.32	550	560.93
A2	GE M3002-RA	51	15.54	6	1.83	99.47	30.32	550	560.93
A3	GE M3002-RA	51	15.54	6	1.83	99.47	30.32	550	560.93
GENSET	Aux-1	8.27	2.52	2	0.61	37.2	11.34	996.8	809.15

Source		Significant Impact/NAAQS Analysis							PSD Increment	
		CO Emissions		NO ₂ Emissions					NO ₂ Emissions	
		Short-Term		Short-Term			Annual		Annual	
Model ID	Unit	(lb/hr)	(g/sec)	Calculated	Modeled	(g/sec)	(tpy)	(g/sec)	(lb/hr)	(tpy)
A1	Turbine A-1	13.15	1.66	41.25	41.25	5.20	180.68	5.20	TBD	TBD
A2	Turbine A-2	13.15	1.66	41.25	41.25	5.20	180.68	5.20	TBD	TBD
A3	Turbine A-3	13.15	1.66	41.25	41.25	5.20	180.68	5.20	TBD	TBD
GENSET	eGen Aux-1	8.87	1.12	4.43	0.25	0.03	1.11	0.03	TBD	TBD

1-hr Averaging Period Modeled Concentrations				
Model Year	A-1 & A-2	A-1 & A-3	A-2 & A-3	Max
2014-2019	381.090	381.088	381.088	A-1 & A-2

1-hr Averaging Period Modeled Concentrations				
Model Year	A-1 & A-2	A-1 & A-3	A-2 & A-3	Max
2014	375.13	375.13	375.14	A-2 & A-3
2015	381.090	381.088	381.088	A-1 & A-2
2016	353.849	353.848	353.848	A-1 & A-2
2017	376.107	376.105	376.104	A-1 & A-2
2018	380.1291	380.1285	380.1288	A-1 & A-2

8-hr Averaging Period Modeled Concentrations				
Model Year	A-1 & A-2	A-1 & A-3	A-2 & A-3	Max
2014	85.396	85.397	85.399	A-2 & A-3
2015	123.845	123.846	123.847	A-2 & A-3
2016	93.218	93.2186	93.2194	A-2 & A-3
2017	129.56784	129.5676	129.56779	A-1 & A-2
2018	99.850960	99.853200	99.855460	A-2 & A-3

Annual Averaging Period Modeled Concentrations				
Model Year	A-1 & A-2	A-1 & A-3	A-2 & A-3	Max
2014	10.6091	10.6085	10.60	A-1 & A-2
2015	9.1505	9.15	9.14	A-1 & A-2
2016	9.3302	9.329	9.32	A-1 & A-2
2017	10.9051	10.904	10.89	A-1 & A-2
2018	11.1165	11.1157	11.10	A-1 & A-2

Source	Model ID	UTM Location (m)		Distance to EPNG Vail (km)	NO _x Emission Rates (tpv)	Q/d	Source Modeled?	Exhaust Height (ft)	Exhaust Temp. (deg F)	Exhaust Velocity (fps)	Exhaust Diameter (ft)
		East	North								
Granite Construction - Swan Road	5	510,989	3,549,248	7.10	47.97	6.76	Yes	16	213	81.55	3.26
Los Reales Landfill	40	511,399	3,553,697	8.80	1.40	0.16	Yes	35.9	681.0	33.1	2.90
Vulcan Asphalt - Black Angus	7	524,405	3,555,491	10.04	86.00	8.57	Yes	TBD	215.0	TBD	2.73
Raytheon	33	506,879	3,550,929	11.49	8.41	0.73	Yes	27.1	182.0	32.4	1.40
Raytheon	26	505,775	3,551,791	12.80	7.38	0.58	Yes	27.1	182.0	32.4	1.40
Raytheon	25	505,669	3,551,946	12.95	2.40	0.19	Yes	27.1	182.0	32.4	1.40
Raytheon	21	505,603	3,551,782	12.96	1.70	0.13	Yes	27.1	182.0	32.4	1.40
Davis-Monthan AFB AZ	34	511,015	3,558,882	13.06	27.19	2.08	Yes	35.6	313.0	31.4	2.30
Raytheon	24	505,547	3,552,332	13.19	1.15	0.09	Yes	27.1	182.0	32.4	1.40
TEP IGS	1	509,448	3,557,910	13.20	-	-	Yes	160.0	628.7	95.1	7.40
TEP IGS	2	509,448	3,557,910	13.20	-	-	Yes	160.0	628.7	95.10	7.40
TEP IGS	3	509,448	3,557,910	13.20	-	-	Yes	160.0	576.6	84.61	9.10
TEP IGS	4	509,448	3,557,910	13.20	-	-	Yes	160.0	576.6	84.61	9.10
Raytheon	20	505,488	3,552,237	13.22	1.77	0.13	Yes	27.1	182.0	32.35	1.40
Raytheon	22	505,460	3,552,172	13.22	1.85	0.14	Yes	27.1	182.0	32.35	1.40
Raytheon	27	505,336	3,552,017	13.29	1.06	0.08	Yes	27.1	182.0	32.35	1.40
Raytheon	23	505,373	3,552,175	13.31	0.83	0.06	Yes	27.1	182.0	32.35	1.40
Raytheon	29	505,127	3,552,339	13.59	2.76	0.20	Yes	27.1	182.0	32.35	1.40
Raytheon	28	504,831	3,552,160	13.81	2.76	0.20	Yes	27.1	182.0	32.35	1.40
Raytheon	32	504,428	3,552,008	14.15	0.88	0.06	Yes	27.1	182.0	32.35	1.40
Raytheon	30	504,262	3,552,175	14.36	3.61	0.25	Yes	27.1	182.0	32.35	1.40
Raytheon	31	504,269	3,552,327	14.40	4.60	0.32	Yes	27.1	182.0	32.35	1.40
Learjet Inc - Tucson Facility	38	504,338	3,553,139	14.61	1.97	0.13	Yes	41.6	73.0	45.05	4.50
SFPP - LP - Tucson Terminal	35	508,458	3,560,297	15.68	4.36	0.28	Yes	30.3	151.0	6.85	1.30
University of Arizona	18	504,581	3,565,981	22.55	29.91	1.33	Yes	64.0	407.0	35.19	3.30
University of Arizona	19	504,849	3,567,169	23.37	19.72	0.84	Yes	64.0	407.0	35.19	3.30
ASARCO - Mission Complex	17	495,213	3,540,058	24.02	88.00	3.66	Yes	64.6	216.0	39.36	5.20
TEP - DeMoss Petrie Generating	39	500,738	3,568,397	26.83	1.57	0.06	Yes	85.5	565.0	67.33	9.30
Freeport-McMoRan Sierrita	16	490,110	3,526,678	34.95	134.73	3.86	Yes	64.6	216.0	39.36	5.20
Vulcan Materials - Orange Grove	9	494,697	3,576,562	36.97	14.78	0.40	Yes	13.0	215.0	54.76	3.35
Vulcan Materials - Marana	8	524,334	3,585,099	37.83	19.00	0.50	Yes	14.0	299.0	41.00	4.50
TEP - North Loop Generating	37	488,118	3,584,767	47.49	3.66	0.08	Yes	85.5	565.0	67.33	9.30
CalPortland Rillito Cement	11	485,771	3,585,944	49.89	1,131.23	22.67	Yes	161.7	309.0	69.063	7.2
CalPortland Rillito Cement	10	485,771	3,585,944	49.89	1,063.57	21.32	Yes	161.7	309.0	69.063	7.2
CalPortland Rillito Cement	12	485,771	3,585,944	49.89	7.00	0.14	Yes	25.9	296.0	54.858	2.8
CalPortland Rillito Cement	14	485,771	3,585,944	49.89	0.03	0.00	Yes	39.7	370.0	25.569	1.9
CalPortland Rillito Cement	13	485,771	3,585,944	49.89	0.01	0.00	Yes	39.7	370.0	25.569	1.9
Granite Construction - Tangerine	6	483,206	3,587,463	52.72	57.28	1.09	No	-	-	-	-
Marana Landfill	41	473,665	3,586,143	58.57	0.16	0.00	No	-	-	-	-

Pollutant	Averaging Period	Modeled Year	SIL Analysis			NAAQS Analysis ⁴				
			Maximum Modeled Concentration ¹ (µg/m ³)	Significant Impact Level ^{2,3} (SIL) (µg/m ³)	Concentration < SIL?	Maximum Modeled Concentration ² GLC _{max} (µg/m ³)	Background Concentration (µg/m ³)	Maximum Impact (Modeled Concentration + Background Concentration) (µg/m ³)	NAAQS (µg/m ³)	Concentration < NAAQS?
NO ₂ ³	1-Hour	2014-2018	38.00	7.5	No	67.14	70.20	137.34	188	Yes, Compliance Demonstration Complete
	Annual	2014	0.76	1	Yes, Compliance Demonstration Complete	--	--	--	100	--
		2015	0.65							
		2016	0.78							
		2017	0.73							
2018	0.68									
CO	1-Hour	2014	166.76	2,000	Yes, Compliance Demonstration Complete	--	--	--	40,000	--
		2015	169.63							
		2016	179.39							
		2017	177.62							
		2018	181.81							
	8-Hour	2014	99.65	500	Yes, Compliance Demonstration Complete	--	--	--	10,000	--
		2015	94.29							
		2016	82.79							
		2017	87.68							
2018	90.44									

¹ SIL Model Results are H1H for all pollutant and averaging period combinations

² Maximum model result for NO2 1-hour Full NAAQS is H8H value because NO2 1-hour NAAQS compliance is based on 98th percentile data.

³ There is no PSD Increment standard for NO2 1-hour

